

**Mad'Eole 1.2 MW Wind Energy Plant in Northern Madagascar**

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# **REPORT ON THE INITIAL STAKEHOLDER CONSULTATION**

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Conducted by

**myclimate – The Climate Protection Partnership**

In collaboration with

**Mad'Eole**

5<sup>th</sup> September 2007

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## **Description of the project**

### **Purpose of the project activity**

Electricity supply is unstable in the city and the surroundings of Antsiranana (Diego-Suarez) at the northern tip of Madagascar. In order to meet the electricity demand, permanently running electricity plants with a capacity of 11 MW would be needed. However, the old diesel power generators producing the entire electricity for the local grid have only a capacity of about 9.5 MW and are out of order during one to two third of time on average. Additionally, electricity prices have risen in the last years as consequence of high oil prices and the restructuring of the highly-indebted electricity and water authority JIRAMA (Jiro sy Rano Malagasy). The high oil and electricity prices have boosted the demand on fuel wood and charcoal, which endangers the local forest resources.

The project aims to reduce the shortage in electricity supply as well as to introduce renewable and carbon-neutral energy production by constructing a new grid-connected wind energy plant at Ivovona (municipality of Ramena, 10 kilometers away from Antsiranana). The wind plant will consist of 6 turbines with a capacity of 200 kW each. The greenhouse gas reduction by the project activity is even more obvious as new fuel oil generators with a capacity of 7.5 MW are planned to be established and connected to the local electricity grid.

The wind energy plant in Ramena is a first step in a wider scheme of Mad'Eole aiming at supplying the market around the Indian Ocean (Madagascar as the home and main market, La Réunion, Mauritius, the Seychelles, the Maldives and the east coast of Africa) with wind turbines of high technological quality – produced locally in part – as well as know-how. Therefore, this project is the starting point for a technology transfer.

The wind turbines are imported from Germany where they are replaced by larger wind turbines due to a re-powering project. German engineers are traveling to Madagascar in order to train local engineers how to install wind turbines. For the wind projects following this first plant it is planned that some of the components are produced by SECREN SA, a local shipbuilding company. Thereby, a transfer of wind power technology from an Annex 1 to an Annex 2 country is achieved.

### **Contribution of the project activity to sustainable development**

The project is a renewable energy project for power generation that enables the substitution of fossil fuel based electricity. The contribution of the project activity towards sustainable development in Madagascar is considered as follows;

The project does not only transfer renewable and carbon-neutral energy technology to the region but it also contributes to sustainable development in a wider sense;

- (1) Environmental & social: Diesel power units in Madagascar are making noise, emit airborne particles and also pollute soil and water in some cases<sup>1</sup>; less of this diesel power units will have to be built if this project is implemented.

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<sup>1</sup> Revealed by an inspection of two diesel power plants in Ambohimambola and Mahajanga, see: Jirama, 2006. Évaluation environnementale préalable du plan de redressement de la JIRAMA Phase I (2006-2007) Résumé exécutif. <http://www.jirama.mg/docs/resumeexecutif160506.pdf>, 06/07/06

- (2) Environmental: The ecological burden on the local forests, especially on the hot spots of bio-diversity– Montagne d'Ambre, Analamera und Ankarana – will be mitigated as additional electricity will lower the demand on charcoal for cooking<sup>2</sup>
- (3) Environmental-social: The resources for drinking water in the rural areas of the region (1 million inhabitants) will be protected by eliminating the primary cause of the reduction in drinking water, the production of charcoal.<sup>2</sup>
- (4) Social: As Mad'Eole is working together with the Institut Supérieur de Technologie d'Antsiranana (IST), the Ecole Supérieure Polytechnique d'Antsiranana and the local shipbuilder SECREN SA, new local knowledge is built up<sup>2</sup>.
- (5) Socio-Economic: The previous dependence on imported oil for the generation of electricity will be reduced<sup>3</sup>.
- (6) Socio-Economic: More and cheaper electricity will be available to local customers<sup>2</sup>.
- (7) Socio-Economic: The creation of long-term work places for both qualified personnel and less qualified workers in the subcontracting area will help reducing local poverty<sup>2</sup>.

## ***Environmental impacts***

Environmental impacts are considered as being overall positive, e.g. lowering the various pollution of diesel based plants and reducing the pressure on the local forestry resources (see above).

The only negative effect expected is noise caused by the wind turbines. However, this is not considered as being significant as there are no people living closer than 3 kilometres to the project site.

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<sup>2</sup> Mad'Eole, 2005. Business Plan Ramena.

<sup>3</sup> 57% of the electricity in Madagascar is produced by diesel combustion ([www.jirama.mg/chiffres\\_electricite.php](http://www.jirama.mg/chiffres_electricite.php), 11/07/06); in the North of Madagascar even 100% of the electricity is produced by diesel (Mad'Eole, 2005. Business Plan Ramena)

## ***Purpose of the consultation***

The objective of this stakeholder consultation is to get different views on the project activity, to take into account concerns and recommendations and to meet international guidelines in terms of conducting greenhouse gas reduction projects.

Two stakeholder consultations must be held during the project cycle in order to fulfill the criteria of the Gold Standard, which stands for environmental, economic and social sustainability of emission reduction projects. Both an initial consultation in the early stages of documentation development and a main consultation on the final project documentation have to be carried out. If the project falls within the micro scale category of the Gold Standard (less than 5,000 tonnes of CO<sub>2</sub>e per year) then the main stakeholder consultation is not obligatory.

At least the following stakeholders must be invited to participate in both consultation processes: Local policy makers, local people impacted by the project, (if applicable) local NGOs, local and national NGOs that have endorsed the Gold Standard and the Gold Standard itself.

## Procedure of the consultation

The Gold Standard initial stakeholder consultation consisted of a public meeting and an email consultation addressing the stakeholders mentioned below.

### 1. Consultation meeting & email consultation

#### 1.a) Consultation meeting for local stakeholders

**Date:** 22nd June 2007

**Place:** Hôtel Meva Plage, on the road to Ramena, Diégo-Suarez

**Moderation of the consultation:** The WWF Madagascar was invited to moderate the stakeholder consultation meeting but it is representant had to cancel the moderation one week before the consultation. Instead, a representative of the national energy ministry was foreseen but he cancelled his participation the day before the consultation happened. Therefore, myclimate had to moderate the consultation itself.

#### Invited participants:

| Participants                 | Organisation / Company                            | Function  |
|------------------------------|---|---|
| Laurent Adolphe Ramiahajason | Local village (Ivovona)                           | Teacher   |
| Noel Ravolahy                | Local village (Ivovona)                           | President of fokontany (=quarter)   |
| Aristide Zafindranaivo       | Municipality of Ramena                            | Mayor   |
| Armand                       | Jírama (national electricity and water authority) | Interregional managing director   |
| Vaohita Barthélemi           | Association Baie de Diégo (local NGO)             | Vice President, responsible for environmental protection and biodiversity |
| Serge Razafintsalama         | WWF Madagascar (national NGO)                     | Regional Coordinator (Diégo Suarez)                                       |
| Abdou Salama                 | Energy ministry                                   | Regional water and energy manager   |
| Ruffin Raymond Zaka          | Energy ministry                                   | Regional water and sanitation manager                                     |
| Lucet Vial                   | SECREN (local company)                            | General Manager Assistant,  |
| Ludovic Ratsimbazafy         | SECREN (local company)                            | Manager of maintenance and patrimony                                      |
| Stefan Frey                  | Mad'Eole  | Managing director   |
| Martin Stadelmann            | Myclimate   | Project manager   |

**Participants:** All of the invited persons participated at the consultation meeting except the mayor of the village. Mr Armand and Barthélemi were each consulted at the same day at different locations as they could not participate at the meeting in the morning.

**Language:** Invitation for the meeting and meeting itself in French

### Meeting procedure:

- Opening (5 min)
- Purpose of the consultation (5 min)
- Description of the project (15 min)
- Answering of questions (10 min)
- Completing checklists (40 min)
- General feedback (15 min)

### 1.b) Email consultation

In addition to the meeting for local stakeholders, Gold Standard supporting NGOs in Madagascar and the Gold Standard itself were consulted through email. All consulted NGOs confirmed the receipt of the email.

### NGOs consulted

| Person                 | Organisation      | Email confirmation received |
|------------------------|-------------------|-----------------------------|
| Voahirana Randriambola | WWF Madagascar    | 30th August 2007            |
| Michael Schlup         | The Gold Standard | 27th June 2007              |

## 2. Publishing of the report

This report, including the results of both the local meeting and the email consultation are made publicly available to stakeholders not later than 15 days after the initial consultation process has closed (on 30<sup>th</sup> August, after receipt of email confirmation by all email consulted stakeholders). It is published on the myclimate website (<http://www.myclimate.org/index.php?lang=en&m=projects&um=overview&uum=madeole>).

This stakeholder report will be attached to the project documentation (PDD).

## Comments received during the consultation

### Summary of the comments received

The persons consulted by email did not make any comments. Therefore, this summary focuses on the comments received during the stakeholder meeting.

Generally, all consulted stakeholders support the project. They expect that the project will generate new workplaces during manufacturing, construction and maintenance; it will produce clean electricity and enhance the unreliable electricity supply. Some participants also hope that the project will lower the deforestation rate.

Apart from the various side effects the stakeholders also raised some concerns. Some participants mentioned the noise produced by the wind turbines but all stakeholders agreed that this is not a major issue as the closest village is far away and in the opposite direction of the wind. One of the stakeholders suggested not using old technology in order to minimise the noise. One stakeholder mentioned that the project needs two hectares of space. Two stakeholders suggested to fence the wind turbines for security reasons and in order to protect them from fire from the outside.

Finally, two stakeholders stated that there should be more support for the local villages, e.g. by providing them with the electricity grid or by enhancing the water supply.

### Detailed answers in the check list

| <b>Environmental Impacts</b>  | <b>Yes / No /? Briefly describe.</b>   | <b>Is this likely to result in a significant effect?<br/>Yes / No /? – Why?</b>  |
|---|--|--|
| 1. Will construction, operation or decommissioning of the Project use or affect natural resources or ecosystems such as land, water, forests, habitats and materials or, especially any resources which are non-renewable or in short supply? | Yes, during construction the construction site will be changed and during operation noise could disturb the animals. | No, because the site is small and not a highly valuable natural place. Furthermore, there is no significant change in soil and vegetation cover happening. |
| 2. Will the Project involve use, storage, transport, handling, production or release of substances or materials (including solid waste) which could be harmful to the environment?  | No   | No   |
| 3. Will the Project release pollutants or any hazardous, toxic or noxious substances to air?  | No   | No   |
| 4. Will the Project cause noise and vibration or release of light, heat energy or electromagnetic radiation?  | Yes, the wind turbines will cause noise and air vibrations.  | No, but the project participant should be vigilant and watch the impacts   |
| 5. Will the Project lead to risks of contamination of land or water from releases of pollutants onto the ground or into surface waters, ground water, coastal waters or the sea?  | No   | No   |

|  |   |   |
|--|---|---|
| 6. Are there any areas on or around the location which are protected under international or national or local legislation for their ecological value, which could be affected by the project?  | There is the protected area “Montagne des Français” some kilometers away from the project site. | Most participants believe that the “Montagne des Français” is too far away to be affected. One participant states that one has to study this issue. |
| 7. Are there any areas on or around the location, which are important or sensitive for reasons of their ecology, e.g. wetlands, watercourses or other water bodies, the coastal zone, mountains, forests or woodlands, which could be affected by the Project? | No  | No  |
| 8. Are there any areas on or around the location which are used by protected, important or sensitive species of fauna or flora e.g. for breeding, nesting, foraging, resting, overwintering, migration, which could be affected by the Project?                | No, except the “Montagne des Français” (see 8)  | No  |
| 9. Are there any inland, coastal, marine or underground waters on or around the location which could be affected by the Project?   | No  | No  |
| 10. Is the Project location susceptible to earthquakes, subsidence, landslides, erosion, flooding or extreme or adverse conditions e.g. temperature inversions, fogs, severe winds, which could cause the Project to present environmental problems?           | There are cyclones / hurricanes in the region   | No, the potential impact is more concerning human health (see 23.)  |
| <b>Socioeconomic and Health Impacts</b>  | <b>Yes / No /? Briefly describe.</b>  | <b>Is this likely to result in a significant effect? Yes / No /? – Why?</b>   |
| 11. Will the Project involve use, storage, transport, handling, production or release of substances or materials (including solid waste) which could be harmful to human health or raise concerns about actual or perceived risks to human health?             | No  | No  |
| 12. Will the Project release pollutants or any hazardous, toxic or noxious substances to air that could adversely affect human health?   | No  | No  |
| 13. Will the Project release pollutants or any hazardous, toxic or noxious substances to air that could adversely affect human health?   | No  | No  |
| 14. Will the Project lead to risks of contamination of land or water from releases of pollutants onto the ground or into surface waters, ground water, coastal waters or the sea that could adversely affect human health?                                     | No  | No  |

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|--|--|--|
| 15. Will there be any risk of accidents during construction or operation of the project which could affect human health?   | Yes, there are risks off accidents during the construction.  | No   |
| 16. Will the Project result in social changes, e.g. in demography, traditional lifestyles, employment?   | Yes, the production of more electricity will change the traditional way of life. The project will also generate more employment and help the local economy | Yes, most participants expect positive side effects such as employment and more possibilities due to the electricity. One participant was saying that it is pity that traditional ways of life are changing. |
| 17. Are there any areas on or around the location which are protected under international or national or local legislation, which are important for their landscape, historic, cultural or other value, which could be affected by the Project?  | There is the protected area "Montagne des Français" some kilometers away from the project site.  | Most participants believe that the "Montagne des Français" is too far away to be affected. One participant states that one has to pay attention to this issue.   |
| 18. Are there any transport routes or facilities on or around the location which are used by the public for access to recreation or other facilities and/ or are susceptible to congestion, which could be affected by the Project?  | Yes, there are tourist places some kilometers away   | Not for the moment, in the future the place may be affected by the project if the area is developed as tourist area  |
| 19. Is the Project in a location where it is likely to be highly visible to many people?   | Yes  | No (all participant except two)  |
| 20. Are there existing or planned land uses on or around the location e.g. homes, gardens, other private property, industry, commerce, recreation , public open space, community facilities, agriculture, forestry, tourism, mining or quarrying which could be affected by the Project? | There is cattle on the wind plant field  | No (all participants except one)   |
| 21. Are there any areas on or around the location which are densely populated or built-up, or occupied by sensitive uses e.g. hospitals, schools, place of worship, community facilities which could be affected by the Project?   | No   | No   |
| 22. Are there any areas on or around the location which contain important, high quality or scarce resources e.g. ground water, surface waters, forestry, agriculture, fisheries, tourism and minerals, which could be affected by the Project?   | No   | No   |
| 23. Is the Project location susceptible to earthquakes, subsidence, landslides, erosion, flooding or extreme or adverse conditions e.g. temperature inversions, fogs, severe winds, which could cause the Project to present socioeconomic problems?                                     | Possibly erosion   | No (all participant except one stating that one has to be vigilant)  |
|  |  |  |

## ***How the comments were taken into account by the project design***

Regarding the noise, the impact is far lower than the one of other wind farms; the closest village is three kilometers away and located in the direction from where the wind is coming. Therefore, no adaptation of the project design was conducted.

The land use at the project site is not considered as important issue as the barren land is only used for feedstock grazing from time to time and this traditional land use can continue on the project site after the project start.

The locals are benefiting from the project as the project owner pays a land rent for the area. Furthermore, the traditional land use is not challenged, and thereby the local inhabitants have a net profit.

The idea of fencing was considered during the project planning but was abandoned in order to enable the traditional land use by feedstock. Additionally, the growth of new trees and bush higher than the traditional land cover is avoided by the non-use of fencing. Security is assured by local guards. The fencing issue is re-checked after the first experiences.

The slight concerns regarding security during construction are respected by contracting insurance as soon as the project construction is determined.

Regarding the cyclones, the turbines were certified for wind speeds up to 241 kilometers per hour. For wind speeds beyond this limit, the project owner has contracted insurance.

A geology team concluded after a ground survey that there is neither a significant risk of erosion nor of any other soil or rock related processes or events.

The protected area of “Montagne des Français” is not affected by the project. In the meantime, the stakeholder who had expressed concerns has figured out that the wind project site is outside the protected area and he does not see any potential negative side effects any more.

As there is no significant negative side effect expected from the project by the stakeholders, it is concluded that from the stakeholders’ perspective an EIA is not required.

## **Attachment: Checklist in local language**

Stakeholder consultation participants were requested to complete a checklist about environmental and social impacts of the project. The checklist in the Gold Standard guidelines was translated into the following French version for this purpose;

| <b>Effets environnementaux</b>   | <b>Oui / Non /? Veuillez décrire en bref, s.v.p.</b> | <b>Est-il probable que cela aura un effet significatif? Oui / Non /? – Pourquoi?</b> |
|--|--|--|
| 1. Est-ce que la construction, l'opération ou la mise en oeuvre du projet utilise ou influence les ressources naturelles ou les systèmes écologiques comme le sol, l'eau, les forêts, les habitats et des matériaux ou des ressources qui ne sont pas renouvelables ou rares?  |  |  |
| 2. Est-ce que le projet inclut l'utilisation, le stockage, le transport, le maniement, la production ou l'émission de substances ou matériaux (les déchets solides inclus) qui peuvent être nuisible à l'environnement?  |  |  |
| 3. Est-ce que le projet émet des polluants ou autre substance dangereuse, toxique ou nuisible à l'air?   |  |  |
| 4. Est-ce que le projet cause du bruit, des vibrations, de la lumière, de l'énergie thermique, de radiation ou de champ électromagnétique?   |  |  |
| 5. Est-ce que le projet peut causer des risques de contamination du sol ou de l'eau causés par l'émission des polluants sur le terrain ou dans des eaux de surface, dans des eaux souterraines ou territoriales, ou dans la mer?   |  |  |
| 6. Est-ce qu'il n'y a aucun territoire situé dans ou environ la localisation du projet qui est protégé par la législation internationale, nationale ou locale à cause de la valeur écologique, et qui est possiblement affecté par le projet?  |  |  |
| 7. Est-ce qu'il n'y a aucun territoire situé dans ou environ l'implantation du projet qui est important ou sensible pour des raisons écologiques comme p. ex. des marais, des fleuves ou d'autres plans d'eau, des zones de rivage, des montagnes, des forêts ou des terrains boisés, qui pourrait être affecté par le projet? |  |  |
| 8. Est-ce qu'il n'y a aucun territoire situé dans ou environ l'implantation du projet qui  |  |  |

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| <p>est utilisé par des espèces faunistiques et/ou floristiques protégées, importantes ou sensibles, p. ex. pour des raisons d'incubation, faire un nid, chasser, reposer, passer l'hiver, migration, qui pourrait être affecté par le projet?</p> <p>9. Est-ce qu'il n'y a aucun plan d'eau ou eau souterraine situés dans ou environ l'implantation du projet qui pourrait être affecté par le projet?</p> |  |  |
| <p>10. Est-ce que l'implantation du projet est dans une zone susceptible au tremblement de terre, à l'affaissement, au glissement de terre, à l'érosion, à l'inondation ou à des conditions extrêmes ou adverses comme p.ex. des inversions de température, du brouillard, des vents forts, qui pourraient faire causer de problèmes environnementaux?</p>  |  |  |
| <p><b>Effets sociaux, économiques et concernant la santé</b></p>  | <p><b>Oui / Non / ? Veuillez décrire en bref, s.v.p.</b></p> | <p><b>Est-il probable que cela aura un effet signifiant? Oui / Non / ? – Pourquoi?</b></p> |
| <p>11. Est-ce que le projet inclut l'utilisation, le stockage, le transport, le maniement, la production ou l'émission de substances ou matériaux (les déchets solides inclus) qui peuvent nuire à la santé humaine ou qui causent des reflets critiques concernant les risques pour la santé humaine, présents ou perçus?</p>  |  |  |
| <p>12. Est-ce que le projet émet des polluants ou autres substances dangereuses, toxiques ou nuisibles à l'air nuisibles pour la santé humaine?</p>   |  |  |
| <p>13. Est-ce que le projet émet des polluants ou autre substance dangereuse, toxique ou nuisible à l'air nuisibles pour la santé humaine?</p>  |  |  |
| <p>14. Est-ce que le projet mène à des risques de contamination du sol ou de l'eau causée par l'émission de polluants sur le terrain ou dans des eaux de surface, dans des eaux souterraines ou territoriales, ou dans la mer qui peuvent affecter la santé humaine?</p>  |  |  |
| <p>15. Est-ce qu'il n'y a aucun risque d'accidents pendant la construction ou l'opération du projet qui peut affecter la santé humaine?</p>   |  |  |
| <p>16. Est-ce que le projet mène à des changements sociaux p.ex. concernant la démographie, les façons de vivre</p>   |  |  |

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|---|--|--|
| traditionnelles ou l'emploi?  |  |  |
| 17. Est-ce qu'il n'y a aucun territoire situé dans ou environ l'implantation du projet qui est protégé par la législation internationale, nationale ou locale et qui est important à cause du paysage ou de la valeur historique, culturelle, etc. qui peut être affecté par le projet?   |  |  |
| 18. Est-ce qu'il n'y a aucune route de transport ou des installations sur ou autour de l'emplacement du projet utilisé pour l'accès publique, pour la récréation ou des autres installations et/ou susceptible de l'engorgement, qui peuvent être affectées par le projet?  |  |  |
| 19. Est-ce que le projet se trouve dans un endroit qui est probablement bien visible pour plusieurs personnes?  |  |  |
| 20. Est-ce qu'il y a des utilisations de territoire existantes ou planifiées sur ou environ le projet comme p.ex. des maisons, jardins, d'autres propriétés, de l'industrie, du commerce, des installations de récréation, de l'espace publique, des infrastructures communales, de l'agriculture, de l'exploitation forestière, du tourisme, des mines ou des carrières, qui peuvent être affectées par le projet? |  |  |
| 21. Est-ce qu'il y a des territoires sur ou autour du projet qui sont inhabités ou bâtis densément ou occupés par des utilisations sensibles comme p.ex. des hôpitaux, des écoles, des endroits d'emploi, des facilités communautaires, qui peuvent être affectés par le projet?  |  |  |
| 22. Est-ce qu'il n'y a aucun territoire situé dans ou environ l'emplacement du projet qui contient des ressources importantes de haute qualité ou rares comme p.ex. des eaux souterraines et territoriales, de la forêt, de l'agriculture, des pêcheries, des ressources touristiques et minérales, qui peut être affecté par le projet?  |  |  |
| 23. Est-ce que l'emplacement du projet est susceptible de tremblement de terre, de l'affaissement, des glissements de terre, de l'érosion, des inondations ou des conditions extrêmes ou adverses comme p.ex. des inversions de température, du brouillard, des vents sévères, qui pourraient causer de problèmes sociaux ou économiques?   |  |  |