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MINISTRY OF ENERGY AND MINES

MINISTRY OF THE ENVIRONMENT

N.B: Free translation of the English Version

**INTERMINISTERIAL ORDER N°12032/ 2000 ON REGULATION OF THE MINING
SECTOR AS FAR AS ENVIRONMENTAL PROTECTION IS CONCERNED**

THE MINISTER OF ENERGY AND MINES, AND
THE MINISTER OF THE ENVIRONMENT,

Considering the Constitution;

Considering the Law N°090-033 of December 21, 1990 relating to Environment Charter and its amendments;

Considering the Law N°99-022 of august 19, 1999 relating to the Mining Code;

Considering the Decree N°97-352 of April 10,1997 setting remits of the Minister of Energy and Mines and the general organisation of his Ministry;

Considering the Decree N° 98-394 of May 28,1998 relating to the definition of the mining policy;

Considering the Decree N° 98-522 of July 23, 1998 relating to the appointment of the Prime Minister, Head of Government;

Considering the Decree N° 98-530 of July 31, 1998 relating to the appointment of the Members of government;

Considering the Decree N°98-962 of November, 1998 setting remits of the Minister of the Environment and the general organisation of his Ministry;

Considering the Decree N°99-954 of December 15, 1999 relating to the compatibility of investments with the environment;

Considering the Decree N° 2000-170 of march 15, 2000 setting conditions of enforcement of the Law n° 99-022 of august 19, 1999 relating to the Mining Code;

DECREE:

TITLE I: GENERAL PROVISIONS

Article 1: This inter ministerial order specifies provisions on applicable regulation in the mining sector as far as environmental protection is concerned, to enforce provisions of the Decree N° 2000-170 of march 15, 2000 setting conditions of enforcement of the Law n° 99-022 of august 19, 1999 relating to the Mining Code and that of the Decree N°99-954 of December 15, 1999 relating to the compatibility of investments with the environment, to enforce article 10 of the Law N°90-033 of December 21, 1990 relating to the Malagasy Environment Charter.

Article 2: Holders of mining licenses or mining authorizations cannot carry out research or mining operations pursuant to their licenses or authorizations, without a prior environmental authorization relating to these operations and granted by the competent Authority as per provisions of this order, unless otherwise indication as below. Moreover, they are only authorized to carry out operations considered by the document of the environmental impact study or that of the environmental commitment plan on which the environmental Authorization is justified.

Article 3: In this inter ministerial order,

“ Environmental Authorization”: is the environmental license or Authorization issued by the competent administrative Authority after a favourable assessment of the environmental impact study or the environmental commitment plan, according to the case;

“Committee”: is the environmental committee for the mining sector within the Ministry of Mines;

“CIME”: stands for Inter ministerial Committee for the Environment which remits are defined by the decree N°97-823 of June 12, 1997 relating to the creation, organisation and functioning of the Inter ministerial Committee for the Environment;

“Mining Code” is the Law N°99-022 of august 19, 1999 relating to the Mining Code;

“CTE”: stands for Assessment Technical Committee ad hoc responsible for the assessment of the EIE file, provided by the MECIE decree;

“MECIE decree”: is the Decree N°99-954 of December 15, 1999 relating to the compatibility of investments with the environment;

“EIE”: stands for Environmental Impact Study consists of feasibility and scientific analysis of estimated potentials impacts of a given activity on the environment and the acceptability examination of their level and lightening measures that may ensure the environment integrity with the best available technology to a cost economically viable (articles 2 and 7 of the MECIE decree);

“ONE” stands for Environmental National Office, an operational coordination system to implement national environmental program, under the Ministry of the Environment trusteeship and which remits are defined in the Decree N°95-607 of September 10, 1995 the revision of the Decree N° 95-312 of April 25, 1995 relating to the creation and the organisation of the Environmental National Office (article 2 of the MECIE decree);

“PAE” stands for Environmental Adjustment Plan of operations pursuant to mining license in process of validity to august 30,1999, developed as per provisions Title VII of this order;

“PEE” stands for Environmental Commitment Plan required by the Mining Code for operations pursuant to R, PRE License or other mining authorizations that consists of the commitment of the holder or that of the property developer according to the case, to take some lightening measures of his mining activity impacts on the environment as well as rehabilitation measures of their establishment site which is the Environmental Commitment Program (“PREE” as defined in the MECIE decree);

“PEE-PRE” is the Environmental Commitment Plan for operations pursuant to PRE license provided by provisions of this order;

“PEE-RIM” is the Environmental Commitment Plan for operations pursuant to minimal impact research license provided by provisions of this order;

“PEE-RS” is the Environmental Commitment Plan for operations pursuant to standard R license provided by provisions of this order;

“E License” is the working license meant by the Mining Code;

“PRE License” is the research and mine working license reserved for small operator meant by the Mining Code;

“R License” is the research license meant by the Mining code;

“PGEP” stands for Environmental Management Plan of the Project that consists of the environmental specifications of the project and a program of implementation and follow-up measures considered by the EIE to cancel, reduce and eventually compensate damaging consequences of the project on the environment (article 2 of the MECIE decree);

“Environmental Discharge” is the administrative approval from which the competent Authority who granted the environmental Authorization has acknowledged the completion, legality and accuracy of rehabilitation works undertaken by the holder of the mining License or authorization, and free himself of an environmental responsibility towards the State as defined in the Mining Code and the MECIE decree (article 2 of the MECIE decree);

“Holder” is the natural person or legal entity on the name of whom the mining License or the mining authorization is worded;

“Reservation areas” are areas within which mining activity is banned, reserved or needs a prior authorization from the competent administrative Authority, according to provisions of the Mining Code;

“Sensitive areas” are areas defined by the regulation in force, in this case, from the date of this order, by the Inter ministerial Order N°4355/97 of May 13, 1997 relating to the definition and boundary of sensitive areas;

TITLE II: ADMINISTRATIVE COMPETENCES

Article 4: Administrative authorities competences as far as environmental protection is concerned in the mining sector are specified in this Title.

Chapter I: Competences of the Ministry of the Environment

Section I: Competences of the Minister of the Environment

Article 5: The Minister of the Environment decides on the grant or the refusal of an environmental Authorization for operations submitted to the EIE, on assessment technical verdict of the CTE.

Article 6: The Minister of the Environment fulfils as well other functions allotted to him by the MECIE decree concerning the PGEPs adjustment and the pronouncement of administrative sanctions against property developers or holders whose operations are submitted to the EIE, for failures to meet their obligations.

Article 7: The Minister of the Environment signs specific conventions established for eligible mining projects in cases provided by provisions of this order.

Article 8: The Minister of the Environment grants the environmental discharge to mining Licenses holders whose operations are submitted to the EIE and who have performed their environmental obligations.

Article 9: The Minister of the Environment fulfils moreover the following specified functions concerning the PEE.

Section II: Competences of the Ministry of the Environment

Article 10: The Ministry of the Environment presides over the CTE to assess applications for specific conventions, the EIE files and applications for environmental discharge relating to the mining operations submitted to the EIE.

Article 11: The Ministry of the Environment confirms jointly with the ONE and the Committee, and in association with the Decentralized Territorial Communities, the control and follow-up of PGEPs for mining operations submitted to the EIE, as per provisions of this order. In case of non-compliance with PGEP, the Ministry sends warning to the wrong investor.

Section III: Competences of the Environmental National Office

Article 12: The ONE ensures inter sectorial coherence and technical content as far as analysis, norms and efficiency of lightening and rehabilitation measures are concerned for the development and assessment of the EIE and PGEP. It particularly collaborates with the Committee for the development of technical directives to describe mining projects and the appropriate lightening and rehabilitation measures according to the type of mining operation. The ONE supports also technically the development of rules about the PEE as per provisions of this order.

Article 13: The ONE determines the eligibility of the applicant for specific convention on the assessment of an EIE relating to a mining project as per provisions of this order.

Article 14: The ONE participates to CTEs to assess applications for specific convention, the EIE files and applications for the environmental discharge for mining operations submitted to the EIE and ensures secretarial works. It fulfils also other functions allotted by the MECIE Decree concerning the EIEs assessment. The ONE ensures PGEPs' control and follow-up for mining operations submitted to the EIE jointly with the Ministry of the Environment and the Committee and in association with the Decentralized Territorial Communities, as per provisions of this order.

Chapter II: Competences of the Ministry of Mines

Section I: Competences of the Minister of Mines

Article 15: The Minister of Mines establishes reserved areas on conditions specified in articles 17 and 18 of the Mining Code, he authorizes works within protection areas provided by article 105 of the Mining code and specifies additional protection areas provided by article 106 of the Mining code, as per provisions of the aforesaid Code and its Decree of enforcement. He informs environmental authorities of these areas. Moreover, he pronounces administrative sanctions against offenders of these banned activities.

Article 16: The Minister of Mines decides on the approval or refusal of the PEE-RIM and PEE-RS from the verdict of the Committee or the assessment committee ad hoc according to the case. He issues R License and in some cases, PRE License to the holders, and environmental authorizations relating to operations submitted to the PEE as per provisions of this order.

Article 17: After examination as per provisions of this order, the Minister of Mines grants also to the R License holder who complies with his obligations pursuant to his PEE, the environmental discharge for research operations submitted to the PEE.

Article 18: The Minister of Mines can delegate the following enumerated powers.

Section II: Competences of the Environmental Committee

Article 19: In general, the Committee acts as an interface between mining operators and the Environmental Administration. The Committee answers all the operators' questions concerning the interpretation of applicable regulation of the mining sector as far as environmental protection is concerned, the assessment of their EIE or PEE, the control of their PGEP or PEE and procedures relating to the environmental discharge.

Article 20: Concerning mining operations submitted to the EIE, the Committee:

- Participates to the development of technical directives on description of the mining projects and the appropriate lightening and rehabilitation measures according to the type of mining operation;
- Is automatically member of the CTE for the assessment of applications for specific convention, the EIE files and applications for environmental discharge;
- Submits mining projects to the CTE for the assessment of applications for specific convention, the EIE files or applications for environmental discharge;
- Ensures the PGEP control and follow-up for mining operations jointly with the Ministry of the Environment and the ONE and in association with the Decentralised Territorial Communities as per provisions of this order.

Article 21: Concerning the mining operations submitted to the PEE, the Committee:

- Analyses and suggests possible revisions of the PEE models and directives under preparation or their development;
- Examines applications for PEEs approval;
- Ensures technical control and follow-up of the approved PEE; and
- Examines applications for the environmental discharge, as per provisions of this order.

Article 22: As far as PEE-PREs concern particularly, the Committee:

- Participates to the development of training and technical help programs as far as environmental protection is concerned for applicants or holders of PRE License or their representatives; and
- If necessary, helps applicants for PRE License to understand PEE-PREs

Section III: Competences of the Provincial Management of the Ministry of Mines

Article 23: The Provincial Manager of the Ministry of Mines decides on the grant or the refusal of the environmental Authorization for operations submitted to the PEE to the holders of PRE License on technical verdict of the Committee, except in cases specified in article 114.

Article 24: In case of non-compliance with PGEP and on technical verdict of the Committee, the Provincial Manager of the Ministry of Mines sends the offender a warning according to the modes of the MECIE Decree. In case of non-compliance with PEE and on verdict of the Committee, he sends the operator a warning according to the modes of this order.

Article 25: The Provincial Manager of the Ministry of Mines grants, on verdict of the Committee, the environmental discharge relating to operations submitted to the PEE, to the PRE License holder who has performed his commitments as far as environmental protection is concerned.

Article 26: The Mining Inspection integrates the control of PGEPs and PEEs of mining operations in his inspection works and draws up reports on it and forwards it to the CTE by means of the Committee, as per provisions of this order.

Section III: Competences of the Mining Land Registry

Article 27: The Mining Land Registry is responsible for the location of reservation areas on the land register map indicating their legal and geographical situation according to the provided data as per provisions of this order.

Article 28: The Mining Land Registry forwards to the ONE and to the Ministry of the Environment the list of reservation areas created pursuant to Mining Code and their legal and geographical data.

Article 29: The Mining Land Registry fulfils the role of single-counter system for the deposit of environmental studies and plans drawn up on the mining projects, and dispatches files towards the competent authorities. This office issues environmental authorizations to the mining Licenses holders.

TITLE III: EIEs PROCEDURES

Chapter I: Mining Operations submitted to the EIE

Article 30: To enforce provisions of the Decree of enforcement of the mining Code and that of the MECIE decree, the following mining operations are submitted to the development and assessment procedures of an EIE which are explained in the MECIE decree:

- (a) Mine working operations and treatment operations or related transformation operations, authorized by the E License;
- (b) Mechanized mining operations of fossils, authorized by the Minister of Mines to enforce article 229 of the Mining Code;
- (c) Mechanized mining operations of substances which lodgings are rare, authorized by the Mining Administration to enforce article 93 of the Mining code;
- (d) All mine working or mining operations in sensitive area;
- (e) Mining research activities pursuant to R License:
 - (i) In sensitive area, or
 - (ii) In case that PEE-RS assessment comes to a conclusion that these activities are submitted to the EIE; and
- (f) Research and mine working operations authorized by the PRE License on perimeter situated in concentration area of mining operations if it is specified, as per provisions explained below, that operations concentration may affect the environment.

Article 31: Operations indicated in (d), (e) and (f) of the previous article will be submitted to procedures of the MECIE Decree concerning EIEs according to provisions of the following articles of this chapter.

Article 32: The R License holder, who has subscribed to the PEE approved under its validity, can continue works considered by his PEE while waiting for the environmental Authorization based on the EIE that he has submitted for assessment and approval.

Article 33: A committee composed with representatives of the Ministry of Mines and the Ministry of the Environment specifies squares that are, in the sense of the Mining Code, situated entirely or partially within sensitive areas as defined in the Environment Charter and in the MECIE decree. The established list is adopted by circular of the Minister of Mines on verdict of the Minister of the Environment. The same procedure will be the same for a later revision of the list.

The Mining Land Registry mentions on the mine landing card squares that are on the list and will dispatch this information at the public's disposal.

Article 34: All application for license or mining authorization (including PRE License, authorization to mine fossils and an authorization to mine substances which lodgings are rare) on squares mentioned on the list provided by the previous article, should be enclosed with the relating EIE as per provisions of MECIE Decree and this order.

Article 35: The Ministry of Mines will specify research operations submitted to the EIE when the PEE-RS study, as per provisions of the below Title IV, Chapter IV, Section II, comes to a conclusion that the involved operations should be the subject of an EIE.

Article 36: The Ministry of Mines will specify research and mining operations pursuant to PRE License submitted to an EIE when the PEE-PRE study of a perimeter situated in concentration area of

mining operations, as per provisions of the below Title IV, Chapter IV, Section III, comes to the conclusion that the involved operations should be the subject of an EIE. In this case, the EIE should be carried out at the applicant for new PRE License own expenses.

Chapter II: Realization of the EIE

Section I: Generalities

Article 37: Property developers of mining projects submitted to an EIE should comply with conditions to carry out an EIE and to develop a PGEP explained in the MECIE decree and in directives taken for its enforcement and with the below outlined provisions.

Article 38: At the end of the mining operation, the objective of the establishment site rehabilitation of a mining operation submitted to the EIE is to make the place healthy and stable and to restore its capacity to allow other activity compatible with all kind of life and activity in the involved area.

Article 39: Some directives of the Ministry of the Environment, from joint proposal with the Minister of Mines and the ONE, after examination of the National Committee of Mines, specify, according to the type of mining operation (research, open cast mining, underground mining, with or without treatment plant, etc) and the site of its establishment (sensitive area or not), the project description and lightening and rehabilitation measures that are in the EIE and the PGEP contents. Lightening and rehabilitation measures are composed with measures that are economically viable aiming at:

- Ensuring security of the establishment site during and after the mining operation;
- Reducing the mining operation damageable effects on atmosphere and on springs or waterways in an acceptable level;
- Integrating mine and infrastructures of the site by appropriate developments to protect fauna and vegetation;
- Reducing erosion, leakage of water, acid, chemical products and hilly land caused by the mining operation and its damageable effects on the settlement of local fauna species;
- Improving the local people well being by implementing economic and social development programs and by predicting indemnity in case of movement from the place where they live.
- Reducing the operation damageable effects (choc, noise, dust, etc.) on human beings or animals activities that live in the vicinity before the mining operation establishment;
- Saving the parasites and undesirable plants introduction to the place where they haven't been there;
- Promoting rapid regeneration and renewal of plants species that are indigenous or compatibles with the ecosystem of the establishment zone.

Article 40: As per articles 99, 100 and 102 of the Mining Code, the EIE relating to a mining project should include as part of the PGEP:

- (a) A budget of lightening measures of the project environmental impact and the rehabilitation of the research and / or the mining site;
- (b) A financing plan of the lightening and rehabilitation budget, and
- (c) A proposal for management mechanism of the provision for the environmental rehabilitation, matched with financial security measures in favour of the State.

Article 41: The management mechanism of the provision for the environmental rehabilitation aimed at in the previous article can consist of crediting bank accounts in Madagascar with the necessary funds to finance rehabilitation works as per a reasonable refunding program, according to the following conditions:

- a. The holder can use funds in the account(s) only to finance the project environmental rehabilitation works;
- b. At any moment, the amount of the account(s) will reasonably be proportional to the financial needs to ensure the carrying out of the rehabilitation plan if it is necessary, considering the operations progress, their current impact on the environment, the holder current research program and his financial situation, considering if necessary his insurance policies for environmental responsibility; and
- c. There will be reliable controls to warrant at the same time that the holder can seize funds in the account(s) only for the environmental rehabilitation of the project site, and that the State, represented by the Minister of the Environment and that of Mines, working together, will be able to withdraw funds from the account in order to make rehabilitation works carried out by the third party in case of serious infringement or plain renunciation of the place by the holder.

Financial security requirements can be lightened or cancelled for holders who have already had an environmental management system accredited by an international accreditation organisation as provided for example in ISO 14000 series.

Article 42: The PGEP of the mining project should specify the modes of technical controls that the holder will carry out in order to check the efficiency of the realised lightening and rehabilitation measures.

A circular of the Ministry of the Environment, at the suggestion of the Ministry of Mines and on consultation with the ONE, specifies registers and reports that the holder has to maintain, receive or provide to the control and follow-up systems of his PGEP. It falls to the holder to inquire about the involved regulation and to comply with it.

Article 43: To implement provisions in article 30 of the MECIE decree, the EIE file of a mining project can include a suggestion of the terms of reference for the project environmental audit that will be carried out before the end of the project.

Section II: Specific conventions

Article 44: Mining projects that are eligible to specific conventions are those, which represent more than 250 billions Malagasy francs (250.000.000.000 FMG) of investment, on constant value compared with the Malagasy francs value on special drawing rights to November 1st, 1999.

Article 45: Eligible mining projects will be the subject of a specific convention that will fix:

- (a) The EIE terms of reference (TDR)
- (b) Terms of deposit of the property developer contribution to the EIE assessment expenses;
- (c) Modes and terms of the EIE environmental assessment in parallel to its realization; and
- (d) Modes to fix form and terms of the public participation to the EIE assessment.

Article 46: The application for specific convention on the EIE realization and assessment of a mining project is written and addressed to the Ministry of the Environment under the Committee consideration. The application is deposited with seven (7) copies to the Mining Land Registry that is competent to examine application for mining License and authorization relating to the EIE. To be admissible, the letter should be enclosed with the following documents:

- (a) All references allowing to know the property developer's calibre
- (b) The project description;
- (c) All necessary written proof to prove the project eligibility to a specific convention;

- (d) The proposal for Terms of reference (TDR) for the project EIE;
- (e) Proposal for terms of deposit of the property developer contribution to the EIE assessment expenses; and
- (f) Proposal for modes and terms of the EIE environmental assessment in parallel to its realization.

Article 47: From the receipt of the application for specific convention, the mining Land Registry examines if it is admissible. In case of non-admissibility, this office informs the property developer the missed documents, at the latest three working days following the receipt date of the application letter. This information is done by letter or handed directly to the applicant.

When the application is admissible, the mining Land Registry dispatches them as follows: one copy of the EIE is immediately forwarded to the Committee; the remaining application file for specific convention is transmitted as soon as possible to the ONE which acknowledged receipt of it. The ONE specifies within three (3) working days after the receipt of the application if the mining project is admissible for a specific convention according to criteria explained in article 44. In case that the project would be judged as non admissible to a specific convention, the ONE informs it to the property developer by letter sent within three (3) working days, with copy of it to the Committee. If, as answer of the aforesaid letter, the property developer provides additional information to make his application credible, the ONE examines his file again within three working days after the receipt of this information.

In case that the project is admissible for a specific convention, the ONE informs the Minister of the Environment of it, that constitutes the CTE for the EIE eventual file of the project within five working days following the receipt of the ONE verdict.

Article 48: The established CTE examines the application file for specific convention. If necessary, he can ask the property developer for all additional information. He convenes the property developer to agree with him on the specific convention terms. This procedure should be concluded within thirty days from the date of the act establishing the CTE. Once the CTE and the property developer agree themselves with the specific convention terms, the property developer will sign it.

The CTE forwards the specific convention signed by the property developer, with his favourable verdict to the Minister of the environment. The convention specifies that the property developer should make the first deposit of his contribution on his EIE assessment expenses within five (5) working days following the notification date, after the signature of the Minister. The signature of the specific convention by the Minister or his delegate should intervene within ten (10) working days after the receipt of the document from the CTE.

All refusal of a specific convention project by the Minister will be justified and will be the subject of a letter of recommendation sent to the property developer with copy of it to the CTE and the Committee. Such refusal opens to the property developer legal remedies provided in MECIE Decree in case of refusal to grant the environmental License.

From the signature of the specific convention, two original of documents signed by the Minister will be forwarded to the CTE which will forward one of them to the Committee to hand it to the property developer.

Article 49: Just as the property developer would make the first deposit provided by the specific convention within the deadline specified in the convention, the CTE takes the necessary provisions to implement the EIE environmental assessment measures relating to the involved project, as per provisions of the specific convention and the MECIE decree.

Chapter III: The EIE deposit

Article 50: To enforce provisions of articles 45, 93 and 229 of the Mining Code, and that of the MECIE decree, the applicant of a mining License or authorization for operations aimed at in (a), (b) and (c) of article 30 of this order, should deposit an application for the assessment of EIE file with his application for License / authorization to the competent Mining Land Registry for examination of his application for License / authorization, as an admissibility requirement. As per provisions in the MECIE Decree, the EIE application file should be composed of:

- A written application of the property developer addressed to the Ministry of the Environment;
- The EIE report with seven (7) copies;
- Payment receipt of the investor contribution to the environmental assessment expenses as per provisions of the MECIE decree;
- Of all written proof of the planned investment amount.

Article 51: The competent Mining Land Registry determines the admissibility of the application file for License/ authorization as per provisions of the decree of enforcement of the aforementioned Mining Code. This office determines at the same time if the application for the assessment of EIE file is complete and then admissible. In case of non-admissibility, the file is returned to the applicant with written notification of the missed documents within two working days after the deposit date.

Article 52: If applications for Licences /authorization and for assessment of the related EIE file are admissible, the competent Mining Land Registry dispatches them as follows: one copy of the EIE is immediately forwarded to the Committee; the remaining file and the application for the EIE assessment is forwarded as soon as possible to the ONE against an acknowledgement of receipt. The Mining Land Registry looks after the file expedition to the ONE by the most rapid and available means of transport at the applicant's own expenses.

The assessment deadlines of the EIE file specified in the MECIE decree starts to accrue from the receipt date of the application for the assessment of EIE file by the ONE. The acknowledgement of receipt attests it.

Article 53: In case provided in (d), (e) and (f) of article 30 of this order, the applicant informed that an EIE is required, should deposit his application for assessment of EIE file to the Mining Land Registry as per provisions of this chapter. The examination of his application for License/ authorization will be suspended until the deposit of the aforesaid application.

Chapter IV: Assessment and examination of the EIE file

Article 54: The holder has to comply with the modes of public consultation procedures specified in the MECIE Decree. These procedures will be completed as the need arises by the environmental and technical directives established by the Ministry of the Environment on the Ministry of Mines verdict.

Rights and obligations of holders concerning owners, holders of right of usufruct and landholders as defined in the Mining Code and its decree of enforcement are taken into account while deciding on the form of the public participation to the assessment of EIE relating to a mining project and the identification modes of the involved populations.

Article 55: The EIE assessment includes, among other things, the assessment of the budget and the financing plan of impacts lightening measures and the works site rehabilitation. To get approval, the financing plan should include financial security measures as per provisions in the above articles 40 and 41.

Article 56: The EIE assessment includes also an assessment of the terms of reference suggested by the property developer for the mining project environmental audit before the end of the project. If the CTE does not accept this suggestion, the property developer is invited to discuss with the CTE on the audit terms of references. During this discussion, the CTE should result in a viable agreement on the terms of references of the environmental audit, before forwarding the technical verdict of the EIE assessment to the Ministry of the Environment.

Terms of references of the environmental audit are annexed to the environmental License of the project.

Chapter V: Implementation of the PGEP

Article 57: The holder should implement the management mechanism of the provision for the environmental rehabilitation considered by his approved EIE, including financial security measures, as per the financing plan of lightening and rehabilitation measures, within sixty (60) days after the official notification of the approval of his EIE and his PGEP.

Article 58: Within ten (10) working days after the beginning of the implementation of the management mechanism and financial security measures provided in the previous article, the holder deposits a copy of the approved PGEP, with the copy of the established form according to the appendix A of this order on financial security, to the Provincial Management of the Ministry of Mines responsible for the project, under the Committee care. The Committee confirms the receipt of the approved PGEP copy to the competent Mining Land Registry. The approval and the deposit of the PGEP and the establishment of the provision account are borne by the Mining Land Registry on the involved mining licence.

Article 59: One copy of the environmental License and a summary of PGEP are registered against an acknowledgement of receipt by the holder, within fifteen (15) days after the granting date of the environmental License, to the involved town council.

Article 60: The holder who wants to alter his PGEP, including the budget and financing plan of lightening and rehabilitation measures as well as financial security measures without an alteration of the effective project scale, should deposit an alteration suggestion with all written proof to the Mining Land Registry according to the modes applicable to the original EIE, without the need of a new payment on the investor contribution to the environmental assessment expenses.

The alteration suggestion is examined by the established CTE for the project in accordance with the procedure applicable to the environmental assessment of the original EIE and within the same deadlines. As necessary, the CTE can ask the holder for additional information. A new public consultation is only required inasmuch as there is a physical or temporary extension of the project, or a change of the technology used.

The Minister of the Environment comes to a decision on the granting or not of the altered environmental License within fifteen working days from the receipt of the technical verdict of the CTE assessment.

The CTE can also ask the applicant to alter his PGEP in order to find a solution for his project damaging effects noticed during the PGEP control and follow-up works. In this case, the procedure to be followed to alter PGEP is the same as above.

Chapter VI: The PGEP Control and follow-up

Article 61: The Ministry of the Environment jointly with the Ministry of Mines represented by the Committee and the ONE ensure the PGEP control and follow-up works.

They can make second investigation by an expert if necessary.

Holders of mining License would not be obliged to pay provision for expenses entailed by the PGEP control and follow-up.

Article 62: For administrative efficiency's sake, the Mining Inspection of the Ministry of Mines service carries out PGEPs control and follow-up works during their inspection visits of mining operations submitted to the EIE. The Committee supports technically the preparation of these control works.

A report will be established from each inspection visit or each follow-up activity with five copies for: (a) the service responsible for Mining Inspection within the Ministry of Mines, (b) the Committee, (c) the ONE, (d) the Ministry of the Environment and (e) the holder whose project is the subject of the inspection or the follow-up activity.

The services jointly responsible for control and follow-up works aimed at in the previous article reserve the right to carry out PGEPs control visits if works carried out by the Mining inspection are not adequately carried out.

Chapter VII: The Environmental discharge

Article 63: To implement provisions of article 30 of the MECIE decree, all mining project submitted to an EIE and PGEP should be the subject of an environmental audit before the end of the project. This audit should comply in accordance either with the modes of implementation specified by regulation of the Ministry of the Environment or with terms of references annexed to the environmental License of the project, if the holder wants to get approval of the terms of references fitted to his project. The CTE and the operator can alter these terms of references with one accord.

For operations that are the subject of an EIE and PGEP, the environmental audit is optional before the mining license transfer.

Article 64: The audit should be carried out at the holder's own expenses by a consulting firm approved by the Minister of the Environment on the verdict of the ONE and the Ministry of Mines. The holder chooses and appoints the consulting firm, which will carry out the environmental audit.

Article 65: Four copies of the environmental audit report should be registered to the Mining Land Registry, which manages the mining License/authorization file. This office keeps one of the copies and forwards the other three respectively to the Committee, to the Ministry of the Environment and to the ONE.

If the auditor specifies that, certain additional measures should be carried out in order to ensure the conformity of the project establishment site with the rehabilitation objective specified in article 38 of this order, the holder should take the necessary and additional provisions and get favourable verdict of the auditor who governs the granting of the environmental discharge.

The holder, who has implemented his PGEP, needs not carried out additional works to make up for damaging effects of his activity, which is neither predicted nor foreseeable at the time of the approval of his PGEP. He should however rehabilitate or compensate his activities damaging effects that take place after the date specified on the official advance warning notifying the effects discovered during the implementation control and follow-up of his PGEP as provided in the above article 60.

Article 66: The environmental discharge of a project submitted to the EIE is only issued after acceptance by the Ministry of the Environment on favourable results of the project environmental audit.

Article 67: The application for environmental discharge is addressed to the CTE and registered four copies to the Mining Land Registry that manages the involved mining License/authorization file. This office forwards one copy respectively to the Ministry of the Environment, to the Committee and to the ONE. The CTE examines the application for discharge, assesses the environmental audit according to the modes specified by environmental directive and forwards a draft order relating to the project environmental discharge or a justified recommendation of the discharge refusal to the Minister of the Environment within thirty (30) days after the receipt of the environmental audit report.

Article 68: The decision of the Minister of the Environment is represented either by Order relating to the environmental discharge of the duly signed project, or by a sending of a justified letter of refusal within ten (10) working days after the receipt of the CTE recommendation based on the environmental audit report.

TITLE IV: PEEs PROCEDURES

Chapter I: Mining Operations submitted to the PEE

Article 69: To implement provisions of the decree of enforcement of the aforementioned mining Code and that of the MECIE decree and on condition to provisions of the above Chapter I, Title III, the following mining operations are submitted to the implementation of an approved PEE as per conditions outlined in this title:

- Authorized mining operations pursuant to R License until the decision, if necessary, that an EIE is required according to the procedure specified in this title;
- Scientific studies of in depth fossilized lodgings;
- Authorized mining operations pursuant to PRE outside sensitive areas, except operations within concentration areas of mining operations in cases determined according to the modes specified in this title;
- Non mechanized mining of substances which lodgings are rare;
- Non mechanized mining of fossil;
- Gold washing operations employing more than 20 persons within a radius of 500 metres;
- Projects of mining products stocking of combined capacity of more than 4000m³; and
- Projects of underground stocking combined of more than 100 m³.

Article 70: To enforce provisions of article 85 of the Mining Code, inter ministerial order initiated by the Minister of Mines specifies the modes of environmental protection measures enforceable to gold washing operations.

To enforce provisions of the appendix II of the MECIE decree, an inter ministerial order initiated by the Minister of the Environment specifies the modes of environmental protection measures enforceable to stocking operations cited in the previous article.

Chapter II: Realization of the PEE

Section I: The PEE relating to a Research Project

Article 71: The PEE relating to a research project consists of a PEE-RIM for operations limited to activities, which impact on the environment is considered as minimal and a PEE-RS for operations that exceed the eligibility limits for the PEE-RIM.

Article 72: "The PEE-RIM or PEE-RS relating to a research project is realized at the holder's own expenses by himself or by an experimented consulting firm that he has appointed.

Article 73: The Minister of Mines or his representative grants the Environmental Authorization for a research project submitted to the PEE on favourable verdict of the Committee or if necessary the assessment committee ad hoc.

This authorization is only applied to works considered by the approved PEE-RIM or the PEE-RS.

Article 74: An approval of an additional clause to the PEE should precede any change in mining operations provided by the PEE according to the procedure for the approval of the initial PEE. However, the holder of mining License or of authorization for scientific study who has worked pursuant to PEE-RIM should develop, deposit and get the PEE-RS approval to proceed to works that exceed the nature and scale of those which are eligible for the PEE-RIM.

Article 75: The PEE-RIM model is presented in appendix B of this order. Guideline to prepare the PEE-RIM is the subject of the appendix C.

Article 76: Directives concerning the development of a PEE-RS are presented in appendix D.

Article 77: As per articles 99, 100 and 102 of the Mining Code, the PEE-RIM or the PEE-RS should include:

- (d) A budget of lightening measures of the project environmental impact and of rehabilitation measures of the research site;
- (e) A financing plan of the lightening and rehabilitation budget, and
- (f) A proposal for the management mechanism of the provision for the environmental rehabilitation, matched with financial security measures in favour of the State.

Article 78: The management mechanism of the provision for the environmental rehabilitation aimed at in the previous article can consist of crediting bank accounts in Madagascar with necessary funds to finance rehabilitation works as per a reasonable refunding program, according to the following conditions:

1. The holder can use funds in the account(s) only to finance the project environmental rehabilitation works;
2. At any moment, the amount of the account(s) will reasonably be proportional to financial needs to ensure the carrying out of the rehabilitation plan if it is necessary, considering the operations progress, their current impact on the environment, the current research program of the holder and his financial situation, considering if necessary his insurance policies for environmental responsibility; and
3. There will be reliable controls to warrant at the same time that the holder can seize funds in the account(s) only for the environmental rehabilitation of the project site, and that the State, represented by the Minister of Mines will be able to withdraw funds from the account in order to make rehabilitation works carried out by the third party in case that the holder renounces the place or in case of bankruptcy.

Financial security requirements can be lightened or cancelled for holders who have already had an environmental management system authorized by an international organisation as provided, for example in ISO 14000 series.

Article 79: The PEE-RIM or the PEE-RS of the research project should specify the modes of technique controls that the holder will carry out in order to check the efficiency of the realised lightening and rehabilitation measures.

A circular of the Ministry of Mines specifies registers and reports that the holder has to maintain, receive or provide to the control and follow-up systems of his PEE-RIM or the PEE-RS. It falls to the holder to inquire about the involved regulation and to comply with it.

Article 80: The PEE-RIM or the PEE-RS file of a mining research project can as well include proposal for the terms of reference for the project environmental audit before the end of the project, in case that the holder considers to request an environmental discharge for his research project.

Section II: The PEE relating to Scientific Studies on fossilized lodgings

Article 81: The PEE relating to a project of scientific study on fossilized lodgings that requires in depth and non-mechanized works consists of a PEE-RIM established as per models of the appendix B and instructions of the appendix C, if it fulfils the eligibility conditions; otherwise it consists of a PEE-RS established as per directives of the Appendix D.

As per provisions in article 166 of the decree of enforcement of the Mining code, either a PEE or an EIE are not required for superficial studies, with or without sample.

Article 82: The PEE-RIM or the PEE-RS relating to a project of scientific study on fossilized lodgings is carried out at the expenses of the holder of an authorization for scientific study on second order fossilized lodgings by the holder himself or by the experimented consultancy firm that he has appointed.

Article 83: The Minister of Mines or his representative grants the environmental authorization for a project of scientific study on fossilized lodgings submitted to the PEE, on verdict of the Committee or, if necessary, that of the assessment committee ad hoc.

This authorization is only applied to works considered by the approved PEE-RIM or the PEE-RS. An approval of an additional clause to the PEE should precede any change in mining operations provided by the PEE according to the procedure followed for the approval of the initial PEE. However, the holder of an authorization for scientific study on fossilized lodgings who has worked pursuant to PEE-RIM should develop, deposit and get the approval of a PEE-RS to proceed to works that exceed the nature or scale of those which are eligible for the PEE-RIM.

Article 84: The PEE-RIM or the PEE-RS relating to a project of scientific study on fossilized lodgings should specify modes of technique controls that the holder of an authorization for scientific study on fossilized lodgings will carry out in order to check the efficiency of the lightening and rehabilitation measures.

A circular of the Ministry of Mines specifies registers and reports that the holder has to maintain, receive or provide to the control and follow-up systems of his PEE-RIM or the PEE-RS. It falls to the holder to inquire about the involved regulation and to comply with it.

Section III: The PEE relating to Mining Operations pursuant to PRE License

Article 85: The PEE relating to Mining Operations pursuant to PRE License consists of the holder's commitment to comply with a Behaviour Code as far as environmental protection is concerned during these operations and to build an adequate provision for the future rehabilitation of the place.

Article 86: The Provincial Manager of the Ministry of Mines on verdict of the Committee grants the Environmental Authorization relating to mining operations pursuant to PRE License, except in cases of perimeters situated in concentration area of mining operations or in sensitive area. The environmental Authorization granted by the Provincial Manager of the Ministry of Mines is issued at the same time as the PRE License.

The Minister of Mines on verdict of the Committee or the assessment committee ad hoc grants the environmental authorization relating to mining operations pursuant to PRE License on perimeters situated in concentration area of mining operations, after the PEE-PRE assessment as per provisions of chapter IV, section III of this Title.

The Minister of the Environment grants the environmental authorization relating to mining operations pursuant to PRE License on perimeters situated in sensitive area after the EIE assessment as per provisions of Title III of this order.

Article 87: The mining Administration will proceed to the study and organisation of periodical training course on environmental protection techniques appropriate to traditional mining operations, according to the modes specified by an order of the Minister of Mines on the verdict of the Minister of the Environment. These trainings help traditional mining operators be aware of the need to protect environment and help them understand lightening and rehabilitation measures of effects of their mining operations on the environment. From the closing date of the first training course in a given province, the person who pretends to get PRE License or his representative has to follow training course in order to be eligible and get the environmental Authorization relating to mining operations pursuant to his PRE.

At the end of the training, the participant will get certificate issued by the organization responsible for the training. This certificate is mentioned on the register held by the Mining Land Registry. The person who has the certificate or the representative who has been certified can subscribe to a PEE for operations considered by the PRE License.

Article 88: The PEE model relating to operations pursuant to PRE License is annexed to appendix E of this order. The Behaviour Code concerning the environmental protection relating to operations considered by a PRE license is the subject of the appendix F.

Section IV: The PEE relating to Non-Mechanized Mining of substances which lodgings are rare or Non-Mechanized Mining of fossils

Article 89: The PEE relating to Non-mechanized Mining of substances which lodgings are rare or Non-mechanized Mining of fossils consists of an elaborated PEE-PRE as per appendixes E and F.

Article 90: The involved Provincial Manager of the Minister of Mines on the verdict of the Committee grants the environmental Authorization relating to Non-mechanized Mining of substances which lodgings are rare.

Article 91: The Minister of Mines on the verdict of the Committee grants the environmental Authorization relating to Non-mechanized Mining of fossils.

Chapter III: Deposit of the PEE

Article 92: The PEE is deposited to the Mining Land Registry where the application for mining License or authorization concerning mining operations that are the subject of the PEE is registered.

Article 93: The PEE relating to mining operations pursuant to the following Licenses or authorizations should be registered with the application for mining License or authorization:

- PRE License
- Authorization of Non-mechanized Mining of substances which lodgings are rare.
- Authorization of Non-mechanized Mining of fossils

Article 94: The PEE relating to a research project or to a project of scientific study on second order fossilized lodgings can be registered with the application or after the granting of the relating R License or the relating authorization.

Article 95: The Mining Land Registry, which received the PEE file, forwards it immediately to the Committee for examination.

Chapter IV: Assessment and examination of the PEE file

Section I: The PEE-RIM

Article 96: The Committee carries out the PEE-RIM assessment.

Article 97: Here are the assessment criteria:

- (a) Verification of works descriptions recommended by the holder of an authorization for scientific study on second order fossilized lodgings, verification of the mining License or authorization and verification of the operations establishment site;
- (b) Verification of the operations eligibility suggested for the PEE-RIM;
- (c) Verification of the conformity of the suggested program of lightening and rehabilitation measures with the PEE-RIM model on the appendix B and the Guideline for its preparation on the appendix C; and
- (d) In case of a PEE-RIM for mining research project, verification of the sufficient budget of lightening and rehabilitation measures, of financing plan and of the management mechanism of the provision for the environmental rehabilitation matched with financial security measures in favour of the State.

Article 98: The Committee can ask the holder to provide all additional information relating to the assessment criteria of the PEE-RIM required for its assessment.

If the PEE-RIM is not in conformity with appendixes C, B, the Committee informs the holder within fifteen (15) working days after the deposit date of PEE-RIM, of these recommendations with a view to make the PEE-RIM in conformity.

Article 99: The justified verdict of the Committee on the PEE-RIM is forwarded to the Minister of Mines within a deadline, which should not exceed thirty (30) working days after the deposit date of the PEE-RIM. The answer time limit of the holder to the request of additional information or to alteration recommendations of the PEE-RIM forwarded by the Committee, if necessary, is added to the deadline.

Article 100: Within ten (10) working days from the receipt date of the verdict of the Committee, the Minister of Mines decides on the approval or refusal of the PEE-RIM, based upon the Committee verdict.

All refusal decision of the PEE-RIM is justified. The decision to grant or to refuse the environmental Authorization is forwarded to the Mining Land Registry where the PEE has been registered, with copies respectively to the Committee, the Mining Inspection and the ONE. The Mining Land Registry hands this decision over the holder on request.

Section II: The PEE-RS

Article 101: The Committee assesses the PEE-RS according to the following criteria:

- Verification of works descriptions recommended by the holder of an authorization for scientific study on second order fossilized lodgings, verification of the License or authorization and verification of the operations establishment site;
- Verification of the operations eligibility suggested for the PEE-RS;
- Verification of the conformity of the suggested management program of lightening and rehabilitation measures with directives to realize a PEE-RS the subject of the appendix D; and
- In case of a PEE-RS for mining research project, the sufficient budget of lightening and rehabilitation measures, of financing plan and of the management mechanism of the provision for the environmental rehabilitation matched with financial security measures in favour of the State.

Article 102: The Committee can ask the holder to provide all additional information relating to the assessment criteria of the PEE-RS required for its assessment.

If the PEE-RS is not in conformity with directives in appendix D, the Committee informs the holder within twenty (20) working days after the deposit date of PEE-RS, of these recommendations with a view to make the PEE-RS in conformity.

Article 103: Except for the PEE-RS which subject reaches a research project in sensitive area or on stage of development and /or feasibility, the Committee forwards his justified verdict to the Minister of Mines within a deadline, which should not exceed thirty five (35) working days after the deposit date of the PEE-RS. The answer time limit of the holder to the request of additional information or to alteration recommendations of the PEE-RS, which are forwarded by the Committee, if necessary, is added to the deadline.

Article 104: Subject to provisions in the following paragraph, if the PEE-RS reaches a research project in sensitive area or on stage of development and /or feasibility, the Committee submits it, within ten (10) days from the deposit date of the file, to an assessment committee ad hoc convened by the Provincial Manager of the Ministry of Mines on request of the Committee. If necessary, to apply criteria outlined above, the assessment committee ad hoc specifies if the project should be the subject of an EIE.

Moreover, if it deals with the research project within sensitive area and if the operations plan of the holder excluded explicitly operations in sensitive areas, which are within the research perimeter, the PEE-RS can in these conditions be approved without passing to the assessment committee ad hoc.

At the end of this chapter, the project, which is the subject of a PEE-RS, is a mining research project on stage of development and / or the feasibility when the description of the considered operations has at least one of the following activities:

- (a) Construction of an uncovered and temporary or permanent road with more than five kilometres (5kms) long;
- (b) Excavation or moving of more than 20.000 cubic metres of land;
- (c) The montage of an experimental factory with more than 25 tonnes capacity per day within the perimeter, for chemical treatment testing of mining products; or
- (d) The realisation of more than nine drillings within a radius of 100 meters

Article 105: The assessment committee is composed with:

- a) One representative of the Committee;
- b) One representative of mining operators who is member of the responsible Provincial Committee of Mines, appointed by the President of the CPM;

- c) One representative of the Ministry of the Environment appointed by the General Manager of the ministry;
- d) One representative of the ONE.

The Provincial Manager of the Ministry of mines convenes the assessment committee that the representative of the Committee presides. The assessment committee asks local district mayors on responsibility of which these works will take place. These deliberations are the subjects of a minute signed by all members. The involved Provincial of the Ministry of mines ensures the secretarial staffs of the assessment committee.

Article 106: During the assessment of the PEE-RS file, the assessment committee considers particularly the following elements:

- a. Opening of tracks or roads
 - Location
 - Length
 - Type of construction
 - Duration and permanence
- b. Impact on sensitive area
- c. Numbers of workers on the site
- d. Works duration
- e. Quantity and volume of samples to be taken
- f. Probability to open a mining centre
- g. Number and location of drillings
- h. Type and size of the encampment
- i. Effects on water resupplying sources
- j. Compatibility with other use of the land
- k. Adequate and sufficient character of lightening and rehabilitation measures, of their financing and the suggested management mechanism of the rehabilitation provision
- l. The performance of the holder to carry out his environmental obligations in the past.

The assessment committee recommends the PEE-RS approval if he estimates, after having considered all aspects specified in this article, that the PEE-RS is sufficiently credible and that the suggested research operations are not liable to invade the environment. On the other hand, if the committee concludes that the project impact is not sufficiently specified or not controlled by provisions of the PEE-RS, he should recommend that the involved project should be the subject of an EIE.

Article 107: The assessment committee ad hoc can ask the holder to provide all reasonable and additional information relating to the assessment criteria of the PEE-RS required for its assessment.

If the PEE-RS is not in conformity with the appendix D, the assessment committee ad hoc informs the holder of these recommendations with a view to make the PEE-RS in conformity within ten (10) working days after the deposit date of the PEE-RS.

Article 108: The assessment committee forwards his justified verdict to the Minister of Mines within thirty (30) working days from the transfer date of the PEE-RS by the Committee. The answer time limit of the holder to the request of additional information or to alteration recommendations of the PEE-RS, which are forwarded by the assessment committee ad hoc, if necessary, is added to the deadline.

If the committee verdict is not favourable, he indicates either (a) alterations of the PEE-RS that would be necessary in order that the project would not be liable to invade the environment, or (b) that the project should be the subject of an EIE before the realization of the considered works.

Article 109: Within ten (10) working days from the receipt date of the verdict of the assessment committee ad hoc, the Minister of Mines decides on the approval or refusal of the PEE-RS based upon the committee verdict.

All refusal decision of the PEE-RS is justified and indicated either (a) alterations of the PEE-RS that would be necessary in order that the project would not be liable to invade the environment, or (b) that the project should be the subject of an EIE before the realization of the considered works.

The decision to approve or to refuse the environmental Authorization is forwarded to the Mining Land Registry where the PEE has been registered with copies respectively to the Committee, the Mining Inspection and the ONE. The Mining Land Registry hands over this decision to the holder on request.

Section III: The PEE-PRE

Article 110: Subject to provisions of article 111, the Committee carries out the PEE-PRE assessment.

Article 111: Here are the assessment criteria:

- a. Verification of the identification of the holder, of the License and the perimeter;
- b. Verification of the training of the holder as far as environmental protection is concerned when it would be required.
- c. Specification of the desired perimeter situation within concentration area of mining operations or not;
- d. Verification of the conformity of the PEE-PRE with the model and the Behaviour Code;
- e. Sufficiency of the lightening and rehabilitation measures, of the budget and rehabilitation annual provision.

Article 112: The Committee can ask the applicant to provide all additional and reasonable information relating to the assessment criteria of the PEE-PRE required for its assessment.

If the PEE-PRE is not in conformity with appendixes E and F, the Committee informs the applicant within ten (10) working days after the deposit date of PEE-PRE, of these recommendations with a view to make the PEE-RIM in conformity.

Article 113: To the exception of the PEE-PRE case for operations on perimeters situated in concentration area of mining operations, the justified verdict of the Committee on the PEE-PRE is forwarded to the Provincial Manager of the Ministry of Mines within deadline that does not exceed twenty (20) working days from the deposit date of the PEE-PRE. The answer time limit of the holder to the request of additional information or to alteration recommendations of the PEE-PRE, which are forwarded by the Committee, if necessary, is added to the deadline.

Article 114: Within five (5) working days from the receipt date of the Committee verdict, the Provincial Manager of the Ministry of Mines will decide, based upon the Committee verdict, on the approval or refusal of the PEE-PRE. In case of an absence of the PEE-PRE refusal within the specified deadline, the applicant has the right to get the environmental authorization that he can require in front of the administrative court.

All decision to refuse the approval of a PEE-PRE will be justified. The decision to grant or to refuse the environmental Authorization will be forwarded to the Provincial office or to the Mining Land Registry where the PEE-PRE has been registered, with copies to the Committee, the Mining Inspection and the ONE. The Mining Land Registry hands this decision over the applicant on request, if it is handed over with or after the granting of the relating license or authorization.

Article 115: If mining operations that are the subject of the PEE-PRE are on perimeter within a concentration area of mining operations, and after getting the applicant's explication of his operation

plans, the Committee will suggest him some limitation of his operations in order to minimise cumulative impact of mining operations on the same zone.

For instance, limitations can take place on the establishment site of new operations with certain distance from that undertaken on the neighbour perimeter, or they can involve operations intensity that is the subject of the concerned PEE-PRE.

If the applicant accepts limitations suggested by the Committee, they will be written as condition to his PEE-PRE under his signature, and the PEE-PRE will be forwarded with favourable verdict of the Committee to the Ministry of Mines.

Article 116: If the applicant did not accept the restriction suggested by the Committee, the Committee will submit the PEE-PRE to the assessment committee ad hoc convened by the Provincial Manager of the Ministry of Mines on request of the Committee.

The assessment committee ad hoc will be composed of as per descriptions in the above article 105.

Article 117: The assessment committee ad hoc will examine the PEE-PRE and within five (5) working days from the receipt date of his file, will inform the applicant of the committee suggestion to restrict the mining project in order to minimise cumulative impact of the mining operations on the same zone.

If the applicant accepts limitations suggested by the assessment committee, they will be written as condition to his PEE-PRE under his signature, and the PEE-PRE will be forwarded to the Ministry of Mines with favourable verdict of the Committee.

If the applicant does not accept limitations suggested by the assessment committee, the PEE-Pre file will be transmitted to the Minister of Mines with the verdict that the considered mining operations should be the subject of an EIE.

Article 118: Within five (5) working days from the receipt date of the assessment committee ad hoc verdict, the Ministry of Mines will decide on the approval of the PEE-PRE or the refusal of it and requires an EIE for the involved operations, basing upon the assessment committee ad hoc verdict. In case that an EIE is required, its realization is on the responsibility of the applicant for the concerned environmental authorization and not that of the holder of the mining License on the perimeter that has already established.

All decision to refuse the approval of the PEE-PRE will be justified. The environmental Authorization or the refusal decision will be forwarded to the Provincial office or to the central Mining Land Registry where the PEE-PRE has been registered, with copies to the Committee, the Mining Inspection and the ONE. The Mining Land Registry hands the authorization or the decision over the applicant on request, if the environmental authorization is handed over with or after the granting of the relating mining license or authorization.

Chapter V: Recourse Procedures

Article 119: All recourse on administrative acts against an applicant or a holder of the environmental authorization pursuant to PEE is governed by regulations of the administrative right in force.

Obligatory deadline to start recourse procedure is thirty (30) days following the date of the contested act.

The recourse is introduced to the Mining land Registry where the PEE has been registered, on responsibility of the latter to forward the file to whom it may concern.

Article 120: All environmental authorization applicants pursuant to PEE can seize the National Committee of Mines or the competent Provincial Committee of Mines to help him to find amicable solution when he estimates himself unjustly wrong by an administrative act or decision concerning his PEE.

Chapter VI: Implementation of the PEE

Section I: The PEE-RIM and the PEE-RS

Article 121: Within sixty (60) days after his official verdict of the approval of his PEE-RIM or PEE-RS, the holder of R license should implement the management mechanism of provisions of the environment rehabilitation considered by his approved PEE, including financial security measures, as per the financing plan of lightening and rehabilitation measures included in the PEE.

Article 122: Within ten (10) days after the implementation of the management mechanism and financial security measures provided in the previous article, the holder will deposit one copy of the approved PEE and one copy of the form on financial security which is in the appendix A of this order, duly filled, to the Provincial Manager of the ministry of Mines of each province where the concerned perimeter is, for the attention of the Committee.

Within ten (10) days after the handing of the environmental authorization over the applicant for an authorization for scientific study of fossilised lodgings, the holder will deposit a copy of an approved PEE to the Provincial Manager of the Ministry of Mines of each province where the involved perimeter is, by his authorization, for the attention of the Committee.

The Committee will confirm the receipt of the approved PEE copy to the Provincial Manager of the Mining Land Registry. The Mining Land Registry will write on the mining License of the holder or on the holder authorization of an authorization for scientific study of fossilized lodgings, the approval and the deposit of the PEE and the establishment of the provision account, if necessary.

Article 123: The holder will deposit one copy of the PEE-RIM or the PEE-RS to the town councils of the involved Decentralized Communities against a receipt within fifteen (15) days from the date of the subscription of the PEE approval on the holder mining License or Authorization.

Section II: The PEE-PRE

Article 124: Within six months following the approval of his PEE-PRE, the holder of mining authorization should establish his first rehabilitation provision of his operations area, according to the modes provided by his environmental authorization.

Article 125: The Provincial Manager of the Ministry of Mines, who will check that withdrawals are intended only for rehabilitation works, will control the withdrawals on the account that the holder credits his rehabilitation annual provision.

Section III: Alterations

Article 126: The holder who wants to alter his PEE should deposit an alteration suggestion with all written proof to the Mining Land Registry where he has registered his original PEE. It is the same for holder who is notified by the Ministry of Mines that he should alter his PEE to find a solution for his activities damaging effects discovered during the PEE control and follow-up works.

The Committee or the assessment committee ad hoc will examine the alteration suggestion when it is about a PEE-RS or a PEE-PRE for a perimeter in concentration area of mining operations, as per procedure applicable to the original PEE assessment and with the same deadlines.

The Minister or the Provincial Manager, according to the case, will pronounce on the granting or not of the altered environmental License that is requested within ten (10) working days from the receipt of the assessment technical verdict of the Committee or the assessment committee ad hoc.

Chapter VII: The PEE control and follow-up

Article 127: A circular of the Ministry of Mines in consultation of the ONE will specify registers and reports that the holder should maintain, receive or provide to the control and follow-up systems of his PEE. It falls to the holder to inquire about the involved regulation and to comply with it.

Article 128: The service agents of the Inspection of Mines within the Ministry of Mines or, in cases of PEE-PRE, authorities of the decentralized territorial communities will submit operations that are the subject of a PEE to the inspections. These inspections will examine the verification of the implementation of lightening measures of the project impact on the environment and that of the rehabilitation of the project establishment site.

Article 129: Operations of the follow-up of the environmental evolution affected by projects submitted to the PEE can be carried out punctually or regularly by the Committee, the ONE, provincial authorities or other organisation authorized by the Ministry of the Environment or the Ministry of Mines, either within the framework of the implementation of their supervision mandate of the sector or the environmental protection activities, or within the framework of a special study.

Chapter VIII: The Environmental discharge

Section I: For the PEE-RIM and PEE-RS

Article 130: As specified in article 103 of the Mining Code, the environmental discharge exempts the holder of the mining License from his environmental rehabilitation obligations towards the State. The environmental discharge is optional for holders of R License and for holders of authorizations for scientific study of fossilized lodgings.

Article 131: The Minister of mines issues the environmental discharge for mining research operations that are the subject of a PEE-RIM, on favourable verdict of the Committee based on final inspection report of operations made by the Inspection of Mines service after the visit of the site.

Article 132: The Minister of mines issues the environmental discharge for mining research operations that are the subject of a PEE-RS, on favourable verdict of the Committee based on favourable results of a project environmental audit. The audit should be carried out at the holder's own expenses by a consulting firm authorized by the Minister of the Environment on the ONE and the Committee verdict. The holder chooses and appoints the consulting firm who will carry out the environment audit.

Article 133: Terms of references of the audit will be those suggested and approved as part of the PEE or, for lack, should be in conformity with a guideline on this subject established by an inter ministerial committee composed with representative of the Committee and the ONE.

If the auditor specifies that certain additional measures should be carried out in order to ensure the conformity of the project establishment site with the rehabilitation objective specified in article 38 of this order, the holder should take the necessary additional provisions and get a favourable decision of the auditor which would be the condition of the environmental discharge granting.

Moreover, the holder who has implemented his PEE needs not to carry out additional works to make up for damaging effects of his activity, which is neither predicted nor foreseeable at the time of the approval of his PEE.

Article 134: The application for environmental discharge with the environmental audit report, if necessary, is addressed to the Committee with three (3) copies and deposited to the provincial or central Mining Land registry where the PEE has been registered. The application is forwarded immediately to the Committee.

Article 135: The Committee examines the application for discharge and assesses the final inspection report or the environmental audit according to the conditions specified by directive of the Ministry of Mines. As part of his examination, the Committee should contact the Authority of each decentralized territorial community involved by the project and ask his advice on the project site inventory and the efficiency of the rehabilitation measures taken by the holder. Within thirty (30) working days following the deposit date of the environmental audit report or the receipt date of the final inspection report, according to the case, the Committee will forward his verdict to the Minister with a draft order relating to the project environmental discharge or a justified and draft decision of the discharge refusal.

Article 136: The decision of the Minister of Mines will be expressed either, by signature of the Order relating to the project environmental discharge, or by signature and sending of the justified refusal decision within ten (10) working days after the receipt of the Committee verdict.

The decision to grant or to refuse the environmental Authorization will be forwarded to the provincial or central Mining Land registry where the PEE has been registered, with copies to the Committee, the Inspections of Mines and the ONE. And then, the Mining Land Registry will forward this decision to the holder on request.

Section II: For the PEE-PRE

Article 137: The environmental discharge is optional for holders of PRE License and holders of authorizations of non-mechanized mining of substances which lodgings are rare or of fossils.

Article 138: The Provincial Manager of the Ministry of Mines issues the environmental discharge for mining operations that are the subject of a PEE-PRE, on favourable verdict of the Committee based on the final inspection report of operations by the Inspection of Mines service after the site visit.

Article 139: The application for environmental discharge is addressed to the Committee and deposited to the provincial Mining Land registry where the PEE-PRE has been registered. The application is forwarded immediately to the Committee.

Article 140: The Committee examines the application for discharge and assesses the final inspection report according to the conditions specified by directive of the Ministry of Mines. As part of his examination, the Committee should contact the authority of each decentralized territorial community involved by this project and ask his advice on the project site inventory and the efficiency of the rehabilitation measures taken by the holder. Within twenty (20) working days following the deposit date of the report of the environmental audit or the receipt date of the final inspection report, according to the case, the Committee will forward his verdict to the Manager with a draft order relating to the project environmental discharge or a justified and draft decision of the discharge refusal.

Article 141: The decision of the Provincial Manager of the Ministry of Mines will be expressed either, by signature of the Order relating to the project environmental discharge, or by signature and sending of the justified refusal decision within ten (10) working days after the receipt of the verdict of the Committee.

Copies of the environmental discharge or the refusal decision will be provided to the Committee and the Inspection of Mines; and the Mining Land Registry forwards the environmental discharge or the refusal decision to the holder on request.

TITLE V: INFRINGEMENTS AND SANCTIONS

Article 142: Here are infringements liable to incur sanctions to the perpetrator:

- For all holder of R, PRE license or authorization for scientific study of fossilized lodgings or authorization of non-mechanized mining of substances which lodgings are rare or of fossils, the fact of having undertaken research works or mine working without having prior the approval of the relating PEE.
- Non-compliance with the PEE by the holder
- For all holder of R, PRE license or authorization for mining operations submitted to the PEE, the fact of being refrained from assuming measures of stipulated correction and /or compensation in case of infringement duly noticed; and
- Non-compliance with environmental obligations applicable for License under validity to 30 august 1999.

Article 143: Infringements cited in the previous article are considered as gross misconducts liable for temporary and immediate suspension of works pronounced as per provisions of article 173 of the Mining Code.

Moreover, the competent authority can pronounce the following sanctions:

- Stopping of the current works
- Injunction to restore places as per environmental norms;
- Injunction to proceed within thirty (30) days the implementation of correcting and compensating measures; and
- Suspension or withdrawal of the environmental authorization.

Article 144: Concerning infringements by holders of R License or authorization for scientific study on fossilized lodgings, the formal notice is sent, and the Minister of mines pronounces the possible suspension.

Concerning infringements by holders of PRE License or authorization for mining operations submitted to the PEE-PRE, the formal notice is sent, and the Provincial Manager of the Ministry of Mines pronounces the possible suspension.

TITLE VI: VARIOUS PROVISIONS

Article 145: The holder of a mining license or mining authorization who gives up partially or totally his perimeter is only freed from his environmental rehabilitation obligation if he has the environmental discharge of the competent authority as per provisions of this order.

Article 146: The environmental audit is compulsory at the end of mining operations that are the subject of an EIE or PEE-RS, even if the holder does not intend to ask for the environmental discharge.

Article 147: Except otherwise provisions to this order or to the MECIE Decree, all recourses concerning administrative acts or the default of such acts, against the applicant or the holder of environmental authorization pursuant to EIE are governed by regulations of administrative right in force.

Obligatory deadline to commit the recourse procedure is thirty (30) days following the date of the contested act.

The recourse is introduced to the Mining Land Registry where the EIE file has been registered, and on the last own responsibility to forward the file to whom it may concern.

Article 148: A joint order of the Ministry of Mines and that of the Environment specifies some environmental protection directives and the modes of their enforcement for quarry operations regulation.

An order of the Minister of mines, on the Minister of the environment verdict, specifies some environmental protection directives and the modes of their enforcement for the regulation of mining activities, which are not the subject of an EIE or a PEE.

TITLE VII: TEMPORARY PROVISIONS

Article 149: Provisions in this title specify the obligation conditions of mining licenses or mining authorizations holders under validity to 30 august 1999 to make their operations in conformity with the regulation as far as environmental protection is concerned, to implement provisions of article 226 of the Mining Code.

Article 150: The following holders are exempted from obligation to conform to environmental regulation outlined in this order:

- Holders of type I license;
- All holder of research or mining License, which will fall due before 1 September 2001;
- All holder of mining authorization, which will fall due before 1 September 2001.

Moreover, these holders are not exempted from the regulation compliance as far as environmental protection is concerned otherwise applicable to their operations.

Article 151: All holders of research License under validity to 30 august 1999 who are not exempted from the obligation to comply with the new environmental regulation should develop and deposit a PEE-RIM or PEE-RS, according to the eligibility criteria outlined in B, C and D appendixes, and should implement the PEE approved by the competent authority, as per the below provisions.

Article 152: The PEE-RIM or PEE-RS should be deposited as per provisions of the above Title IV, Chapter III within six (6) months from the publication date of this inter ministerial order.

Subject to the following provisions, the PEE should be developed and will be assessed according to the modes specified in the above Title IV, Chapter IV:

- The inventory of the site will be established on the day of the publication of this inter ministerial order.
- The holder can gradually implement a management program of lightening and rehabilitation measures during two years, from which he should be in conformity;
- An EIE cannot be required for the continuation of the current activities.

Article 153: PEE-RIMs and PEE-RSs established as per provisions of this title will be submitted to the control and follow-up system according to provisions of the above Title IV, Chapter VII.

Article 154: All holder of mining License or authorization of mine working, under the validity to 30 august 1999 who has not exempted from the obligation to comply with the new environmental regulation, and which operations pursuant to his License or authorization are not the subject of an EIE should develop and deposit an Environmental Adjustment Plan (PAE) and should implement the PAE approved by the competent Authority, as per the below provisions.

Article 155: The PAE should be deposited as per provisions of the above Title III, Chapter III concerning EIE within twelve (12) months from the date of publication of this inter ministerial order. However, the holder contribution to the assessment and follow-up expenses will be diminished in proportion to the overdue period of the total duration of the involved License. For instance, the contribution amount will be diminished by two third for the mining license holder of which the two third of the duration are overdue.

Article 156: The PAE consists of the description of measures that have already taken, current measures or considered measures for the environmental protection, considering environmental directives and norms applicable for the type of the involved mining operation, including the rehabilitation objective specified in the above article 38.

The PAE will be composed with a description of the establishment- site inventory of the mining operation and its surroundings on the publication date of this inter ministerial order.

The PAE should predict the implementation progress of the environmental protection measures during three (3) years, for mine working operations without treatment plant using chemical methods, and during six (6) years for mine working operations with treatment plant using chemical methods. However, longer transition period, up to (10) years, can be granted to the holder who uses more than fifty persons and who shows that this obligation would force him to end the project.

Article 157: The CTE will assess the PAE according to the modes specified in the above Title III for EIEs. However, the procedures of the public participation to the file assessment will not be applied, except in case of necessity ruled by the CTE.

Article 158: PAEs are submitted to the control and follow-up procedures provided in the above Title III, Chapter VI.

TITLE VIII: FINAL PROVISIONS

Article 159: This inter ministerial order will be registered and published in the Journal Officiel and communicated by all means on the whole territory.

Antananarivo, November 6, 2000

The Minister of Energy and Mines

The Minister of the Environment

RASOZA Charles

ALPHONSE

APPENDIXES

- A DECLARATION TO ESTABLISH THE MANAGEMENT MECANISM OF THE PROVISION FOR THE ENVIRONMENTAL REHABILITATION
 - B PEE-RIM MODEL
 - C GUIDELINE FOR THE PREPARATION OF THE PEE-RIM
 - D DIRECTIVE FOR THE DEVELOPMENT OF THE PEE-RS
 - E PEE-PRE MODEL
 - F BEHAVIOUR CODE FOR MINING OPERATIONS PURSUANT TO PRE LICENSE
- APPENDIX A

Ministry of Energy and Mines

Ministry of the Environment

**DECLARATION TO DEVELOP
THE MANAGEMENT MECANISM OF THE
PROVISION FOR THE ENVIRONMENTAL REHABILITATION**

A. Identity of the Mining Project

Please fill in this table indicating information necessary to identify the mining project that is the subject of this declaration.

| | |
|---|--|
| 1. Name of the Project | |
| 2. Province(s) and Local District(s) where the mining perimeter takes place | |
| 3. Type of License or Mining Authorization | |
| 4. License or Mining Authorization Number | |
| Granting date | |
| 5. Type of Study or the Project Environment Plan | Impact /PGEP study__ PEE-RIM__ PEE-RS__ PAE__ |
| 6. The Number of the Project Environmental Authorization | |
| Granting date | |
| 7. Name of the holder of the Environmental Authorization | |
| Address | |
| Telephone number | |
| 8. Name of the Chief Project | |
| Address | |
| Telephone number | |

1 _____ Confer to articles 57 and 121 of this order

B. Description of the management mechanism of the Provision for the Environmental Rehabilitation

Please fill in this table indicating information necessary to identify and describe the management mechanism of the provision for the environmental rehabilitation of the project that is developed as per PGEP or PEE of the project:

| | |
|---|--|
| 1. Type of Mechanism | Insurance Policy__ Banking Deposit__ Bank Accounts__ Other__; Description__ |
| 2. Name of the Insurer, the guarantor or that of the Bank Address Name of the Chief Agent Telephone number | |
| 3. Number of the insurance policy, the banking deposit or the bank account(s) | |
| 4. Date of the mechanism development | |
| 5. Validity period of the mechanism, if necessary | |
| 6. Amount of the insurance, the deposit or the initial credit of the bank account(s) | |
| 7. Description of security measures in favour of the Malagasy State | |
| 8. Description of the security measures documentation in favour of the Malagasy State (one certified copy should be attached with this description) | |

C. Signature of the Holder of the Environmental Authorization

I, the undersigned _____, subscribed having read and understood questions in this form, and I assert, as _____ of the Holder of the aforementioned Environmental Authorization, authorized to write this declaration, that answers of the above questions are complete, correct and truthful.

Certified Signature_____

Name_____

Date:_____

REPOBLIKAN'I MADAGASIKARA
Tanindrazana – Fahafahana- Fandrosoana

Ministry of Energy and Mines

Ministry of the Environment

**ENVIRONMENTAL COMMITMENT PLAN
FOR OPERATIONS PURSUANT TO
MINIMAL IMPACT RESEARCH LICENSE
(PEE-RIM)**

The holder of a R license or an Authorization for non-mechanized scientific study of in depth fossilized lodgings, should fill in this PEE-RIM form as per this order on regulation applicable in the mining sector as far as environmental protection is concerned. The holder should have filled in and deposited PEE-RIM form and the relating documents to the provincial or central Mining Land Registry where the application for License or Authorization concerning mining operations subject of the PEE-RIM has been registered. The holder should get the PEE-RIM approval before starting field operations.

Only holders of R License or Authorization for non-mechanized scientific study of in depth-fossilized lodgings which operations have no or little impact on the environment are admissible to submit a PEE-RIM. If one of the impact thresholds explained in section A of this form is exceeded, the holder should submit to a standard PEE for R License (PEE-RS) according to this order. Holders who have filled in this form should make use of information in the appendix C entitled: Guideline for the preparation of the Environmental Commitment Plan for operations pursuant to Minimal Impact Research License. Explications concerning each section of the form are on the sub-section relating to section III of appendix C.

A. Thresholds of Minimal Impact of Research Activities

1. The impact of research activities on the environment is considered as minimal if the following levels are not exceeded and if the holder realizes only the activities on this list:

- Excavations of the undertaken trench are not superior to the total of 1000 cubic metres
- The holder limits himself to maximum 10 drillings per square;
- All development works relating to the research activities, including perforation net, excavations and encampments take up to maximum 2 hectares (to the exclusion of the space taken up by the existing ways and roads);
- Lubricants used for drillings, if necessary are biodegradable;
- Access to the site is acquired by marking out temporary roads (to the exclusion of construction of permanent roads);
- Only one portable drilling equipment to maximum is used on research perimeter
- No tunnel, gallery or explosion by dynamite or other means are not provided on the perimeter;
- The use of non-biodegradable chemical substances is limited to vehicles accessories such as fuel, lubricants and to natural gas with the quantities required for the moving, food and air-conditioning, as well as chemical products with minimal quantity used for analysis on portable laboratory;
- The installed structures are only temporary;
- The use of heavy equipment (bulldozer) is excluded;
- Burn-off and fire discovering the rock are excluded; and

- The clearing of the spot is only accepted when it is essential, to the exclusion of the felling of tree with diameter of 50 cm or more (at one meter height from the ground)

2. If one of the thresholds of this section A is exceeded, the considered research project is not admissible for PEE-RIM and the holder should develop and submit to a PEE-RS.

B. The impact of Research Activities on Sensitive areas

1. Please, give Yes or No answer to the presence of sensitive areas within or in the vicinity of the mining perimeter. The enumerated sensitive areas are defined in the appendix II of the Order 4355/97 of May 13,1997.

The answer should be yes if (a) the concerned sensitive area is entirely or partially inside the research perimeter or (b) the sensitive area is outside the research perimeter but it is crossed or otherwise affected in the research activities framework.

_____ a. Coral reef

_____ b. Mangrove or marsh situated at least 10 km downstream of the perimeter.

_____ c. Small maritime islands or located in an estuary.

_____ d. Tropical forest.

_____ e. an area subject to erosion

_____ f. arid area or semi-arid area subject to desertification

_____ g. marshy area

_____ h. national conservation area

_____ i. Palaeontology, archaeology or historical area

_____ j. drinking water resources

2. If one or more questions are answered in the affirmative, please specify each answer:

- (i) the geographical situation of the sensitive area compared with squares of the mining perimeter and its width; and
- (ii) The nature of the considered research operations and conditions that you suggest to comply with in order to avoid negative impact on the area(s).

C. Information relating to the holder

1. Please, indicate as complete as possible the following information:

| | |
|--|--|
| Name of the Project Research or draft Study | |
| Number of the R license or Authorization for scientific study of fossilized lodgings The granting date | |
| Name of the holder of R license or Authorization for scientific study of fossilized lodgings Address Telephone number | |
| Name of the representative of the holder in the field Address Telephone number ¹ | |

2. Describe the relating rights and documents, which allow the holder to enter the perimeter in order to carry out the research or study operations:

3. Indicate the name and address of the landowner or landowners of all or part of the perimeter and their addresses:

4. Indicate the name and address of the local authorities representative(s) of districts or villages on which the perimeter will depend on and their addresses:

¹ the CV of the representative of the holder in the field is attached to the PEE-RIM form like Document A of the PEE-RIM

D. Map and location

1. Present the legal nature of the perimeter:

2. Draw up a basic map showing the perimeter sites that are affected by research works, to the exploitable scale. Map with an exploitable scale is a map on which land data in particular sensitive areas, waterway and lakes, roads and paths, forest and considered works such as encampment area, drillings and excavations are well mentioned and easily identifiable.

Mention on the map the following elements:

- Boundaries of the perimeter
- Waterways with intermittent, ephemeral, annual features; oceans; rivers, marshes; springs; lakes; reservoirs; ponds; damp zone and shores of these waterways and water supply point;
- The crossing point of these waterways and water supply point;
- Roads and paths;
- The existing housing and structure;
- Itineraries of air location flight provided as part of the research program;
- Encampments;
- The considered drillings and excavations; and
- Sensitive areas.

Please enclose the map that will be entitled Document B of the PEE-RIM.

E. Description of the program of research or study operations

1. Generalities

Give the date of the beginning and the end of the research/ study works:

Beginning: __/__/__; End: __/__/__.

Enumerate ores or mineral substances to search for:

Check the cases concerning the considered research methods:

___ Non-intrusive air location flight;

___ Rock or soil sample taking;

____ Water sample taking;

____ Cuttings; ____ excavations; ____ trenches;

____ Drillings;

____ Injection of liquid substances;

____ Geodesic location and establishing of perforation net, and

____ Other methods.

Specifications:

2. Non-intrusive detections activities

Describe non-intrusive detection activities. As far as air location is concerned, specify the type of planes or helicopters used, their number, their altitude and approximate dates of the flights, indicating the number of passage, their length, the width intervals and their location.

Estimate the noise level produced by location flights:

3. Geodesic location and establishing of perforation net

Specify methods used to determine drilling and excavation points inside the perimeter:

4. Sampling methods

Indicate methods and means used to take samples inside the perimeter:

Collection of stones/ rocks /fossils: quantity____; volume____.

Waterways sampling: number____; quantity____.

Drillings: number____; diameter____ m; depth____ m.

Trenches: number____; length____ m; width____ m;
Depth____ m; incline____.

Specifications:

5. Encampments

Describe the nature and location of encampments to be installed; their position; accommodation and staff nutrition conditions:

6. Entrances

Describe the entrance plan of the perimeter and roads used for equipment transportation to encampments and research sites:

7. Equipment and tools

Describe equipment and tools that will be used during research activities:

Portable drilling equipment: number____; type_____

Size____;

Depth capacity_____;

Type of lubricant_____;

8. Chemical substances

Indicate chemical substances that will be used during research or study activities:

| Name _____ | its use _____ |
|------------|---------------|
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |

9. Related activities

Describe other developments connected with the research / study activities:

The entire space occupied by the mining activity developments: ____ ha.

F. Information about water resources on the perimeter

- 1. Evaluate at what depth the water table is: ____m
- 2. Evaluate the concentration of the entire dissolved solids (TSD): ____percentage
- 3. If no information on the water table is available, check the case Y otherwise indicate sources of information:

4. Will this spring be affected by research activities?

Yes_____No_____

If the answer is yes, describe precisely these activities:

G. Program of lightening and rehabilitation measures²

1. Measures Before the Beginning of Research Operations

Concerning the general running of operations and consultations with local authorities and local people, as well as the concerned landowners, the holder and his representative commit themselves to the following actions:

- To comply with legislations and regulations in force and implement all legal obligations that are on their responsibility, in particular as far as local regulation about health controls (sicknesses) and the security (animals, dangerous plants and insects) are concerned.
- To strike up a conversation with local authorities, the local people and those who have the right of property or use on the perimeter.
- Local authorities and those who have the right of property or use will be informed of the works site and expanse, of details of the R License or the Authorization for scientific study, of the approved PEE-RIM and the way to contact the holder representative.
- To find out to local authorities the entry, the condition of roads and ways, the necessary improvements for them, the appropriate places to set up encampment where the cattle, agricultural expanses and permanent buildings site will be reached as little as possible.
- To get Permission of competent authorities to use water resources and to get on with those who have the right of property or use on one or several parcels of perimeter to minimize fire risk.
- To inform local people of seismic prediction or meteorological disaster of which the holder or his representative are aware of for it may affect the aforementioned people and the itinerary of air location flights at low altitude which may disturb the cattle.
- All the project employees and subcontractors will be informed of commitments of the mining company or the study entity that they should find out to local authorities, land owners and holders of right of usufruct as far as applicable legislations and regulations in force are concerned.

2. Measures During Research Operations

(a) Consultation with local authorities and those who have the right of property or use on the perimeter; improvements, fields, cattle and pastureland protection.

Specify modes of the considered consultations with landowners and local authorities:

² Please, fill in your answer on the additional papers enclosed with this form and identified according to the section on which they correspond as the need arises

Describe the considered measures to keep or preserve improvements of developments on perimeter surface area.

Describe lightning measures that will be used on perimeter in order to avoid cattle escape or trouble, the entry to fields or pasture lands:

(b) Non-intrusive detection activities

Concerning air location flights, the holder and his representative commit themselves to the following actions:

- Air location flights will be scheduled during days and at the time when their impact can be minimized.
- To consult the land owner(s) and farmers and manage to find an agreement concerning air location flights schedule. Particularly, air location flights will not pass near wild fauna and flora, and will not happen during the livestock or the protected fauna reproduction period.

(c) Geodesic location and establishing of perforation net;

(d) Sampling methods, and

(e) Soils, vegetation, animals and epidemics

Describe how research operations will be carried out in order to avoid erosion risks and how the manner to have the use of the cleared ground and materials from excavations. Enclose a description of measures to be implemented to avoid sicknesses contagion. Explain how the storing place of the cleared ground and materials extracted from excavations will be protected from erosion risks. Describe also the draining of waters from drillings, the location and setting up of boundary markers, of mud wells, of perforation net and other activity having impact on the environment.

The holder and his representative in the field commit themselves to comply with instructions of the appendix C of this Order on its sub-section II.G.2 (e) concerning the clearing and the development of the perimeter field relief.

(f) Encampment (s)

Describe measures predicted to set up encampments:

Describe the functioning of toilets and showers installations and the rubbish treatment in the encampment(s):

(g) Entrances

Indicate the number and quality of vehicles that will be used inside the perimeter:

The holder and his representative in the field commit themselves to the following actions:

- Reduce the number of vehicles used inside the private property and use pre-existing ways and roads.
- If possible, choose specified itineraries to avoid the passage in sensitive areas and areas subject to erosion.
- Limit vehicles circulation if it is rainy and the circulation may damage roads or cultivated areas.
- See to it that the field team does not to drive in areas where there are erosion dangers.
- Avoid crossing itineraries and passage of wild fauna by new entrances.
- In general, comply with instructions of the appendix C of this order on its sub-section II.G2 (g) concerning entrances.

(h) Water quality and harness

Describe precautions taken concerning water resources:

Specify how the impact of the passage on the waterway will be lightened:

(i) Related measures

The holder and his representative in the field commit themselves to comply with instructions of the appendix C of this Order on its sub-section II.G.2 (i)

3. Measures at the end of Research Operations

(a) Legal Measures

Describe in general techniques used to restore the site of each temporary encampment at the moment of its moving:

(b) Final Measures

Describe in general techniques used to develop relief, the quality of the perimeter soil and the vegetation:

As far as reforestation and regeneration of vegetation are concerned, describe plant species to be replanted or to be sown:

| Name of plant species | Number of seeds or plants per square meter |
|-----------------------|--|
| <hr/> | <hr/> |
| <hr/> | <hr/> |
| <hr/> | <hr/> |
| <hr/> | <hr/> |
| <hr/> | <hr/> |

Estimate the date to carry out the reforestation program:

Describe how trenches and wells will be filled in and methods used when water table is reached:

Describe rehabilitation measures of excavations, paths and other developments of the perimeter that have had negative impact on the environment:

H Assessment of program of lightning and rehabilitation measures

Describe how the program of lightning and rehabilitation measures will be assessed and how it will be altered if some measures fail:

I. Detailed budget

Please enclose the budget of the program for the management of environment lightning and rehabilitation measures that will be entitled Document C of the PEE-RIM.

J. Financing plan

Please enclose the financing plan of the program for the management of environment lightening and rehabilitation measures that will be entitled Document D of the PEE-RIM.

K Proposal for the management mechanism of the provision for the rehabilitation.

Please enclose the proposal for the management mechanism of the provision for the environment rehabilitation as per provisions of articles 78-79 of this order on the regulation of the mining sector as far as environmental protection is concerned. This proposal will be entitled Document E of the PEE-RIM.

L. Signatures

1. The holder or his representative in the field should sign the PEE-RIM relating to research activities described in this form.

2. *Certificate of the holder.* I, the undersigned _____, subscribed having read and understood information and questions in this form, and based upon indications of persons responsible to communicate the necessary information to me, I assert that answers in this form are complete, correct and truthful. Moreover, I attest that these answers have been given as per Guideline for the Preparation of the Environmental Commitment Plan for Operations pursuant to Minimal Impact Research License of the Appendix C of this Order.

I commit myself so that research activities and lightening and rehabilitation measures should be carried out as per information submitted in this document.

Certified Signature _____

Name _____

Date: _____

3. *Certificate of the holder representative.* I, the undersigned _____, subscribed having read and understood information and questions in this form, and based upon indications of persons responsible to communicate the necessary information to me, I assert that answers in this form are complete, correct and truthful. Moreover, I attest that these answers have been given as per Guideline for the Preparation of the Environmental Commitment Plan for Operations pursuant to Minimal Impact Research License of the Appendix C of this Order.

I commit so that research activities and lightening and rehabilitation measures should be carried out as per information submitted in this document.

Certified Signature _____

Name _____

Date: _____

APPENDIX C

REPOBLIKAN'I MADAGASIKARA
Tanindrazana – Fahafahana- Fandrosoana

Ministry of Energy and Mines

Ministry of the Environment

GUIDELINE FOR THE PREPARATION OF THE ENVIRONMENTAL COMMITMENT PLAN FOR OPERATIONS PURSUANT TO MINIMAL IMPACT RESEARCH LICENSE (PEE-RIM)

I. INTRODUCTION

This Order specifies provisions on applicable regulation in the Malagasy mining sector as far as environmental protection is concerned, to enforce provisions of the Decree N° 2000-170 of march 15, 2000 setting conditions of enforcement of the Law n° 99-022 of august 19, 1999 relating to the Mining Code and that of the Decree N°99-954 of December 15, 1999 relating to the compatibility of investments with the environment, to enforce article 10 of the Law N°90-033 of December 21, 1990 relating to the Malagasy Environment Charter.

Holders of mining Licenses or mining Authorizations should get the environmental authorizations required by this Order before undertaking mining operations authorized by their mining License or Authorizations. The environmental Authorizations consist of: (1) the environmental Authorization issued by the competent administrative Authority following the favourable assessment of the environmental impact study (EIE) and (2) that which is issued following the approval by the competent Authority responsible for the instruction of the environmental commitment plan (PEE).

The environmental authorization requested by the holder of a License or the beneficiary of the mining Authorization is a function of the held mining License or Authorization, of the mining activity site, of the mechanization degree to mine mining substances and cumulative harmful effects caused by the mining activities concentration in a given area.

There are two types of environmental commitment plan for research operations pursuant to R license or operations for non mechanized scientific study of in depth fossilized lodgings:

1. The PEE-RIM is developed according to the form enclosed with the Appendix B of this Order for operations pursuant to research License, which are limited to the considered activities that only have a minimal impact on the environment.
2. The PEE-RS should be developed for operations pursuant to research License, which exceed the eligibility limits for the PEE-RIM.

During the assessment of a PEE-RS, it can be determined that the predicted operations should be the subject of an EIE, to enforce criteria explained in article 106 of this order.

II. THE SCOPE OF THIS GUIDELINE

The appendix C of this order presents environmental criteria that will guide the holder of an R License or the beneficiary of an authorization for non-mechanised scientific study of in depth fossilized lodgings during the preparation of the PEE-RIM. The realization of a PEE-RIM is only required when the impact of mining or scientific operations on the environment is minimal.

The holder or his representative should deposit the form and documents of PEE-RIM to the Mining Land Registry where the application for License or Authorization for scientific study has been registered and get the PEE-RIM approval before starting operations in the field.

The holder should carry out lightening and rehabilitation measures in his PEE-RIM approved on the whole of his project.

If the holder wants to carry out lightening and rehabilitation measures different from that which are approved in his PEE-RIM, he should prepare a PEE-RS. It would be the same if research activities that the holder wants to undertake on the perimeter have more considerable impact on the environment than the list of activities and thresholds enumerated in the section A of the PEE-RIM form. The content of the PEE-RIM consists essentially of a certifying that activities will be limited as per eligibility criteria, a description of the research project and a description of the plan for lightening and rehabilitation measures and their financing means.

III. THE CONTENT OF PEE-RIM

The content of the PEE-RIM includes the following elements. Each element is mentioned in the PEE-RIM form (Appendix B of this order).

- Thresholds of the minimal impact of research activities (Section A of the PEE-RIM);
- Impact of research activities on sensitive areas (Section B of the PEE-RIM);
- Information concerning the holder of R License or the beneficiary of the Authorization for non-mechanized scientific study of in depth-fossilized lodgings (Section C of the PEE-RIM);
- The map and the location (Section D of the PEE-RIM);
- Description for the program of research operations (Section E of the PEE-RIM);
- Information about water resources on the perimeter (Section F of the PEE-RIM);
- The program for the suggested management of lightening and rehabilitation measures (Section G of the PEE-RIM);
- Assessment of the program for the management of the lightening and rehabilitation measures (Section H of the PEE-RIM);
- The detailed budget of the suggested program for the management of lightening and rehabilitation measures (Section I of the PEE-RIM);
- The financing plan of the suggested program for the management of lightening and rehabilitation measures (Section J of the PEE-RIM);
- Proposal for the management mechanism of the provision for the environmental rehabilitation (Section K of the PEE-RIM) and;
- The commitment of the holder and his representative to implement the program (Section L of the PEE-RIM).

Criteria and information that would guide the holder when preparing his PEE-RIM are explained below in sections that correspond to sections in the PEE-RIM form.

A. Thresholds of the research activities minimal impact

The first part of the PEE-RIM form presents a list of thresholds that the holder should not exceed and a list of activities that will have a minimal impact on the environment.

To be submitted to a PEE-RIM, the research project should not exceed thresholds explained in the first part of the Appendix B and should not suggest activities which are outside the authorized activities list. When filling in the PEE-RIM form and referring the below enumerated criteria, the holder realizes that his research or draft scientific study does not come under a PEE-RIM, he should directly prepare a PEE-RS and not dwell on PEE-RIM.

B. Impact of research activities on sensitive areas

If research or study activities carried out by the holder have a negative impact on sensitive area, the holder or his representative has to prepare a PEE-RS for the whole activities pursuant to R License or the Authorization for scientific study. (In this case, research/ study activities do not come under a PEE-RIM).

The holder or his representative should base on available maps, publications and written documents to determine if his perimeter is located in sensitive area. The holder needs not make a field study to determine the presence or the absence of sensitive area within his perimeter.

If the holder answers in the affirmative one of information in section B of the PEE-RIM relating to sensitive areas, he should specify for each affirmative response (i) the geographical situation of the sensitive area compared with squares of the mining perimeter, and its size; (ii) the nature of the considered research operations and conditions that he suggests to comply with so that operations would not have a negative impact on the area(s).

If research / study activities take place in sensitive area, or if they affect obviously a sensitive area, the holder should develop and deposit a PEE-RS as per directives of appendix D of this order. During the assessment of PEE-RS, the holder should have prepared an EIE if it is determined that the considered activities have considerable impact on the sensitive area. On the other hand, if research activities have no considerable negative impact on the sensitive area, the holder will be authorized to implement the PEE-RS.

C. Identification of the holder and Licenses/ Authorizations

In section C of the PEE-RIM, the holder should first subscribe the name of the project, the number of the R License or Authorization for scientific study and its granting date. The holder should also write down his own name, address and phone numbers. This information should be identical to that written on the R License of the holder or on the Authorization for non-mechanized scientific study of in depth-fossilized lodgings of the beneficiary. The name and phone numbers of the holder representative responsible for the management of the mining or scientific operations in the field should also be specified.

Second, the holder should specify the nature of the relating rights and documents pursuant to which he can have an access to the perimeter and carries out research or study operations on it: that is to say, the concluded contract(s) with landowners, occupants and holders of right of usufruct, if necessary.

Finally, names and addresses of landowners and representative of local authorities should be specified.

The holder should provide information required in 2 and 3 of this section of PEE-RIM as soon as possible after researches reasonably applied. It is not necessary that he has concluded contracts with landowners of the whole land comprise inside his perimeter before developing his PEE-RIM or that he has completed exhaustive research of all the concerned landowners. However, it would be difficult to grant the environmental Authorization pursuant to PEE-RIM without showing diligence to the identification of the landowners and the conclusion of contracts with them.

D. Map and Location

The section D of the PEE-RIM form imposes the holder or his representative to establish the basic topographical map showing certain geological and physical data of the land and the developments site predicted by the research project on the perimeter. This map should be presented to an exploitable scale.

E. Description of program of research or Study operations

1. Generalities

In section E of the PEE-RIM form, the holder will exactly describe research works that he considers to carry out. The following elements should be presented:

- Non-intrusive detection activities
- Geodesic location and establishing of perforation net
- Sampling methods
- Encampment
- Entrances
- Materials and equipments
- Related activities

2. *Non-intrusive detection activities*

The holder should describe all non-intrusive detection activities that he considers undertaking on the research perimeter. When these activities are under an independent provider responsibility, the holder should ask him to provide information that comes under his competence. The holder should manage himself to get, and provide information, which seems correct but not obliged to check it independently. The holder will indicate on his PEE-RIM the provided information from the independent provider.

Concerning air location, the holder should indicate the type of planes or helicopters and the number, the altitude and approximate dates of the flight.

The description should include an indication of the passage number to be predicted during each flight, their length and the width interval between passages. He should also locate the area where the flights will take place and re write the considered flight itinerary on the basic topographical map. Moreover, the holder should estimate the level of noise produced by these planes or helicopters.

The holder of R License who considers using explosive to undertake detection activities cannot integrate his activities inside PEE-RIM. In fact, such activities come under PEE-RS.

3. *Geodesic locations and establishing of perforation net*

The holder should specify methods determining drilling and excavation points on the research perimeter in the PEE-RIM form.

4. *Sampling methods*

The holder should indicate methods and means used for sample taking on the research perimeter. They will mainly consist of drillings, in depth ground drilling and digging of trenches. Nevertheless, if other means are used, the holder should describe them on the PEE-RIM.

The location of sample taking should be mentioned on the basic topographical map. If the method of drilling and in depth ground drilling is used, the holder should specify the drilling depth and the

diameter of the considered in depth ground drilling. If the holder considers the digging of trenches, he should describe the length, the depth and the incline of the considered excavations.

5. Encampment

The encampment, material and staff sites should be mentioned on the basic topographical map. The holder should indicate the site of the temporary laboratories and that of the encampment fire.

The holder should specify the identity of employees living on the research perimeter. He should also describe conditions of works and residence of the staff, the built temporary houses, conditions of preparation of food and treatment of household rubbish, toilets and showers and wastewater. The construction of permanent structures is excluded from the PEE-RIM and is the subject of the PEE-RS or an EIE.

6. Entrances

All roads leading in or out of the research perimeter should be located on the basic topographical map; the holder should show how he considers using the existing infrastructure to meet the research perimeter. In case that there's no road infrastructure toward the research perimeter, the holder should indicate how he intends to transport material and staff to the research perimeter. The construction of road is an activity that comes under a PEE-RIM and which, consequently, is the subject of a PEE-RS or an EIE.

7. Material and equipment

The holder should enumerate on the PEE-RIM all materials and tools, whether they were movable or real, which are brought to the research perimeter. He should also describe the energy capacity used for the research project and its sources (e.g. gas generators). Concerning drilling operations, the use of more drilling and lubricants equipment, which are not biodegradable, does not come under the PEE-RIM and should be the subject of a PEE-RS or an EIE.

8. Chemical substances

The holder should specify how and by which means chemical substances will be stored and transported to the research perimeter.

Activities using chemical substances- other than oil, vehicles accessory lubricants, biodegradable chemical substances, little quantity of chemical substances in laboratories- are excluded from the PEE-RIM and should be the subject of a PEE-RS or an EIE.

9. Related activities

The holder will describe all related activities connected with the research project / draft study that are not referred to the previous sections.

F. Information about water resources on the perimeter

The holder should answer this section of PEE-RIM basing on the available information of the Ministry of Mines, the Ministry of the Environment or the competent governmental agency.

G. Program of lightening and rehabilitation measures

By submitting to a PEE-RIM, the holder commits himself to carry out the program of lightening and rehabilitation measures that he suggests. The holder who does not carry out lightening and

rehabilitation measures specified on his PEE-RIM exposes himself to fines or suspension of his activities and then to the end of the research project.

An appropriate program of lightening and rehabilitation measures should comprise the following elements:

- Adequate research of mining potential of the research perimeter;
- Consultation with local authorities and local people;
- Lightening damages caused to the local people who have the right of property on one or several parcel of perimeter, to domestic or wild animals, to the agriculture and vegetation on the perimeter and last, to the natural state of the soil; and
- Repairing damages caused by research activities.

The program of lightening and rehabilitation measures is composed of the following actions:

1/ Measures Before the Beginning of Research Operations

2/ Measures During Research Operations

3/ Measures at the End of Research Operations

The holder should commit himself to carry out at least lightening and rehabilitation measures described below:

1. Measures Before the Beginning of Research Operations

In the section G of the PEE-RIM form, the holder should first present measures that he commits himself to take before the beginning of research operations. More particularly, the program should comprise the following provisions:

- The presence of the holder representative who has some knowledge on agricultural and breeding activities among the team working in the field. The identified person should have the ability to develop affinities with farmers who carry out their activities on the research perimeter thanks in particular to his knowledge of the Malagasy agricultural and breeding practical experience. His CV should be figured among the PEE-RIM appendix.
- The commitment subscribed by the holder representative in the field to comply with all legislations and regulations in force and to carry out all legal obligations that are his responsibility, in particular as far as local regulation about health control (sicknesses) and security (animals, dangerous plants and insects) is concerned.
- The program of consultations with local authorities and those who have the right of property or use on the perimeter quite before the beginning of activities and the own commitment of the holder representative in the field to strike up a conversation with local authorities, inhabitants and those who have the right of property or use on the perimeter. This approach should allow minimizing damages caused by the research project to local authorities and those who have the right of property or use on the perimeter.
- The commitment subscribed by the holder representative that local authority and those who have the right of property or use will be informed of the location and the expanse of the research works, details of the R License or the Authorization for scientific study of fossilized lodgings, the approved PEE-RIM and the way to contact the holder representative.
- The commitment subscribed by the holder representative to make inquiries to local authorities on the roads access and state, the necessary improvement for it, the appropriate place to set up encampment, and will bother as little as possible the access to the pasture land and the watering place and shelters that have already been used for

cattle breeding, and the area of agricultural lands and the site of permanent buildings. The holder representative will also commit himself to get Authorization of local authorities to use water resources and will get on with those who have the right of property or use on one or several parcels of perimeter in order to minimize fire risks. From this same written commitment, the holder representative commits himself to inform the local people of all seismic prediction or meteorological disaster of which he is aware of and which may affect the local people, and air location to low altitude that may disturb the cattle.

- The commitment subscribed by the holder and his representative that all employees and sub contractors will be informed of the commitment of the mining company or the study entity and that they should find out to local authorities, land owners and the holders of right of usufruct as far as applicable legislations and regulations in force are concerned. The holder is entirely responsible for his employees and sub contractors behaviour.

2. Measures During Research Operations

During the carrying out of research works, the holder of R license commits himself to implement the following lightening and rehabilitation measures.

(a) Consultation of local authorities and those who have the right of property or use on the perimeter, protection of the improvements, fields, cattle and pasture land

The holder, through his representative in the field, commits himself to keep conversation and ensure regular relation with local authorities and those who have the right of property or use on the perimeter that may be disturbed by the research project. The holder representative in the field should contact the landowner(s) some days before the beginning of research works to make sure that mutual understanding exists on the operations development. The holder representative in the field should meet afterwards the landowner(s) each time the exploration team sets up new encampment. Moreover, each time that an operation connected with the research project is liable to bother landowners; the holder representative in the field should meet them and inform them on the operation imminence (e.g. air location)

The program described in the section G of the PEE-RIM will comprise as well the commitment subscribed by the holder to minimize damages caused by the development of the surface area of the research perimeter:

- If possible, the holder should keep the existing portals, barriers and fences. If new portals, barriers or fences should be built, the holder should discuss their form and location with the landowner(s).
- A competent fitter of fences should be engaged to set up temporary barriers or portals or to build permanent repair and avoid cattle escaping through fence gaps.
- Each temporary portal or fence should be inspected regularly to detect gaps to be repaired.
- Damages and destructions relating to the improvement of the surface area of the research perimeter should be pointed out and repaired shortly.
- The access to cultivated lands or pasturelands should be avoided. However, if necessary, the landowner should be consulted and got his authorization before getting into his fields and pasture areas.
- The cattle should be bothered as little as possible, especially during reproduction and the giving birth period.

(b) Non-intrusive detection activities

The holder commits himself so that non-intrusive detection activities, which cause problems to landowners and farmers, should be programmed during days and on time when their impact can be minimized. The holder should consult landowner(s) and farmers and manages to have an agreement concerning them. Moreover, air location flights should avoid passing near wild fauna and flora. These flights cannot happen during livestock or protected fauna reproduction.

(c) Geodesic location and establishing of perforation net

The holder of R license commits himself to comply with the following instructions as far as geodesic location and the site of the perforation net are concerned:

- The installation of the entrances is temporary and consequently the vegetation destroyed to build them should be replaced. Bulldozers cannot be used to build entrances. The destruction of vegetation, which hinders the entrance building, should be carried out according to the practical explained above in the section relating to soils and vegetation.
- The location of a net and entrance line need not be straight lines and consequently, the felling of big trees and the moving of rocks mounds should be avoided. If a straight line is necessary, the holder commits himself so that trees would be pruned instead of uprooted.
- Boundary markers should be set up to minimize accident risks and avoid the hindering of the vehicles and herds circulation.
- Permanent boundary markers should be limited. Temporary boundary markers should be removed rapidly.
- Boundary markers made of wood should be used instead of boundary markers made of steel. Boundary markers should be set up visibly.
- The Geographic Positioning Systems (GPS) method should be used each time the road construction implying the ground clearing and the destruction of the vegetation can be avoided.

(d) Sampling methods

The holder should also commit himself to certain flexibility as far as drillings and excavations location are concerned, to avoid environment damaging on the surface area of the research perimeter. Only lubricants of biodegradable drilling can be used. Excavations should be made by techniques that minimize their size. The use of heavy equipment such as bulldozers is not allowed with a PEE-RIM.

Location boundary markers cannot be set up in areas where they represent danger for men or cattle or they hinder vehicles, equipment and herds circulation. The holder representative in the field should inform landowner(s) of the boundary markers location. Fire to make rocks rise to the surface does not come under the PEE-RIM. If the holder considers this technique, he should develop and submit a PEE-RS that will be submitted to the assessment by the Committee and the committee ad hoc who will decide is an EIE is necessary.

(e) Soils, vegetation, animals and epidemics

The holder should commit himself to take the following measures to avoid disease infectiousness and preserve natural resources:

- Avoid disease infectiousness from animals, insects or plants. The holder should commit himself so that each vehicle should entirely wash (including imported and new vehicles) and cleared of all plants stuck to it.
- Avoid to maximum the clearing of the ground. Where it is essential, brush aside bush in the way. This technique will promote the growth of roots and buds. The riverside should not be cleared except if it is 50 cm or more (to the height of one meter from the ground) is an activity that does not come under a PEE-RIM but a PEE-RS.

- Avoid the creation of excessive dusts near housing, cultivated lands and waterways where local people may use for their daily life.
- Avoid clearing sloping hills, shady places and natural formations that may use as shelter for animals.
- All clearing plants should be stored in order to be buried later on and to avoid erosion and allow the environmental rehabilitation.
- Avoid altering the soil relief; and to avoid erosion, build dikes and gutters when it is necessary.
- Humus from the soil should be stored and covered. Avoid disturbing surrounding environment in and around waterway. It is forbidden to throw chemical products, sediments or products from millstone in water surface or underground water.

(f) Encampment

The holder should commit himself so that before the encampment installation, the holder representative in the field consults local authorities and landowners. The clearing prior to the encampment installation should be carried out according to the natural process and should not affect the soil relief and levelling. Encampments should be at least 100 meters from the water supply point or waterways- except if the holder representative in the field has the authorization to bring the encampment nearer - and should not hinder the migration of wild or domestic animals towards the water supply point.

Concerning encampment fire, within a radius of 4 meters, the vegetation and inflammable substances should be removed. A fire extinguisher should be available on the encampment. In places where chemical substances were stored, generators and similar installations should be established protection radiation of which inflammable substances are removed.

Liquid substances should be stored in order to prevent all leaks to the environment. Maintenance and draining of machines should be carried out in place where there is no risk to pollute water supply points or waterways.

Biodegradable food products and other biodegradable substances can be buried inside the research perimeter only after having the Authorization from the concerned local authorities and / or landowner(s). Rubbish dump should be at least 100 meters from all waterways. Non-biodegradable rubbish should be transported outside the research perimeter. The holder should describe the way that he treats non-biodegradable rubbish.

It is preferable that the holder put at the disposal of his staff movable chemical toilets for toilets and showers treatment. On the other hand, if this solution is not considerable, sanitary wastes should be treated as follows:

If the holder wants that sanitary waste treatment would be operated inside the perimeter, he should build latrines of 2 meters depth and 1 meter width and situated at least 100 meters from the nearest water supply point. If more than 10 persons use it, additional latrines with the same measures should be built to 5 meters from the first. Additional latrines should as well be built at 2 meters from the firsts if their level is only at 1,5 meters from the surface area. Lime should be added in regular intervals. Latrines should be covered at least 2 meters of ground.

(g) Entrances

The holder should commit himself to reduce the number of vehicle used on the private property and use the pre-existing paths and roads. If possible, the holder should choose precise itinerary to avoid the passage on sensitive areas and areas subject to erosion. The holder should be able to limit vehicles circulation if it is rainy and roads, and cultivated areas may be damaged. He should also commit

himself so that field team does not drive vehicles towards places that present erosion danger. If the circulation of the holder's vehicles causes damage, the field team commits to repair it shortly. Moreover, the holder's employee in the field should drive prudently especially in the area around the housing or the working place.

If new paths are necessary, the clearing should be minimal and should exclude the felling of trees, with diameters of 50 cm or more and at one-meter height from the ground, and bushes as well as roots. The path entrance at the junction of the most important roads should be hidden to discourage prowlers.

The passage of waterway should be avoided and limited to places where natural conditions permitting without disturbing waterway and its shore. If the frequent passage of the waterway is necessary, the holder should show the way of which he will build and maintain a bridge in order to avoid ground erosion. Research project activities should be avoided to block or to disturb natural leak of waterways.

(h) Water quality and harnesses

The holder representative in the field should be extremely vigilant so that water resources on the research perimeter should not be polluted, especially when they are used for supplies, hygiene and for sample cooling and washing. For the two last cases, water should not be thrown back to the source. It should be put into container and treated according to the regulation in force.

The digging pit to store lubricants of the drilling equipment, if necessary, should be isolated from the soil by a film of impermeable plastic. As the pit is filled, perforation lubricants should be pumped, put in a container and treated outside the research site. When the pit is not anymore used, it should be first entirely emptied, its impermeable film should be removed, and it should be filled in, levelled and replanted as possible.

(i) Related measures

The holder commits himself so that the following measures would be taken during the realization of the research works:

- No firearm should be allowed inside the research perimeter without an agreement with local authorities and landowner(s).
- No domestic animal should be brought inside the research perimeter without an agreement with local authorities and landowner(s).
- Hunting and fishing are prohibited inside the research perimeter without an agreement with local authorities and landowner(s).
- Dusts and noises should be avoided near the housing.
- Each vehicle should contain an extinguisher.
- Local regulation as far as fire is concerned should be respected. In case of fire, the holder commits himself to offer help to local authorities and landowner(s).
- The holder commits himself so that signs built by local authorities would be respected.
- If, during research works, an important archaeological, cultural or historical sign is discovered, works should be stopped immediately and the competent authorities should be informed of it. The holder representative in the field should offer help to competent authorities on the research perimeter and if necessary, remove his works to another site.

3. Measures at the End of Research Operations

Before the end of research works, the holder of R license commits himself to apply the following lightening and rehabilitation measures gathered in two categories:

- Regular measures, which are carried out during the development of research activities in particular place such as, for example when an encampment is left for another, and
- Final measures applied when research activities are finished.

(a) Regular measures

The holder commits himself so that the following lightening and rehabilitation measures would be carried out to the site of each encampment before the research team would set themselves up to another encampment:

- All waste, leftovers, rubbish, sampling bag, temporary equipment and structure to be thrown should be transported outside the encampment. Latrines should be covered at least 2 meters of ground.
- Mounds of ground artificially created should be levelled. The entire perimeter place that is fitted out should be put on its natural form before the research works. When the soil is sloping, the levelling should be made parallel to the soil relief.
- Entrances should be erased, except those, which will continue to be used and except if local authorities want to keep the way as permanent. These local authorities should make written application of it to the Minister of Mines who will inform the holder representative and local authorities of his written decision.
- The holder commits himself to bring to its natural state each area which environment is altered to adapt research works. Measures comprise soil levelling, the reinsertion of humus and vegetation, planting of local plant species and fertilization of humus that is stored for more than six months. The surface area should present lump of earth to allow the installation, safe from erosion and wind, from new plants and animals' species and waterways.
- Before sowing plant species within his plant rehabilitation program, the holder representative in the field should get the authorization of local authorities and landowners.
- Each pit, excavation and trenches should be filled in, at least temporarily. It is essential to let the excavation open; it is necessary to fix the surface area with a barrier and road signs.

(b) Final Measures

To identify final lightening and rehabilitation measures, the holder puts himself in perspective to clean up and make firm the encampment and works site, and restore its ability to allow another activity compatible with all form of life and activity in district where it is placed, after the end of the mining operation. At that, the holder commits himself to realize measures for each encampment where research activities are finished. These measures are applicable each time research works are not resulted in the discovery of a mineral substance and the holder does not wish to re use this research area.

- Verify the effective realisation of regular measures of lightening and rehabilitation for each encampment (verify the levelling of land, the plant shoot and the erosion state). If these measures do not come to the wished results, the holder representative in the field should take appropriate correcting measures.
- Cover all excavations without exception.
- Cover permanently drillings inside the perimeter by cement. On the other hand, if an underground rock was perforated and local authorities want to keep this drilling, the perforated rock should not be covered by cement, on condition that the minister of Mines would accept the written request to maintain the drilling submitted by local authorities. Local authorities are liable for the additional cost of the development

- works of drilling compared to the technique of the cement filling. Each drilling uncovered by cement should be distinguished and circled by a barrier.
- Environment rehabilitation measures should be carried out as they are explained above except if local authorities or landowner(s) had the authorization of the ministry of Mines to keep certain perimeter developments.
 - Inform the Minister of Mines of the end of the research or study works and the carrying out of the lightening and rehabilitation measures. Verify the carrying out of lightening and rehabilitation measures in the field with local authorities and the concerned landowner(s).

H. Assessment of lightening and rehabilitation measures

The holder defines methods of assessment and adjustment of lightening and rehabilitation measures of his program. This assessment takes place the first time at the end of works for each encampment. The holder representative commits himself to write report certifying the efficiency of lightening and rehabilitation measures and correcting or additional measures to be carried out for each encampment. The holder representative should send a copy of this report to the environmental Committee of the Management of Mines within the Ministry of Mines, by means of the Mining Land Registry responsible for the file.

The holder representative commits himself to come back to the research perimeter after the first period of six months and then after one year to check that final measures have been carried out successfully and that environment inside the perimeter is restored as per rehabilitation objective. Each visit of the holder representative, he should convene local authorities and landowner(s) who verify the progress of rehabilitation measures. He should note on a written report the assessment of the rehabilitation program and the remarks of local authorities and landowner(s). Copies of the report should be sent shortly to the environmental Committee of the Management of Mines within the ministry of Mines, to the local authorities and landowners.

I. The detailed budget of the suggested program of lightening and rehabilitation measures

The holder of R License should enclose in his PEE-RIM a detailed budget of the suggested program of lightening and rehabilitation measures. This budget will represent the entire estimated costs, the duration of the considered rehabilitation works, the necessary labour costs, general expenses and other expenses. This information should be updated each six months and should enclose the costs of the closing and assessments and verifications in the field.

J. Financing Plan

The PEE-RIM for a mining research project pursuant to R License should explain how the holder would finance the suggested program of lightening and rehabilitation measures. Financing means should be available even if the holder cannot realise himself lightening and rehabilitation measures. If expenses proved to be considerable than that predicted in the financing plan, a margin of 25% of the entire estimated expenses should be added to the financing plan.

K. Proposal for the management mechanism of the rehabilitation provision

As per provisions of articles 77 and 78 of this Order, the PEE-RIM for mining research project pursuant to R License should enclose a proposal for the management mechanism of the provision for the environmental rehabilitation, matched with the financial security measures in favour of the Malagasy State.

The management mechanism of the provision for the environmental rehabilitation can consist of crediting bank accounts in Madagascar with the necessary funds to finance rehabilitation works as per a reasonable refunding program, subject to the following conditions:

1. The holder can use funds in the account(s) only to finance the project environmental rehabilitation works;
2. At any moment, the amount of the account(s) will reasonably be proportional to the financial needs to ensure the carrying out of the rehabilitation plan if it is necessary, considering the operations progress, their current impact on the environment, the holder current research program and his financial situation, considering if necessary his insurance policies for environmental responsibility; and
3. There will be reliable controls to warrant at the same time that the holder can seize funds in the account(s) only for the environmental rehabilitation of the project site and that the State, represented by the Minister of the Environment and that of Mines, working together, will be able to withdraw funds from the account in order to make rehabilitation works carried out by the third party in case of serious infringement or plain renunciation of the place by the holder.

Financial security requirements can be lightened or cancelled for holders who have already had an environmental management system accredited by an international accreditation organisation as provided for example in ISO 14000 series.

L. Signatures and commitment of the holder to implement the program

The holder of R License or the beneficiary of the Authorization for non-mechanized scientific study of in depth fossilized lodgings, according to the case, and the holder representative in the field should sign the PEE-RIM. If the identity of the holder has changed during the implementation of the project, the new holder should have submitted the PEE-RIM signed by the new holder representative in the field. By appending their signatures on the last page of the PEE-RIM form, the holder and his representative commit themselves to comply with all obligations and measures written on the form and documents of PEE-RIM.

IV. ASSESSMENT OF PEE-RIM

The environmental Committee of the Management of Mines within the ministry of Mines is responsible for the assessment of the PEE-RIM of research projects and non-mechanized scientific study of in depth fossilized lodgings. Assessment criteria are:

- Verification of the description of the holder, his R License or his authorization for scientific study and the establishment site of operations as they were presented in the PEE-RIM;
- Verification of the conformity with thresholds of the Section A of PEE-RIM form;
- Verification of the conformity of the suggested lightening and rehabilitation measures, and
- Sufficiency of the budget and the financing plan of lightening and rehabilitation measures and the suggested management of the environmental rehabilitation provisions if the PEE-RIM is for mining research project pursuant to R License.

REPOBLIKAN'I MADAGASIKARA
Tanindrazana – Fahafahana- Fandrosoana

Ministry of Energy and Mines

Ministry of the Environment

**DIRECTIVES FOR THE DEVELOPMENT OF THE
ENVIRONMENTAL COMMITMENT PLAN
FOR OPERATIONS PURSUANT TO
STANDARD RESEARCH LICENSE
(PEE-RS)**

I. This order explains modes of regulation in the Malagasy mining sector as far as environmental protection is concerned, to enforce provisions of the Decree N° 2000-170 of march 15, 2000 setting conditions of enforcement of the Law n° 99-022 of august 19, 1999 relating to the Mining Code and that of the Decree N°99-954 of December 15, 1999 relating to the compatibility of investments with the environment, to enforce article 10 of the Law N°90-033 of December 21, 1990 relating to the Malagasy Environment Charter.

Holders of mining Licenses or mining Authorizations should get the environmental authorizations required by this Order before undertaking mining operations authorized by their mining License or Authorizations. The environmental Authorizations consist of: (1) the environmental Authorization issued by the competent administrative Authority following the favourable assessment of the environmental impact study (EIE) and (2) that which is issued following the approval of the environmental commitment plan (PEE) by the competent Authority.

The environmental authorization requested by the holder of a mining License or mining Authorization is a function of the held mining License or Authorization, of the mining activity site, of the mechanization degree to mine mining substances and cumulative harmful effects caused by the mining activities concentration in a given area.

There are two types of environmental commitment plan for research operations pursuant to R license or operations for non mechanized scientific study of in depth fossilized lodgings:

3. The PEE-RIM is developed according to the form enclosed with the Appendix B of this Order for operations pursuant to research License, which are limited to the considered activities that only have a minimal impact on the environment.
4. The PEE-RS should be developed for operations pursuant to research License, which exceed the eligibility limits for the PEE-RIM.

During the assessment of a PEE-RS, it can be determined that the predicted operations should be the subject of an EIE, to enforce criteria explained in article 105 of this order.

II. THE SCOPE OF THESE DIRECTIVES

The PEE-RS presumes that research activities of the holder will have an important impact on the environment. Consequently, directives for the preparation of a PEE-RS are more exhaustive and detailed than the PEE-RIM form. The holder of R license preparing a PEE-RS need not present a short list of lightening and rehabilitation measures but should make deeper analysis of rehabilitation

methods that depend on the considered research activities and the physical, biological and geological characteristics of the perimeter.

The content of the PEE-RS consists essentially of a description of the surrounding environment of the project establishment, a description of the research project or study, an analysis of harmful impacts on the environment and a description of the plan for lightening and rehabilitation measures and their financing means. The holder of R license should commit himself to implement the plan for lightening and rehabilitation measures of the PEE-RS.

The holder or his representative should deposit the PEE-RS to the Mining Land Registry where the application for License or Authorization for scientific study has been registered and should get the PEE-RS approval before starting operations that are the subject of operations in the field.

III. THE CONTENT OF THE PEE-RS

The content of the PEE-RS includes the following elements. Each element should be explained in the following order and constitutes a chapter of the PEE-RS.

- Identification of the holder or the beneficiary of the R license(s) or the concerned Authorization for Scientific Study of fossilized lodgings;
- Description of the surrounding environment of the research / study perimeter using the existing data;
- Description of the program of considered works for which the authorization is requested;
- Description and analysis of the considered works effects on the environment;
- Proposal for the program of lightening and rehabilitation measures including:
 1. Measures Before the Beginning of Research Operations
 2. Measures During Research Operations
 3. Measures at the End of Research Operations
- Proposal for the assessment and adjustment program of lightening and rehabilitation measures;
- Detailed budget for the program of the suggested lightening and rehabilitation measures;
- Financing plan for the program of the suggested lightening and rehabilitation measures;
- Proposal for the management mechanism of the provision for the environmental rehabilitation; and
- The Holder's commitment to implement the program.

The PEE-RS should comprise around 30 pages to a maximum of 50 pages.

A. Chapter I: Identification of the holder and Licenses / authorizations

In this chapter, the holder should first indicate the name of the project, the number of the R License or Authorization for scientific study and its granting date. The holder should also write down his own name, address and phone numbers. This information should be identical to that written on the R License of the holder or on the Authorization for non-mechanized scientific study of in-depth fossilized lodgings of the beneficiary. The name and phone numbers of the holder representative responsible for the management of the mining or scientific operations in the field should also be specified.

If the holder of R license has already filled in a PEE-RIM for the same R License, he should provide the number of the PEE-RIM.

Information relating to the identification of the holder and his R License should not exceed half page.

Second, the holder should specify the nature of the relating rights and documents pursuant to which he can have an access to the perimeter and carries out research or study operations on it: that is to say, the concluded contract(s) with landowners, occupants and holder of right of usufruct, if necessary. Finally, names and addresses of landowners and representatives of local authorities should be specified.

The holder should provide information on landowners and the concluded contracts with them if he owns them after applied and reasonable researches. He needs not conclude contracts with landowners of the whole land within his perimeter before developing his PEE-RS, or complete exhaustive research on all the concerned landowners. However, it would be difficult to grant him the environmental Authorization pursuant to PEE-RS without showing diligence to the identification of landowners and the conclusion of contracts with them.

B. Chapter II: Description of the surrounding environment of the research / study perimeter

The holder should describe the research / study perimeter in the second chapter of the PEE-RS. This description of the surrounding environment is carried out from the available documents and publications. The holder is not obliged to undertake studies and analysis of the land in order to gather information. If there is no information available, the holder should mention it on his PEE-RS. However, the holder has to search for the existing sensitive area covering the entire or the part of the concerned perimeter according to the environmental regulation in force.

The description of the perimeter-surrounding environment, which should not exceed 10 pages and comprises the description of the following elements:

- (a) Soils and the use of the soil;
- (b) Ecosystem
- (c) Water in the surface area;
- (d) Underground water
- (e) Climate and quality of the air;
- (f) Cultural, historical and archaeological resources; and
- (g) Socio-economical environment.

The PEE-RS should include a basic map, which present the exact site of the environment main characteristics that are liable to be damaged by the research project. This map will be presented on an exploitable scale (cf. Appendix B – Page 5). The holder of the R License can use again the basic map that he had served for his PEE-RIM.

1. Nature and use of the soil

The holder should present a short description of the nature of the soil and their distribution on the concerned perimeter. Soils are identified according to the soil classification established by the Commission française de Pédologie et de Cartographie des sols. Moreover, he should also specify if dampness soils explained above exist inside the concerned research perimeter¹:

- (a) Soils that are little developed non- climatic alluvial input (group II, 42)
- (b) Dampness soils (Class XI) to the exclusion of the sub-group of salt dampness soils of gley (Sub-group XI.211).

¹ these two kinds of soils are described in the section VII of the Appendix of the Inter ministerial Order N°. 4355/97 of Mai 13, 1997.

It is important to know if these two kinds of soils exist inside the research perimeter because they may indicate the presence of humid area.

If this information is available, the holder should specify the fertility degree of different soils and their cultivating degree.

The holder should indicate the presence of areas subject to erosion or arid and semi-arid areas subject to desertification as defined in the section V and VI of the appendix of the Inter ministerial Order N°. 5344/97 of Mai 13,1997.

The PEE-RS should also describe the use of the land and should mention if the land is agricultural (used for the production of any culture) or if it is used for pastureland of cattle breeding. If the land is for agricultural use, the holder should specify the type of culture produced or the type of animals bred (poultry, oxen, etc). If the land is not for agricultural use, the holder should specify if it is intended for industrial, residential, commercial or in its natural state. The holder should indicate percentages corresponding to the repartition of the different uses of soils inside the perimeter.

The holder should re-write the nature and the use of soils and their distribution, on the basic topographical map. Areas subject to erosion or arid and semi-arid subject to desertification should also be indicated on the map.

2. Ecosystem

The holder should make a list of existing fauna and flora inside the research / study perimeter and designates them by their usual name and their scientific name (in case that they have prior been identified in some accessible studies and publications). The holder has to identify endangered or rare species that are living or passing through the research perimeter. If the holder notes down the presence of rare or endangered species, he should locate their habitat. If ways and passage of wild fauna on the perimeter are known, the holder should report them on the basic topographical map established as per provisions of the section III. B of these directives.

The PEE-RS should particularly comprise a mention relating to the coral reef, mangroves, tropical forest, natural conservation areas or marshy area as they are defined in the Inter ministerial Order N°. 4355/97 of Mai 13, 1997. Concerning natural conservation areas or marshy areas, the holder should specify if species indicated in table 10 live inside the areas within the research perimeter.

Sensitive areas, as they were defined in the Inter ministerial Order N°. 4355/97 of Mai 13, 1997, should be located on the basic topographical map.

Table 10. List of hydrophytisque plants

| <i>Families</i> | <i>Types</i> | <i>Species</i> |
|-------------------------|--------------------|---------------------------------|
| <i>Ceratophylacees</i> | <i>Cressa</i> | <i>Arthrocnemum indicum</i> |
| <i>Eriocaulacees</i> | <i>Crinum</i> | <i>Ascolepis brasiliensis</i> |
| <i>Lemnacees</i> | <i>Cyperus</i> | <i>Chara zeyianiee</i> |
| <i>Naiadacees</i> | <i>Drosera</i> | <i>Commelina seadens</i> |
| <i>Nepenthacees</i> | <i>Jussiaea</i> | <i>Courtoisia cyperoides</i> |
| <i>Nymphaencees</i> | <i>Kyllingie</i> | <i>Cynodon dactylon</i> |
| <i>Polygonacees</i> | <i>Pandanus</i> | <i>Digitaria humbereii</i> |
| <i>Pontederiacees</i> | <i>Phragmites</i> | <i>Elcocharis plantaginea</i> |
| <i>Potamogetonacees</i> | <i>Rorippa</i> | <i>Floscopa glomerata</i> |
| <i>Salviniacees</i> | <i>Salicornia</i> | <i>Furena umbeilata</i> |
| <i>Typhacees</i> | <i>Sphagnum</i> | <i>Mariscus albescens</i> |
| | <i>Utricularia</i> | <i>Pissia stretiores</i> |
| | | <i>Restio madagascariensis</i> |
| | | <i>Rhynthospara cyperoides</i> |
| | | <i>Tiphonoderum liedlgumtum</i> |

3. Water in the surface area

The holder should make a list on the PEE-RS of the existing water in the surface area inside the research / study perimeter. They are spread out between salt and fresh water and are designated according to the following names: oceans, seas, estuaries, rivers, streams, lakes, ponds, and marshes. The holder should specify if these waterways are temporary or permanents. The holder will indicate also if these waters are drinkable and if the populations use them for food or supply.

The holder should locate on the basic topographical map waters in the surface area and mentioning the drinkable waters. The holder will make an effort to indicate also water harness points.

4. Underground waters

The holder should make a list of underground waters or underground that contains water crossing or stagnant on the research perimeter and more particularly the known sources, wells and drillings. The PEE-RS will specify if local people use these sources, wells and drillings to get drinkable water for supplying and food.

The holder will make an effort to re-write the location of sources, wells and drillings on the basic topographical map.

5. Climate and quality of the air

The holder should describe shortly on the PEE-RS the climate, the annual average temperatures, rainfalls, etc of the research perimeter region.

The holder should also describe the general quality of the air, places of stagnant polluted air and sources of intermittent emission or continual polluted air inside the research area. He should specify the existing industrial and quarry installations, the construction of roads and bush fire and cultures on burn-off.

The holder should locate sources of polluted air on the basic topographical map.

6. Cultural, historical and archaeological resources

The holder should make a list and describe shortly on the PEE-RS all cultural, historical and archaeological resources that exist on the research perimeter in case that they were documented and known. Their location should be rewritten on the basic topographical map.

7. Socio-economic environment

The holder will describe the socio-economic environment inside and around the research perimeter and more particularly the existing infrastructure and the provided basic service. The holder will enumerate more particularly transport means and networks including the existing near airports, railways and road infrastructure. Concerning the road infrastructure, the holder will indicate on his PEE-RS roads and other means by which he intends to meet the research/ study perimeter. The holder will specify if roads are covered by asphalt and rewrite their location on the basic topographical map.

The PEE-RS will also identify villages or encampments near the research perimeter and their inhabitants. The holder will estimate the annual income of these inhabitants and their main sources of income.

The holder as far as possible will identify landowners, holders of right of usufruct and constraint possessors who enjoy the right of property in the research perimeter. He will rewrite the location of parcels subject to the rights of property on the basic topographical map.

C. Chapter III: Description of the considered works program for which the Environmental Authorization is requested

In this chapter, the holder will precisely describe research / study works, including the length, the duration and series of works that he considers to carry out. It is important the holder indicates the season when he considers undertaking the different works.

If the holder has already got the PEE-RIM for the same R license, he should refer to his PEE-RS research activities, which have already approved that he wants to extend or alter.

This chapter comprises 5 to 8 pages and should not exceed 10 pages.

All considered works should be located on the basic topographical map.

The following elements should be analysed:

- (1) Non-intrusive detection activities
- (2) Geodesic location and establishing of perforation net
- (3) Explosive use
- (4) Regional development
- (5) Sampling methods
- (6) Encampment
- (7) Entrances
- (8) Materials and equipments
- (9) Related activities
- (10) Activities cumulative effects

1. Non-intrusive detection activities

The holder should describe all non-intrusive detection activities that he considers undertaking on the research perimeter. When these activities are under an independent provider responsibility, the holder should ask him to provide information that comes under his competence. The holder should manage himself to get, and provide information, which seems correct but not obliged to check it independently. The holder will indicate on his PEE-RS the provided information from independent providers.

Concerning air location, the holder should indicate the type of planes or helicopters and the number, the altitude and approximate dates of the flight.

The description should indicate the number of passage predicted during each flight, their length and the width interval between passages. He should also locate the area where flights will take place and re write the itinerary of the considered flight on the basic topographical map. Moreover, the holder should estimate the level of noise produced by these planes and helicopters.

2. Geodesic location and establishing of perforation net

The holder should specify methods determining drilling and excavation points on the research perimeter.

3. Explosive use

While explosive use does not come under the scope of PEE-RIM, it can be suggested on the PEE-RS. The holder of R license who considers using explosive should specify their nature, their storing place and the intensity of the explosions on his PEE-RS. The location of the explosions should be mentioned on the basic topographical map.

4. Regional development

Important regional development, which includes the clearing of the land and the felling of certain number of trees, does not come under the PEE-RIM. On the other hand, a holder can suggest an important regional development, which includes the clearing of the land and the felling of trees and the fire of the remaining culture on PEE-RS. The regional development is considered as important if more than 0.5 hectare of the vegetation is destroyed. The holder should estimate the number of hectare of the vegetation that will be destroyed on his PEE-RS and the location of the intensive development areas should be re written on the basic topographical map.

5. Sampling methods

The holder should indicate methods and means used for sample taking on the research perimeter. They will mainly consist of drillings, in depth ground drilling and digging of trenches. Nevertheless, if other means are used, such as the digging of tunnels and levels, they should be described on the PEE-RS. The holder should afterwards estimate the entire volume of the rock that will be taken from the research/ study perimeter.

The location of sample taking should be mentioned on the basic topographical map. If the method of drilling and in depth ground drilling is used, the holder should specify the drilling depth and the diameter of the considered in depth ground drilling. If the holder considers the digging of trenches, he should describe the length, the depth and the incline of the considered excavations.

6. Encampment

The encampment, material and staff sites should be mentioned on the basic topographical map. The holder should indicate the site of the temporary laboratories and that of the encampment fire.

The holder should specify the identity of employees living on the research perimeter. He should also describe conditions of works and residence of the staff, the built temporary houses, conditions of preparation of food and treatment of household rubbish, toilets and showers and wastewater. However, activities using chemical substances and the construction of permanent structures should be specified in detail.

7. Entrances

All roads leading in or out of the research perimeter should be located on the basic topographical map (including those which will be used again and which has been built during the research project / draft study submitted to a PEE-RIM for the same license or Authorization). The holder should show how he considers using the existing infrastructure to meet the research perimeter. In case that there's no road infrastructure toward the research perimeter, the holder should indicate how he intends to transport material and staff to the research perimeter.

8. Materials and equipments

The holder should enumerate on the PEE-RS all materials and equipments, whether they were movable or real, which are brought to the research perimeter. He should also describe the energy capacity used for the research project and its sources (e.g. gas generators). The holder should specify how and by which means chemical substances will be stored and transported to the research perimeter.

9. Related activities

The holder will describe all related activities connected with the research project that are not referred to the previous sections.

10. Activities Cumulative effects

The holder of R License should indicate if other R, PRE or E license are granted within the perimeter of 5 kilometres from the limits of his research perimeter and what type of environmental studies or plans were deposited (EIE, PEE-RS, PEE-RIM, PAE).

D. Chapter IV: Description and analysis of the considered works effects on the environment

In this fundamental chapter, the holder should specify impacts of the considered research / study works on the environment. The nature and the expanse of these impacts should be analysed according to the following different approaches: (1) in a case that the holder takes no lightning and protection measures, (2) in case that the holder carries out lightning and protection measures explained in the section D of these directives, (3) the cumulative effects when, to the positive impact of lightning and protection measures taken by the holder, are in addition to the negative impact provoked by other neighbouring mining projects that have already existed.

The program of lightning and rehabilitation measures explained in the section D should mixed entirely the negative impacts of the project on the environment. If these lightning and protection measures seem not be able to mix entirely the harmful effects of the project on the environment, the holder should inform it shortly to the Environmental Committee who will decide on the opportunity to continue the PEE-RS or not.

As approval condition of his PEE-RS, the holder should show that his program for the management of lightning and rehabilitation measures will not have an important negative effect on the sensitive area (Inter ministerial Order N° 4355/97 of May 13,1997).

This chapter should comprise around 5 to 8 pages and should not exceed 10 pages.

1. Methodology relating to the analysis of the effects of the research project / draft study on the environment

The holder of R License should assess the effects of each activity explained in the section B on each aspect of the environment described in the section A without considering lightning and rehabilitation measures of the section D. The holder should suggest afterwards different lightning and rehabilitation

measures in the section D of the PEE-RS that mix the negative impact on the environment and that should be approved by the Committee. If the research project seems not to cause negative effects on the environment, the holder should mention it on his PEE-RS.

2. Methodology relating to the analysis of cumulative effects

If mining activities take place or are predicted within a radius of 5 kilometres from the perimeter limits, the holder should analyse cumulative effects on the suggested research project, by adding them to the effects caused by the suggested research activities on the perimeter. During this analysis, the holder should presume that the suggested lightening and rehabilitation measures have been applied to the research project.

Firstly, the holder should research if the E, R or PRE license has been granted within the radius of 5 kilometres from the research perimeter limits. This information should be written again on the PEE-RS.

Secondly, the holder should verify if documents relating to the environmental authorizations of these licenses have been registered to the competent authority, for example a PEE-RS, PAE or EIE/PGEP. If no document were registered to the competent authority, the holder would not be obliged to analyse cumulative effects of neighbouring mining activities on the research project. If documents relating to the environmental authorizations of these licenses were registered to the competent authority, the holder would assess cumulative effects of these mining activities on his research project. The holder should be content with information on these environmental documents to determine cumulative effects of neighbouring mining activities and should presume that lightening and rehabilitation measures will be carried out and that they will cause the predicted effects. The holder is not obliged afterwards to check the existing of new neighbour mining licenses and the relating environmental documents. His obligation to analyse cumulative effects on his perimeter is limited to effects caused by operations pursuant to existing licenses before the granting date of his R license.

When PEE-RIM has already been approved for the same R License, the holder of R License needs not search for other environmental documents or environmental authorizations that have already been registered or granted and consequently, needs not incorporate these documents data on his analysis of cumulative effects. The new date from when, the holder of R License needs not search for other environmental documents or environmental authorizations that have already been registered or granted is the date when he sends a letter to the Environmental Committee explaining his intention to deposit a

PEE-RS. To make this date valid, the holder of R License should deposit his PEE-RS within 90 days from receipt of the letter by the Environmental Committee.

E. Chapter V: Proposal for the Program of Lightening and rehabilitation Measures

The holder commits himself to carry out the Program of Lightening and rehabilitation Measures that he has suggested. The holder who does not implement Lightening and rehabilitation Measures explained on his PEE-RS, exposes himself to fines or suspension and last to the closing of the research project / draft study.

In order to suggest an appropriate program of Lightening and rehabilitation Measures, the holder should comply with the following obligations, which are the same as presented in the Appendix C:

1. Adequate research of mining potential of the research perimeter;
2. Consultation with local authorities and local people;
3. Lightening damages caused to the local people who have the right of property on one or several parcels of perimeter, to domestic or wild animals, to the agriculture and vegetation on the perimeter and last, to the natural state of the soil; and
4. Repairing damages caused by research activities.

If the holder who develop a PEE-RIM should consider the program of lightening and rehabilitation measures described as below, he is not obliged to present his program according to the modes explained below. Moreover, the holder of R license who prepares a PEE-RS should present his management program of lightening and rehabilitation measures as follows:

- 1/ Measures Before the Beginning of Research Operations
- 2/ Measures During Research Operations
- 3/ Measures at the End of Research Operations

This chapter has 10 to 15 pages and to maximum 20 pages

1. Measures Before the Beginning of Research Operations

In this section, the holder should present measures that he commits himself to take before the beginning of research operations. More particularly, the program should comprise the following provisions:

- The presence of the holder representative who has some knowledge on agricultural and breeding activities among the team working in the field. The identified person should have the ability to develop affinities with farmers who carry out their activities on the research perimeter thanks in particular to his knowledge of the Malagasy agricultural practical experience. His CV should be figured among the PEE-RS appendix.
- The commitment subscribed by the holder representative in the field to comply with all legislations and regulations in force and to carry out all legal obligations that are his responsibility, in particular as far as local regulation about health control (sicknesses) and security (animals, dangerous plants and insects) is concerned.
- The program of consultations with local authorities and those who have the right of property or use on the perimeter quite before the beginning of activities and the own commitment of the holder representative in the field to strike up a conversation with local authorities, inhabitants and those who have the right of property or use on the perimeter. This approach should allow minimizing damages caused by the research project to local authorities and those who have the right of property or use on the research perimeter.
- The commitment subscribed by the holder representative that local authorities and those who have the right of property or use will be informed of the location and the expanse of the research works, details of R License, the approved PEE-RS and the way to contact the holder representative.
- The commitment subscribed by the holder representative to make inquiries to local authorities on: (a) the roads access and state, the necessary improvement for it; (b) the appropriate site to set up encampment, and bothers as little as possible the access to the pasture land and the watering place and shelters that have already been used for cattle breeding, and the area of agricultural lands, the site of permanent buildings and sensitive areas. For these lasts, the representative should redouble his efforts to minimize the negative impact of research works. The holder representative will also commit himself to get Authorization from the competent authorities to use water resources and will get on with those who have the right of property or use on one or several parcels of perimeter in order to minimize fire risks. From this same written commitment, the holder representative commits himself to inform the local people of all seismic prediction or meteorological disaster of which he is aware of and which may affect the local people, and air location to law altitude that may disturb the cattle.
- The commitment subscribed by the holder representative that all employees and sub contractors will be informed of mining company commitments and that they should

find out to local authorities, land owners and holders of right of usufruct as far as applicable legislations and regulations in force are concerned. The holder is entirely responsible for his employees and sub contractors behaviour.

Commitments subscribed by the holder described above may not to be efficient to a PEE-RS because they are essentially based on the harmony and cooperation of mining operators and do not depend on the environmental state or elements of the research project. Effectively, as for PEE-RIM, the objective of these measures is to establish harmony and cooperation with landowners and local authorities.

This objective should have been reached during the implementation of the PEE-RIM, if necessary. The holder of R licenser on his PEE-RS should only describe the way on which these relations can be renewed. If these measures failed and the discord reigned, the holder should suggest measures that will resolve these problems.

2. Measures During Research Operations

In this sub section, the holder will describe lightening and rehabilitation measures that will be implemented during the research works phase. They are similar to those advised on the Guideline for the Preparation of the Environmental Commitment Plan for operations pursuant to Minimal Impact Research License (Appendix C). They comprise measures concerning each following themes:

- (a) Consultation of local authorities and those who have the right of property or use on the perimeter;
- (b) Non-intrusive detection activities;
- (c) Geodesic location and establishing of perforation net;
- (d) Sampling methods;
- (e) Encampment;
- (f) Entrances ;
- (g) Soils, vegetation, animals and epidemics;
- (h) Water quality and harnesses;
- (i) Related measures;

Some activities will have an important impact on the environment. Consequently, the Committee will examine and assess them more particularly their impact. The holder should then treat carefully the corresponding lightening and rehabilitation measures.

More particularly, when it concerned:

- The explosive use,
- The construction of roads,
- An important national and regional development with firing the remaining cultures and felling of trees,
- The installation of semi-permanent structures,
- The absence of limitation relating to the type and number of material and machines used, and
- Activities causing an important effect on sensitive areas as they are defined in the Inter ministerial Order N° 4355/97 of May 13, 1997.

- (a) Consultation of local authorities and those who have the right of property or use on the perimeter, improvement of protections, fields, cattle and pasture lands

The holder, through his representative in the field, commits himself to keep conversation and ensure regular relation with local authorities and those who have the right of property or use on the perimeter that may be disturbed by the research project. The holder representative in the field should contact the

landowner(s) some days before the beginning of research works to make sure that mutual understanding exists on the operations development.

The holder representative in the field should meet afterwards the landowner(s) each time the exploration team sets up a new encampment. Moreover, each time that an operation connected with the research project is liable to bother landowners; the holder representative in the field should meet them and inform them of the operation imminence (e.g. air location)

The PEE-RS should also comprise the commitment subscribed by the holder to minimize damages caused by the development of the surface area of the research perimeter:

- If possible, the holder should keep the existing portals, barriers and fences. If new portals, barriers or fences should be built, the holder should discuss their form and location with the landowner(s).
- A competent fitter of fences should be engaged to set up temporary barriers or portals or to build permanent repairs and avoid cattle escaping through fence gaps.
- Each temporary portal or fence should be inspected regularly to detect gaps to be repaired.
- Damages and destructions relating to the improvement of the surface area of the research perimeter should be pointed out and repaired shortly.
- The access to cultivated lands or pasturelands should be avoided. However, if necessary, the landowner should be consulted and got his authorization before getting into his fields and pasture areas.
- The cattle should be bothered as little as possible, especially during the reproduction and the giving birth period.

(b) Non-intrusive detection activities

The holder of R License commits himself so that non-intrusive detection activities, which cause problems to landowners and farmers, should be programmed during days and on time when their impact can be minimized. The holder should consult landowner(s) and farmers and manages to have an agreement concerning them. Moreover, air location flights should avoid passing nearer wild fauna and flora. These flights cannot happen during livestock or protected fauna reproduction.

(c) Geodesic location and establishing of perforation net

The holder of R license commits himself to comply with the following instructions as far as geodesic location and the site of perforation net are concerned:

- The installation of the entrances is temporary and consequently the vegetation destroyed to build them should be replaced. Bulldozers cannot be used to build entrances. The destruction of vegetation, which hinders the entrance building, should be carried out according to the practical explained above in the section relating to soils and vegetation.
- The location of a net and entrance line need not be straight lines and consequently, the felling of big trees and the moving of rocks mounds should be avoided. If a straight line is necessary, the holder commits himself so that trees would be pruned instead of uprooted.
- Boundary markers should be set up to minimize accident risks and avoid the hindering of the vehicles and herds circulation.
- Permanent boundary markers should be limited. Temporary boundary markers should be removed rapidly.
- Boundary markers made of wood should be used instead of boundary markers made of steel. Boundary markers should be set up visibly.
- The Geographic Positioning Systems (GPS) method should be used each time the road construction implying the ground clearing and the destruction of the vegetation can be avoided.

(d) Sampling methods

The holder should also commit himself to certain flexibility as far as drillings and excavations location are concerned, to avoid the environment damaging on the surface area of the research perimeter. Only lubricants of biodegradable drilling can be used. Excavations can be made by mechanical digger instead of bulldozers to limit the size. Location boundary markers cannot be set up in areas where they represent danger for men or cattle or they are an obstacle for the vehicles, equipment and herds circulation. The holder representative in the field should inform landowner(s) of the boundary markers location and pasture lands.

(e) Encampment

The holder of R License should commit himself so that before the encampment installation, the holder representative in the field consults local authorities and landowners. The clearing prior to the encampment installation should be carried out according to the natural process and should not affect the soil relief and levelling. Encampments should be at least 100 meters from the water supply point or waterways- except if the holder representative in the field has the authorization to bring the encampment nearer - and should not hinder the migration of wild or domestic animals towards the water supply points.

A fire extinguisher should be available on the encampment, within a radius of 4 meters, around the encampment fire, the vegetation and inflammable substances should be removed. A protection area which inflammable substances have been removed should be established on places where chemical substances, generators and similar installations were stored. The material should be stored in order to prevent leaks to the environment. Maintenance and draining of machines should be carried out in place where there is no risk to pollute water supply point or underground water.

Biodegradable food products and other biodegradable substances can be buried inside the research perimeter only after having the Authorization from the concerned local authorities and / or landowner(s). Rubbish dump should be at least 100 meters from all waterways. Non-biodegradable rubbish should be transported outside the research perimeter. The holder should describe the way that he treats non-biodegradable rubbish.

It is preferable that the holder put at the disposal of his staff movable chemical toilets for toilets and showers treatment. On the other hand, if this solution is not considerable, sanitary wastes should be treated as follows: if the holder wants that sanitary waste treatment would be operated inside the perimeter, he should build latrines of 2 meters depth and 1 meter width and situated at least 100 meters from the nearest water supply point. If more than 10 persons use it, additional latrine with the same measures should be built to 5 meters from the first. Additional latrine should as well be built at 5 meters from the first if their level is only at 1,5 meters from the surface soil. Lime should be added in regular intervals. Latrines should be covered at least 2 meters of ground.

(f) Entrances

The holder should commit himself to reduce the number of vehicle used on the private property and to use the pre-existing paths and roads. If possible, the holder of R License should choose precise itinerary to avoid the passage on sensitive areas and areas subject to erosion. The holder should be able to limit vehicles circulation if it is rainy and roads, and cultivated areas may be damaged. He should also commit himself so that field team does not drive towards places that present erosion danger. If the circulation of the holder's vehicles causes damage, the field team commits to repair it shortly. Moreover, the holder's employees in the field should drive prudently especially in the area around the housing or the working place.

If new paths are necessary, the clearing should be minimal and should exclude the felling of big trees and bushes as well as their roots. The path entrance at the junction of the most important roads should be hidden to discourage prowlers.

The passage of waterway should be avoided and limited to places where natural conditions permitting without disrupting waterway and its shore. If frequent passage of the waterway is necessary, the holder should show the way of which he will build and maintain a bridge in order to avoid ground erosion. Research project activities should be avoided to block or to disturb the natural leak of waterways.

(g) Soils, vegetation, animals and epidemics

The holder should commit himself to take the following measures to avoid disease infectiousness and preserve natural resources:

- Avoid disease infectiousness from animals, insects or plants. The holder should commit himself so that each vehicle should entirely wash (including imported and new vehicles) and cleared of all plants stuck to it.
- Avoid to maximum the clearing of the ground. Where it is essential to do so, brush aside bush in the way. This technique will promote the growth of roots and buds. The riverside should not be cleared except if it is essential.
- Avoid the creation of excessive dusts near housing, cultivated lands and waterways where local people may use for their daily life. Avoid clearing sloping hills, shady places and natural formations that animals may use as shelters. Avoid disturbing routes and passages of wild fauna.
- All clearing plants should be stored in order to be buried later on and to avoid erosion and allow the environmental rehabilitation.
- Avoid altering the soil relief; and to avoid erosion, build dikes and gutters if necessary.
- Humus from the soil should be stored and covered. Avoid disturbing surrounding environment in and around waterway. It is forbidden to throw chemical products, sediments or products from millstone in the surface water or underground water.

(h) Water quality and harnesses

The holder representative in the field should be extremely vigilant so that water resources on the research perimeter should not be polluted, especially when they are used for supplies, hygiene and sample cooling and washing. For the two last cases, water should not be thrown back to the source. It should be put into containers and treated according to the regulation in force.

The digging pits to store drilling substances should be isolated from the soil by a film of impermeable plastic. As the pit is filled, perforation lubricants should be pumped, put in a container and treated outside the research site. When the pit is not anymore used, it should be first entirely emptied, its impermeable film should be removed, and it should be filled in, levelled and replanted as possible.

(i) Related measures

The holder commits himself so that the following measures would be taken during the realization of the research works:

- No firearm should be allowed inside the research perimeter without an agreement with local authorities and landowner(s).
- No domestic animal should be brought inside the perimeter without an agreement with local authorities and landowner(s).

- Hunting and fishing are prohibited inside the research perimeter without an agreement with local authorities and landowner(s).
- Dusts and noises should be avoided near the housing.
- Each vehicle should contain an extinguisher.
- Local regulation as far as fire is concerned should be respected. In case of fire, the holder commits himself to offer help to local authorities and landowner(s).
- The holder commits himself so that signs built by local authorities would be respected.
- If, during research works, an important archaeological, cultural or historical sign is discovered, works should be stopped immediately and the competent authorities should be informed of it. The holder representative in the field should offer help to competent authorities on the research perimeter and if necessary, remove his works to another site.

3. Measures at the End of Research Operations

In this chapter, the holder should present lightening and rehabilitation measures that he commits himself to carry out at the end of research works. These measures are gathered in two categories:

- Regular measures, which are carried out during the development of research activities in particular place such as, for example when an encampment is left for another, and
- Final measures applied when research activities are finished.

(a) Regular measures

The holder commits himself so that the following lightening and rehabilitation measures would be carried out to the site of each encampment before the research team would set themselves up to another encampment:

- All waste, leftovers, rubbish, sample bag, temporary equipment and structure to be thrown should be transported outside the encampment. Latrines should be covered at least 2 meters of ground.
- Mounds of ground artificially created should be levelled. The entire perimeter place that is fitted out should be put on its natural state before the research works. When the soil is sloping, the levelling should be made parallel to the soil relief except if local authorities want to keep the way as permanent.
- Entrances should be erased, except those, which have been used. Local authorities who want to keep the way as permanent should make written application for it to the Minister of Mines who will inform the holder representative and local authorities of his decision in writing.
- The holder commits himself to bring to its natural state each area which environment has been altered to adapt research works. These measures comprise the soil levelling, the reinsertion of humus and vegetation, the planting of local plant species and the fertilization of humus that has been stored for more than six months. The surface area should present lump of earth to make the installation safe from erosion and wind, from new plants and animals' species and from waterways. Before sowing plant species of his plant rehabilitation program, the holder representative in the field should get the authorization of local authorities and landowners.
- Each pit, excavation and trenches should be filled in, at least temporarily. It is essential to let the excavation open; it is necessary to fix the surface area with a barrier and road signs.

(b) Final Measures

To identify final lightening and rehabilitation measures, the holder puts himself in perspective to clean up and consolidate the encampment and works site, and after the closing of the mining operation, restore its ability to allow another activity compatible with all form of life and activity in the concerned district. In this case, the holder commits himself to carry out measures for each encampment where research activities are finished. These measures are applicable each time that research works are not resulted in the discovery of a mineral substance and that the Holder does not wish to use again this research area.

- Verify the effective realisation of regular measures of lightening and rehabilitation for each encampment (verify the levelling of land, the plant shoot and the erosion state). If these measures do not come to the wished results, the holder representative in the field should take appropriate and correcting measures.
- Cover all excavations without exception.
- Cover permanently drillings inside the perimeter by cement. On the other hand, if an underground rock was perforated and local authorities want to keep this drilling, the perforated rock should not be covered by cement, on condition that the minister of Mines would accept the written request submitted by local authorities to maintain the drilling. Local authorities are liable for the additional cost of the development works of drilling compared to the technique of the cement filling. Each drilling uncovered by cement should be distinguished and circled by a barrier.
- Environment rehabilitation measures should be carried out as they are explained above except if local authorities or landowner(s) had the Authorization of the Ministry of Mines to keep certain perimeter developments.
- Inform the Minister of Mines of the end of research works and the carrying out of the lightening and rehabilitation measures. Verify the carrying out of lightening and rehabilitation measures in the field with local authorities and the concerned landowner(s).

F. Chapter VI: Proposal for the Assessment and Adjustment Program of Lightening and rehabilitation Measures

The holder should be able to explain assessment and adjustment methods of lightening and rehabilitation measures of his program. This assessment takes place the first time at the end of research works for each encampment. The holder representative commits himself to write report certifying the efficiency of lightening and rehabilitation measures and correcting or additional measures to be carried out for each encampment. The holder representative should send a copy of this report to the Environmental Committee of the Ministry of Mines by means of the Mining Land Registry responsible for the file.

The holder representative commits himself to come back to the research perimeter after the first period of six months and then after one year to check that final measures have been carried out successfully and that environment inside the perimeter is restored as per rehabilitation objective. Each visit of the holder representative, he should convene local authorities and landowner(s) who verify the progress of rehabilitation measures. He should note on a written report the assessment of the rehabilitation program and the remarks of Local Authorities and Landowner(s). Copies of reports should be sent shortly to the Environmental Committee of the Ministry of Energy and Mines, to the local authorities and landowners as soon as possible.

This chapter should comprise to maximum one page.

G. Chapter VII: The detailed budget of the suggested program of lightening and rehabilitation measures

When the holder of R License develops the PEE-RS, he should enclose a detailed budget of the suggested program of lightening and rehabilitation measures. This budget will represent the entire estimated costs, the duration of the considered rehabilitation works, the necessary labour costs, general expenses and other expenses. This information should be updated each six months and should enclose costs of the closing and the field checking.

The description of the budget should not exceed two pages.

H. Chapter VIII: Financing Plan of the suggested lightening and rehabilitation measures

The PEE-RS should explain how the holder of R license would finance the suggested program of lightening and rehabilitation measures. Financing means should be available even if the holder cannot realise himself lightening and rehabilitation measures. If expenses proved to be considerable than that predicted in the financing plan, a margin of 25% of the entire estimated expenses should be added to the financing plan.

This financing plan should be around two pages.

I. Proposal for the management mechanism of the provision for the environmental rehabilitation

As per provisions of articles 77 and 78 of this Order, the PEE-RIM for mining research project pursuant to R License should enclose a proposal for the management mechanism of the provision for the environmental rehabilitation, matched with the financial security measures in favour of the Malagasy State.

The management mechanism of the provision for the environmental rehabilitation can consist of crediting bank accounts in Madagascar with the necessary funds to finance rehabilitation works as per a reasonable refunding program, subject to the following conditions:

- a. The holder can use funds in the account(s) only to finance the project environmental rehabilitation works;
- b. At any moment, the amount of the account(s) will reasonably be proportional to the financial needs to ensure the carrying out of the rehabilitation plan if it is necessary, considering the operations progress, their current impact on the environment, the holder current research program and his financial situation, considering if necessary his insurance policies for the environmental responsibility; and
- c. There will be reliable controls to warrant at the same time that the holder can seize funds in the account(s) only for the environmental rehabilitation of the project site, and that the State, represented by the Minister of the Environment and that of Mines, working together, will be able to withdraw funds from the account in order to make rehabilitation works carried out by the third party in case of serious infringement or plain renunciation of the place by the holder.

Financial security requirements can be lightened or cancelled for holders who have already had the environmental management system accredited by an international accreditation organisation as provided for example in ISO 14000 series.

The proposal for the management mechanism of the provision for the rehabilitation should have been presented in one page.

J. Commitment of the holder to implement the program

The holder and the holder representative in the field should sign the PEE-RS on the page entitled: Commitment of the holder to implement the program (Document A). If the identity of the holder has changed during the research project /draft study, the holder of R License should submit the PEE signed

by the new Holder and his representative in the field. By appending their signatures on the last page of the PEE-RS form entitled Commitment of the holder to implement the program, the holder and his representative commit themselves to comply with all obligations and measures written on this documents.

IV. ASSESSMENT OF PEE-RS

The environmental Committee of the Ministry of Energy and Mines is responsible for the assessment of the PEE-RS of a research project. Assessment criteria that are identical to those of PEE-RIM, are:

- Verification of the description of the holder, his R License or his authorization for scientific study and the establishment site of operations as they were presented in the PEE-RS;
- Verification of the eligibility for PEE-RS;
- Verification of the conformity of the suggested program of lightening and rehabilitation measures with that explained in this document;
- If necessary, assessment (consulting with the ONE) of explanations of non- certified measures suggested by the holder of R License according to their impact on the environment where works are carried out, and the nature and duration of works; and
- Sufficiency of the budget and the financing plan of lightening and rehabilitation measures and the suggested management mechanism of the provision for the environmental rehabilitation.

However, if the PEE-RS is for a research project in sensitive area or in the development and / or feasibility stage, the Committee will submit it, within 10 days from the deposit date of the file by the holder, to the assessment committee ad hoc who will determine if the project should be the subject of an EIE, by applying criteria explained below:

The assessment committee will be composed of:

- One representative of the Committee;
- One representative of the mining operators who is a member of the Provincial Committee of Mines, appointed by the responsible President of the CPM;
- One representative of the Ministry of the Environment appointed by the Minister of the Environment;
- One representative of the ONE appointed by the ONE himself.

Elements taken into consideration by the committee during the assessment are:

- The opening of paths or roads;
 - a. Localisation;
 - b. Length
 - c. Type of construction
 - d. Duration and permanency;
- Impact on sensitive area;
- Numbers of workers on the site;
- Duration of works;
- Quantity and volume of sample to be taken;
- Probability to open the mine-working centre;
- Number and location of drillings;
- Type and dimension of the encampment;
- Effects on water supplying sources
- Compatibility with other use of land;

- Adequate and sufficient character of the suggested lightening and rehabilitation measures, of their suggesting financing and management mechanism of the provision for the environmental rehabilitation; and
- Performance of the holder to comply with the previous environmental obligations.

The assessment committee will give his verdict within 30 working days from the date of transfer of the PEE-RS by the Committee.

If the verdict of the committee is favourable, he will indicate either (a) alterations to PEE-RS that are necessary so that the project would not affect the environment, or (b) that the project should be the subject of an EIE before the carrying out of the considered works.

DOCUMENT A of the appendix D

Model of the Commitment of the holder to implement the Program of Lightning and Rehabilitation measures

**THE ENVIRONMENTAL COMMITMENT PLAN FOR OPERATIONS PURSUANT TO
STANDARD RESEARCH LICENSE (PEE-RS)**

Suggested by

[NAME OF THE HOLDER]

By reference to

[R LICENSE/ AUTHORIZATION FOR SCIENTIFIC STUDY]

[N°]

We certify that this Environmental Commitment Plan for operations pursuant to Standard R license is prepared as per Appendix D, Directives for the development of the Environmental Commitment Plan for operations pursuant to Standard Research license (PEE-RS) and that [name of the holder] will comply with and will carry out the Program of lightening and rehabilitation measures described inside it.

Certified signature

Name and Title

Date

Certified signature of the representative in the field

Name of the representative in the field

Date

APPENDIX E

REPOBLIKAN'I MADAGASIKARA
Tanindrazana – Fahafahana- Fandrosoana

Ministry of Energy and Mines

Ministry of the Environment

ENVIRONMENTAL COMMITMENT PLAN FOR OPERATIONS PURSUANT TO LICENSE FOR RESEARCH AND MINE WORKING RESERVED FOR SMALL MINING OPERATOR (PRE-PRE)

A. Instructions to fill in PEE-PRE

1. To ensure that operations come under a PEE-PRE, read carefully the following instructions to fill in the Pee-Pre form.
2. Pay attention more particularly on the eligibility conditions for a PEE-PRE explained in the section B. If the considered mining operations do not meet all the eligibility conditions, the considered operations will be the subject of an EIE procedure as described in the Title III of this Order on the Regulation of the Mining sector as far as Environmental Protection is concerned.

B. The Eligibility Conditions for a PEE-PRE

1. Operations should be carried out only with traditional techniques and to maximum 20 meters depth. The number of workers on the perimeter cannot exceed 20. All mineral transformation operation on the perimeter is forbidden.
2. The considered operations should not use chemical products to separate ore from rock, except for License for gold mining matter. In this case, the regulation to use mercury to separate gold from rock should be supervised. Otherwise, only physical methods to separate ore from rock can be used.
3. The considered operations should not use explosives.
4. No mechanized drilling can take place on the perimeter.
5. Mining operations should not be situated nearer than 500 meters from all sensitive area, as defined in the Appendix of the Inter ministerial Order N° 4355/97 of May 13,1997.
6. The considered mining operations should not take place on the bank of the waterway or water point.
7. If operations will be situated in concentration area of mining operations, an assessment committee ad hoc will assess the PEE-PRE in order to determine if the suggested operations should be the subject of an Environmental Impact Study (EIE).
8. (From the date of functioning of the training program...) the applicant has complemented the training course offered by the Mining Administration for the last two years as far as environmental protection is concerned.

APPENDIX E

ENVIRONMENTAL COMMITMENT PLAN FOR OPERATIONS PURSUANT TO
LICENSE FOR RESEARCH AND MINE WORKING RESERVED FOR SMALL MINING
OPERATOR

Name of the applicant: _____

Address: _____

Telephone number: _____

Application number for a PRE License: _____

Operations Site (enclosed with the basic topographical map):

Research and mining methods to be used:

Researched ore: _____

Experience as far as mining research and mine working are concerned: _____

Rehabilitation measures of the site to be implemented: _____

Brief assessment of the rehabilitation measures costs: _____

Annual supply for the rehabilitation: _____

APPENDIX E

[Place and date of the training]: _____

Certificate and signature:

I certify having read and understand the eligibility conditions to fill in the PEE-PRE form. I certify that the considered mining operations meet these eligibility conditions [and that I have attended the training course on the aforementioned date]. I commit myself to comply with the Behaviour Code (Appendix F of this Order), which is enclosed as reference, on pain of fines, suspension and closing of research and mine working operations.

Certified signature: _____ Date:

Name: _____

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REPOBLIKAN'I MADAGASIKARA
Tanindrazana – Fahafahana- Fandrosoana

Ministry of Energy and Mines

Ministry of the Environment

**BEHAVIOUR CODE
FOR MINING OPERATIONS
PURSUANT TO PRE LICENSE**

The Behaviour Code for mining operations pursuant to PRE License establishes environmental criteria that holders of PRE License commit themselves to comply with Title IV, Chapter II, section III of this Order on Regulation of the Mining Sector as far as Environmental Protection is concerned. This Behaviour Code is applied to all holders of PRE License. It is integrated as reference in the Environmental Commitment Plan for operations pursuant to PRE License (PEE-PRE). The applicant for environmental Authorization for operations pursuant to PRE License should sign the copy of the Behaviour Code and enclose it with the completed PEE-PRE form.

- The holder of PRE License commits himself to cooperate with landowners and local Authorities.
- The holder of PRE License commits himself to keep developments provided by landowners or local authorities on the perimeter surface area.
- The holder of PRE License accepts to comply with applicable municipal regulations and legislations and with local customary measures concerning the establishment site of his project.
- The holder of PRE License commits himself to lighten the negative impact of his activities on fauna and flora.
- The holder of PRE License commits himself to meet perimeter by the roads which negative impact on the environment is reduced.
- The holder of PRE License accepts not to clear through fire. The perimeter clearing and development should be carried out so that plants and shrub roots would be conserved rather than dug up or cut and that branches and plants would be diverted than pruned.
- The holder of PRE License commits himself not to prune trees that are not directly on the mining site and get them round whether they present an obstacle.
- The holder of PRE License accepts to pile up, at minimal 10 metres distance from the digging soil and the extracted humus and accepts to cover them with plastic tarpaulin and protect them from wind and rain.
- The holder of PRE License commits himself to rehabilitate each perimeter portion on which he stopped his research and mining activities. The holder of PRE should carry out the following measures in a considered area as soon as he has stopped working there and not when the whole mining activities are finished:

- a. Restore contours of the landscape relief in order to avoid hilly lands, to minimize erosion and promote the regeneration of local vegetation and fauna.
- b. Aerate the land surface where they are too dense.
- c. Put the humus back on the site surface area where operations have been completed.
- d. Take the necessary measures to promote rapid generation of local plant species.
 - If the holder of PRE License discovers prehistoric or historical vestiges, he commits himself to suspend mining operations in the discovery areas and inform it as soon as possible to the competent Authority.
 - The holder of PRE License commits himself to keep the encampment in order and remove all installed structures and infrastructures when it is abandoned.
 - The holder of PRE License commits himself to bury rubbish produced during the operations at 1,5 to 2 meters depth, and keep so that it does not reach the underground waters. It should be beyond 100 meters distance from the waterway.
 - The holder of PRE License commits himself not to build permanent structure.
 - The holder of PRE License accepts to carry out noisy mining operations only during the day in order that neighbouring inhabitants should no be bothered.
 - The holder of PRE License commits himself not to dig tunnels and not to carry out excavations of more than 20 meters depth. The holder of PRE License accepts to keep 15% incline degree and to leave horizontal benches at least 1meter of width each two meters depth.
 - The holder of PRE License commits himself to limit waterway crossing.
 - The holder of PRE License commits himself to avoid polluting water resources used for agriculture, livestock drinking or food.
 - The holder of PRE License commits himself not to wash stones or precious metals on the waterway unless 500 meters upstream from all harness point or from all customary use of water from this spring by local people or animals.
 - The holder of PRE License commits himself not to make excavations and not to wash stones or precious metals unless 20 meters distance from all springs.
 - The holder of PRE License commits himself to comply with regulation for the use of mercury in his operations, if necessary.

Certified signature

Date

Name

PRE License N° _____