

## STRATEGIC ENVIRONMENTAL AND SOCIAL ASSESSMENT SUMMARY

**Project Name** : RENEWABLE ENERGY AND GLOBAL RURAL ELECTRIFICATION PROJECT (PERG)  
**Country** : Kingdom of Morocco **Project Number:** P-MA-FA0-003  
**Department** : ONEC **Division:** ONEC.1

This Executive Summary covers the key elements of the SESA, which focuses on:

- Project description - Legal and institutional framework
- Impact and proposed mitigation measures for each sub-project
- Framework environmental management plan (organizational and procedural aspects, environmental and social measures and capacity building plan).

### 1. Project Description and Rationale

Until very recently, Morocco was a non-producer of energy resources and dependent on outside sources for almost all of its supply. Thus, energy mix diversification is a priority area of intervention to alleviate such dependency, notably by developing local renewable energy resources. Through the Moroccan Solar Plan and Morocco's Wind Energy and Hydropower Development Project, renewable energy plants will, in 2020, account for **42%** of overall electrical power capacity, while solar energy, wind energy and hydropower will each represent **14%**.

To develop these programmes, ONE has submitted an investment plan for ADB financing. The plan comprises the following projects:

<b>Projects under the Investment Plan</b>	<b>Total MW Capacity</b>	<b>Investment Amount in USD Million</b>	<b>Commissioning Year</b>
<b>Tangiers 2 Wind Farm</b>	150	372.86	2015
<b>Koudia El Baida 2 Wind Farm</b>	300	755.86	2017
<b>Abeld Moumen ETSP</b>	350	333.7	2015
<b>M'DEZ-El MENZEL Hydropower Complex</b>	170	331.34	2015
<b>PERG 5</b>		197.7	2011-2013
<b>Total</b>	970	1 991.46	

These projects are designed to meet growing electricity demand and attain rural electrification targets.

Given the phased implementation of various projects, ADB has requested the conduct of a Strategic Environmental and Social Assessment to fully integrate all the environmental

management-related components of this programme and prepare a framework environmental and social management plan.

#### Global Rural Electrification Project 5 (PERG 5)

Rural electrification, which forms part of PERG 5 and concerns works scheduled for 2011 to 2013 in 25 provinces, is divided into two major categories:

*Regional upgrading:* As part of basic services upgrade for the benefit of remote and isolated areas, the General Directorate of Local Authorities (DGCL) has prepared the "Regional Upgrade Programme" designed to curb the shortage of basic infrastructure in terms of road, electricity and drinking water access, and to ensure a minimum of local facilities and basic services, notably in the education and health sectors.

The programme covers areas deemed the country's most isolated and vulnerable, based on the following criteria: poverty rate, road access rate, mountainous relief and degree of exposure to cold temperature.

Within this framework, there are plans to connect all villages in 19 provinces to the grid - Al Hoceima, Azilal, Beni Mellal, Boulemane, Chefchaouen, Driouch, Errachidia, Figuig, Guercif, Jerada, Khemisset, Midelt, Ouarzazate, Tata, Taounate, Taroudannt, Taza, Tinghir and Zagora, - where the cost per household does not exceed DH 40,000, with the extra DH 27,000 borne by the DGCL.

*Access to basic services:* connection of all villages in 6 provinces to the grid - Al Haouz, Chichaoua, Essaouira, Marrakech, Rehamna and El-Kalaa des Sraghnas in Tensift region - where the cost per household does not exceed DH 40,000, with the extra DH 27,000 borne by the region.

As such, the implementation of PERG 5 will help to connect 1,977 villages, representing 61 507 households for a total of DH 1 562 million.

#### **Wind Energy Component**

The two wind energy projects are the Tangiers 2 Wind Farm and the Koudia Al Baida 2 Wind Farm. The former is located about 18 km as the crow flies, East of Tangiers, within Fahs Beni Makada Province and Al Ksar Sghir and Bahraouine rural councils. The latter is located about 12 km as the crow flies West of Mdiq City. The project site is surrounded by existing wind farms (A. Torres in the North and Lafarge in the South). It falls under Beni Makada Fahs and Tetouan Provinces as well as the rural councils of Taghramt, Allyene, Anjra, Saddina and Mallalienne.

The construction of the two new wind farms is designed to develop renewable energy sources. Tangiers 2 and Koudia Al Baida 2 account for 150 MW and 300 MW of Morocco's wind energy Project, respectively.

The wind farms will comprise the following installations and structures, among others:

- Wind turbines with a rated capacity of over 850 KW. Their number is estimated at 75-100 wind turbines for the Tangiers Wind Farm and 150-200 for the Koudia Al Baida 2 Wind Farm;
- Internal power system of the "medium voltage" farm;
- Monitoring, control, measurement and protection devices;
- Service building near the farm substation;
- Wind farm's weather station;
- Ancillary elements: lines, access tracks, etc.

Step-up transformer stations for connecting to the national grid and service substations of the two wind farms will be built.

The wind farm construction period (start of construction to commissioning) is approximately 28 months for Tangiers 2 and 36 months for Koudia Al Baida 2. The project cost estimate is EUR 225 million for Tangiers 2 and EUR 450 million for Koudia Al Baida 2.

### **Hydropower Projects**

The hydropower component comprises two sub-projects: the Abdelmoumen Pumped Power Transfer Station Project (STEP) and the Mdez El Menzel Hydropower Complex. Hydropower projects have advantages over the other means of power generation:

- ✓ Rapid response to all load raise / lower commands, adjusting promptly to different grid and consumption events;
- ✓ Flexible operation allowing slight variations and precise generation adjustment at any moment;
- ✓ A means of storing wind and solar energy produced in the region.

**The Abdelmoumen Pumped Power Transfer Station Project (STEP)** is located about 70 km Northeast of Agadir. The site is located upstream of the existing reservoir of the Abdelmoumen dam on the Oued Issen. It falls under Taroudant Province and Bigoudine rural council. The Abdelmoumen STEP Project will reinforce the national electricity grid in the South. The STEP provides energy capacity as follows: 616 GWh / year of energy produced for 812 GWh / year of energy consumed.

The project comprises the following:

- ✓ An upstream reservoir located on Tamrarht plateau about 1300 metres above sea level, allowing storage of STEP's 1.3 million m<sup>3</sup> operating volume;

- ✓ A downstream reservoir located 560 metres further down, on a plateau dug at a 740-metre altitude, with a storage volume of 1.3 million m<sup>3</sup>;
- ✓ A 2935 m waterway connects the two reservoirs through the turbine-pumping station;
- ✓ An aboveground plant housing two identical turbo-pump generators, each of a 175
- ✓ A substation;
- ✓ A backup pumping station for water supply to the downstream reservoir, through first filling, then constant filling to offset evaporation.
- ✓ Ancillary elements:
  - Lowering of the Chichaoua-Agadir 225 kV powerline over 5 km;
  - Lowering of the Chichaoua-Glalcha 225 kV powerline over approximately 10 km
  - Access tracks will also be built to the downstream reservoir and the upstream reservoir sites.

The project works will span approximately 48 months. STEP's total construction cost estimate is DH 2 300 million.

**The M'Dèz - El Menzel Hydropower Complex** is located in Haut Sebou, about 35 km Southeast of Sefrou City. The entire right-of-way of the structures of this complex falls under Sefrou Province and Adrej rural council for the M'Dèz facilities and Ouled M'Koudou M'Tarnagha rural councils for the El Menzel facilities. A power line will traverse Ouled M'Koudou, M'Tarnagha and Aghbalou Aqorar rural councils.

The key objectives of the M'Dèz - El Menzel complex are to match peak-hour electricity supply with demand and contribute to the Haut Sebou Development Programme (2010-2014).

The project consists of a hydropower complex comprising two waterfalls, namely M'Dèz and El Menzel in Haut Sebou.

The major facilities planned for each of the waterfalls are, from upstream to downstream: dam (M'Dès and Ain Timedrine), power plant water intake, headrace tunnel, access gallery, surge tank, power penstock, power plant and 225 kV substation.

The M'Dèz waterfall will have a 120 m drop, a utilizable flow of 48 m<sup>3</sup>/s and a plant installed capacity of 45 MW. That of El Menzel will have a 240 m drop, a utilizable flow of 67 m<sup>3</sup>/s and a plant nominal capacity of 125 MW.

Energy will be released through two 225 kV lines to El Menzel and Bourdim substations over a 27 km distance. Connection to El Menzel is provided via a 1.7 km line section. Both the M'Dèz and El Menzel plants will be remote-controlled from the Casablanca National

Dispatching Centre. Access to the facilities will be by existing paved roads, provisional project site tracks and the permanent roads to be built.

Works on the complex will span 42 months. The construction of the hydropower plants and headrace galleries will be borne by ONE at an estimated cost of MDH 2100.

## II. Legal and Regulatory Framework

### Legal Aspects

The main instruments on environmental projects applicable to the component are:

- ✓ Law N° 12-03 on environmental impact assessments: under this law, hydropower projects and wind farms are subject to environmental impact assessments;
- ✓ Law N° 10-95 on water, which defines the water resources management framework;
- ✓ Law N° 28-00 on waste management and disposal;
- ✓ Law N° 13-03 on air quality;
- ✓ Law N° 13-09 on renewable energy;
- ✓ Law N° 22-07 relating to protected areas;
- ✓ Dahir (Royal Decree, 29 October 1917) on forest conservation and exploitation;
- ✓ Law N° 7-81 relating to expropriation and temporary occupancy, which regulates expropriation for public purposes and temporary land use.

Over the past ten years, Morocco has adopted an arsenal of environmental protection laws. However, there are problems enforcing regulations. Certain environmental aspects such as noise and landscape still face a legal void. There are also weaknesses regarding biodiversity protection (lack of mitigation and offset guidelines).

### Institutional Aspects Concerning the Environment

The Ministry of Energy, Mining, Water and Environment and more specifically, **the Department of Environment (DE) of the State Secretariat for Water and Environment (SEEE)** within the Department of Energy, Mining, Water and Environment, is responsible for coordinating environmental management. SEEE also has regional agencies: **Field Agencies in charge of the Environment**. They are the decentralized structures of the Department of Environment.

Other ministries are responsible for environmental protection and conservation, namely:

- ✓ High Commission for Forestry and Desertification Control (HCEFLCD)

- ✓ Ministry of Agriculture and Maritime Fisheries (MAPM)
- ✓ Ministry of Infrastructure and Transport
- ✓ Ministry of Home Affairs
- ✓ Ministry of Health
- ✓ The Water Basin Agencies

### Institutional Aspects Concerning Energy

**National Electricity Board (ONE):** In Morocco, electricity generation and distribution are controlled mainly by ONE. Founded in 1963 and Morocco's electricity sector leader, ONE operates in the three key sectors of power generation, transmission and distribution. ONE is a public industrial and commercial establishment placed under the administrative and technical oversight of the Ministry of Energy, Mining, Water and Environment.

**Department of Energy and Mining within MEMEE:** This Department is responsible for the development and implementation of government policy in the areas of energy, mining and geology as well as control of other sectors under its authority.

**Moroccan Solar Energy Agency (MASEN):** MASEN was founded in 2009 by Law N° 57-09 within the framework of the "Moroccan Solar Energy Project." It is tasked with implementing solar electricity projects.

**Agency for the Development of Renewable Energy and Energy Efficiency (ADEREE):** ADEREE was established by Law N°16-09 and its role is to contribute to implementing government's Renewable Energy and Energy Efficiency Policy.

### African Development Bank Safeguard Policies

Since 2010, the sustainable development concept has become part of ADB policy. This policy also refers to the ADB's desire to contribute to renewable energy development.

To fulfil this environmental protection mission and assist Bank professionals in project analysis, guidelines were developed defining **three project categories** for which environmental assessments are conducted and specifying the substance of such assessments.

- **Category 1** projects are those likely to cause significant negative environmental and/or social impact. These require a detailed Environmental and Social Impact Assessment (ESIA), including the preparation of an ESIA and an Environmental and Social Management Plan (ESMP).
- **Category 2** projects are likely to cause minor environmental and/or social impact. This project category requires the preparation of an ESMP.
- **Category 3** projects do not require an environmental assessment due to their characteristics.

The ADB has also developed a policy on involuntary population displacement to take into account involuntary population displacement and resettlement that could result from a Bank-financed project: *"it applies in case of displacement, loss of dwelling or other property by project area residents, or loss of their means of livelihood"*. According to the ADB, the Borrower must prepare a comprehensive resettlement plan for any project involving the displacement of a large number of people (200 or more) with loss of property, access to property or reduced means of livelihood. Where displacement involves less than 200 people, an abbreviated resettlement plan must be prepared.

### **III. Environmental Issues**

#### **Global Rural Electrification Programme (PERG) Component**

Environmental issues related to the PERG programme are largely confined to questions regarding the passage of MV and LV lines, and the installation of lines/substations. The issues concern primarily the natural environment: proximity of trees that may be removed for the passage of lines, and land used for the passage of lines.

#### **Wind Power Component**

The Tangiers 2 and El Baida Koudia 2 wind energy sub-projects are located on rugged terrain requiring clearing for both electrical installations (wind turbines, but also access tracks). The Northern zone is characterized by a high sensitivity to erosion due to its soil quality (predominantly flysch and shale) and high rainfall (700-800 mm/year). The area has high seismic risk. The water resource (surface or ground) challenge is limited.

In this area, the natural environment - characterized mainly by the passage of migratory and wild birds - is a major challenge. Depending on the location, the fauna and flora pose variable challenges. However, species worth protecting, such as the cork oak can be found in these regions.

The installation of wind farms requires land acquisition and relocation of dwellings found on the installation site, as well as a strip on either side of the site to minimize disturbance due to the noise generated. Existing infrastructure (water, power lines) must also be moved as necessary. This Northern region, especially the Tetouan area, is densely populated. However, settlements are mostly at the foot of ridges.

The landscape is another important issue. The sites will be visible from the douars (tent camps or villages) and nearby groups of homes.

#### **Hydropower Component**

The integration of hydropower projects into the environment raises many environmental issues:

The projects are located on rugged and often erosion-prone terrain (as in the Abdelmoumen STEP), involving substantial earth moving (cut and fill) both for the electrical installations to be put in place and the access ways to be opened. Furthermore, seismic risk is involved in each of the projects. Surface water resources also constitute an important issue for the Mdez

El Menzel Hydropower Complex due to the modification of the water system during operation.

Each of the projects is located in a sensitive natural environment: STEP is located in the Argan plantation protected area and the Hydropower Complex is located in an area where some species worth protecting are found. The presence of cliffs in particular seems to make it a suitable habitat zone for birds of prey (case of STEP and the Hydropower Complex).

Each of the hydropower projects is located in sparsely inhabited areas. For the Hydropower Complex, about a dozen homes could be expropriated here and there.

Another major issue is the landscape.

#### **IV. Description of Environmental and Social Impact and measures**

##### **1. PERG 5**

The negative environmental impact associated with the implementation of PERG is extremely limited and insignificant. In the implementation phase, the impact essentially concerns the passage of the MV and LV lines. In most cases, these lines skirt an already existing road.

The indirect impact concerns the operational phase: the advent of electricity will encourage households to build in permanent material with more rooms, thus raising the cost of construction land.

The implementation of PERG will notably generate numerous positive effects:

- Increased incomes due to lower energy spending and overall increase in activity
- Development of socio-economic and agricultural activity that will boost employment, incomes and development of rural areas;
- An overall effect of slowing down rural exodus and increasing return migration rate;
- Development of street lighting and improved security.

To address the limited environmental impact associated with project implementation during both the construction and operational phases, ONE has developed Environmental and Social Management Plans (ESMP) and included a number of measures in service providers' contract documents for the conduct of studies and / or works.

##### *Environmental and Social Impact and Measures for the Wind Farm Programme*

In general, the construction of a wind farm can have a significant impact during the construction phase. The operational phase causes insignificant impact. In the decommissioning phase, the impact mainly concerns wind turbine removal.



The most significant potential impact includes:

- **Geology and soils**, notably during the construction phase. The potential impact on the soil includes: surface sealing, soil compaction and soil erosion. The construction of this wind farm also requires the opening of tracks on often uneven terrain, involving substantial volumes of excavated earth. The impact during the operational phase is potentially low (risk of water loss). Mitigation measures are applicable: geotechnical studies will be conducted prior to start-up to properly adapt the turbine foundations. The existing roads will be stretched to the limit. Erosion control measures will be taken during design and operation.
- Ground and surface water, where available, are highly worth protecting. The impact during the construction phase concerns water loss and runoff risks where there are earthworks and steep slopes. The wind farms will have no impact on local water systems and no significant impact on surface water quality. The projects will not use much water in the construction phase and water consumption is nil in the operational phase. The mitigation measures envisaged for soil protection will prevent groundwater pollution.
- Terrestrial fauna, avifauna and flora are the elements that may be most significantly affected during the construction phase (flora and fauna) and in the operational phase (birds). During construction, heavy machinery, earthworks and access roads destroy the environment. The operation of a wind farm can cause mortal collisions for birds and bats (direct collision or "barodépression" effect). Noise, electromagnetic waves and vibrations sometimes cause the displacement of local wildlife to calmer sites. Migratory species are highly sensitive. In the construction phase, mitigation measures will consist in adopting a strict movement plan for construction machinery. No pollutants should be released into the environment. Staff must be sensitized to avoid unnecessary destruction of flora and fauna. The choice of wind turbine sites must take into account migratory routes and areas with a large concentration of birds and bats. Wind turbines must also be placed such as to minimize bird mortality. Rigorous ornithological studies must be conducted to identify bird passage areas and also take into account bats. Finally, ornithological monitoring should be scheduled to check and limit the impact of the wind farm during the operational phase. Offset measures should also be put in place in deforested areas.
- **Landscape.** The wind farms will be visible from douars and surrounding towns. Given that the sites are located high above the surrounding points, they will be visible from both sides of the peaks where they are located. Discussions with people living around existing wind farms show a low perception of the impact.
- **Population.** Shifting residents over a strip of at least 100 metres on either side of the ridges is required (subject to confirmation by more detailed studies). A resettlement plan, including all the details on compensation of affected people should be prepared. The Tangiers 2 Wind Farm area contains an average population density. The area around the site of the proposed Koudia Al Baida 2

Project has a higher population density. However, in both cases, most homes are at the foot of the peaks and will not have to be moved. However, isolated houses may be affected. For people living further away, the potential effects include: disturbance during construction (truck traffic, noise, dust), noise impact, landscape impact, technological risks (impact on wind turbine), etc.

However, these effects will be limited in time and vary according to construction phases (foundations, external works, and installation of wind turbines). In the operational phase, the main potential impact concerns effects on the landscape and on acoustics. **Compensation** for population displacement is defined in the resettlement plan. Dwellings will be compensated in accordance with applicable regulations in Morocco. Mitigation measures envisaged under project site organization will minimize the discomfort of residents around the future wind farm. Regarding the landscape and visual impact, it is well-advised to take into account the landscape when selecting the installation site, consult with local people and ensure the consistency of wind turbines (size, direction of rotation, height, etc.).

- **Economic activities:** The projects will have a **highly positive impact** on the local economy. The construction phase may require local businesses for the foundation, external works and brush clearing, thus creating direct temporary employment. During the construction phase of the Tangiers Wind Farm, the workforce peaked at 500 workers. Indirect jobs, notably for the construction of wind turbines, are estimated at 14 jobs/MW, or 2100 for the Tangiers 2 Project and 4200 for Al Baida Koudia 2 (according to the ADEME guide of the wind farm project's developer). The construction and renovation of roads will link up isolated rural communities.

- **Noise:** Sound nuisance may come from the traffic generated by the supply of materials for the construction of wind turbines and noise generated by the machines brought in. The rotation of the blades will also constitute a source of noise. **To reduce** the noise from wind turbines, they must be located on suitable sites, and international standards applicable to acoustic design of wind turbines must be respected. It is worth noting that shifting people over a 100 m strip reduces such impact. The measures may also include monitoring noise levels during the operational phase and implementing corrective measures where monitoring indicates falling short of the criteria.

### 3. Environmental and Social Impact, and Measures for the Hydropower Programme

- **Geology and Soils:** A hydropower project may have an impact soils, notably during the construction phase. Earthworks and grading of access roads and various structures of the two projects are substantial and involve large volumes of excavated soil. In the construction phase, the predictable impact on the soil also includes surface sealing, compaction and erosion, and accidental chemical pollution. In the operational phase the impact is nil. The measures consist of the requirements imposed on companies responsible for the works (track layouts, excavation methods, minimized clearing, waste management, etc.). Clearing operations required prior to the works will be minimized and compensated by ONE. Erosion control measures must be implemented.
- **Groundwater and surface water.** Regarding surface and groundwater resources, the works do not envisage major structural changes in the existing

drainage system. Runoff water may be modified occasionally and locally during the construction phase of the Hydropower Complex. The risk of alteration of the quality of water from the hydrographical network is not nil, due mainly to potential accidental pollution.

The projects do not consume much water during the construction phase. The operation of the Abdelmoumen STEP will mobilize a volume of 1.3 million m<sup>3</sup>. The annual booster volume is very low. For the Hydropower Complex, the volume of water used for the turbine will compete with other uses. However, this water can be reused downstream of the two plants. **Measures** consisting in putting in place a suitable drainage system and a site organization plan with strict delineation of rights-of-way and prevention of pollution risk (storage of pollutants, prohibition of access to the public, etc.) must be taken. Additionally, an accompanying measure aimed at monitoring water quality will be put in place for both projects. A study of the various water resource uses and management must be included by the managing authority: the Sebou Water Basin Agency.

- **Fauna and flora.** In the right-of-way, the local flora and vegetation will be destroyed. This is particularly important for the STEP Project which is located among Argan trees. The heritage value of species of birdlife and fauna found on the site of the Hydropower Complex may be seriously disturbed. The measures recommended concern the works execution phases (to be conducted outside the breeding season). Project staff must be sensitized, and a strict site organization plan is required to reduce the risk of accidental pollution. The EIA of the Hydropower Complex must include a comprehensive fauna/flora study, conducted at the appropriate times, to define the ultimate environmental issues and the presence or absence of protected endangered species.

- **Landscape.** The overall impact of the power plant project on the landscape is moderate. The impact of STEP will be largely visible from the Agadir/Marrakech highway. **Measures relating to architecture** and choice of material may be adopted to minimize the effects on the landscape.

- **Population.** Some dwellings will be expropriated and some people will lose the use of land. **Mitigation and compensation measures** consisting of displacement and resettlement or compensation will be managed in accordance with local regulations and ADB guidelines and procedures. Headcounts, information and compensation of the owners concerned will be implemented by ONE.

#### - **Economic activities**

The projects will have a positive impact on the local economy. The construction phase may require the services of local businesses for the foundation, external works and brush clearing, thus creating direct temporary employment.

## **V. Description of Stakeholders**

### **1. PERG Stakeholders and Consultative Mechanism**

PERG's key stakeholders are:

- Potential beneficiaries

- Affected groups
- Associations of villagers and NGOs
- Service providers (private sector)
- Local authorities
- The technical ministries
- State operators (ONE, CDER, etc.).
- Municipalities (local elected officials)

### **Consultative Mechanisms Put in Place**

- A national joint commission comprising ONE and DGCL has been set up to identify, as and when necessary, the programme priorities during its implementation,
- Prefectural and provincial committees whose mission is technical and financial validation of each section of PERG: these committees are chaired by the Walis and Governors, and attended by heads of municipalities and provincial services. ONE acts as secretary of the said committees.
- Once the municipalities and douars are identified by the prefectural or provincial committee, service providers (consultants and contractors), in collaboration with ONE, identify douars and dwellings to be connected to the grid. Most often, the decision to install facilities takes into account the population's opinions and constraints.

### **Results of Consultative Mechanisms Used**

Considering the assessment of PERG's implementation, the consultative and community involvement mechanism seems satisfactory to beneficiaries.

## **2. *Wind Energy Programme Stakeholders and Consultation Mechanism***

The stakeholders are the municipalities concerned by the projects, divided into two categories:

- The council(s) that will host the project sites proper (wind turbine sites) on their territories:
  - 3 councils for the Tangiers 2 Wind Farm (Al Bahraouine, Ksar Sghir and Melloussa)
  - 5 councils for the Koudia Al Baida 2 Wind Farm (Taghramt, Allyene, Mallalienne, and Saddina Anjra)

- The neighbouring councils that will be part of the specific environmental impact study area for each project and will be relatively affected during the construction phase and/or during the operational phase

### **People Directly Affected by the Project**

Installing wind farms will require land acquisition by ONE and possibly the destruction of some dwellings located within the direct impact area of wind turbines (this area was estimated at 100 meters on either side of the ridge line for the Tangiers 1 Wind Farm).

### **NGOs and Associations**

Non-governmental organizations and associations working in the field of environmental protection or development may also be involved in this type of project.

- The High Commission for Water and Forests and Desertification Control
- Ministry of Energy, Mines, Water and Environment
- Local authorities (Tangiers Tétouan Region, Tangiers Prefecture, Tetouan Prefecture, Fahs Anjra Prefecture).
- Regional Directorate and Provincial Directorates of Agriculture (DRA and DPA)
- Regional and Provincial Directorate of Infrastructure (DRE - ECD)
- Urban Agencies
- Provincial Directorate of Tourism
- Provincial Directorates of ONEP
- Loukkos Water Basin Agency

Based on the feedback vis-à-vis projects located in the Tangiers region (Tangier 1) and under study in the Taza region (Touahar Wind Farm Project), it is worth noting that:

In the construction phase:

- People were satisfied with the compensation procedures and amounts of compensation;
- Labour demand led to some locals being hired temporarily and earning extra income;
- The authorities consulted in studies for the Taza Wind Farm also welcomed the project with keen interest.

In the operational phase:

- Local residents appreciate the opening of tracks and access ways that facilitate their movement;
- They continue to use their farmland and pastures around the project site normally.

Thus, there seems to be no major opposition of the population to the implementation of these projects. However, consultations are planned during the preparation and appraisal phases of the wind farm projects in the Tangiers and Tetouan regions.

### **3. *Hydropower Programme Stakeholders and Consultative Mechanism***

In this paragraph, we review the stakeholders and their positions as expressed during the consultations.

#### **Municipalities Concerned by the Project**

The STEP Project is scheduled for Bigoudine council.

The Mdez El Menzel Hydropower Complex concerns the Adrej rural council for the works on the M'Dèz waterfall; and the Ouled M'Koudou and M'Tarnagha rural councils for the works on the El Menzel waterfall.

#### **The Population Directly Affected by the Project**

The Abdelmoumen STEP Project will have an impact on the population by reducing the use of the land occupied by the facilities. No dwelling will be destroyed. There is provision for compensation for private land.

For the Mdez El Menzel Hydropower Complex, dwellings will be destroyed (douars with about 10 homes). Private land will also be used.

- Souss Massa and Sebou Water Basin Agency
- Provincial Directorates of Infrastructure (Taroudant and Sefrou)
- High Commission for Water and Forestry and Desertification Control
- Ministry of Energy, Mining, Water and Environment
- Local authorities

For the construction of the Mdez El Menzel Hydropower Complex, various government services were contacted and a randomly selected segment of the population was interviewed. However, these consultations were not official.

In the case of the Abdelmoumen STEP, contacts were made by ONE with the various stakeholders and a number of permits and agreements are being prepared.

In conclusion, considering the various steps being taken and contacts made with the population and institutions as stakeholders, the projects are welcome in their different contexts.

## **VI. Analysis of Institutional Environmental Management Capacity**

### **National Institutions**

As indicated in Section 6.2.1, a number of public structures have environmental management prerogatives. The tasks of such structures are as diverse and varied as their capacity to implement them. The capacity of each structure is analysed in the sections below.

#### **Department of Environment (DE)**

As coordinator of government action in environmental management, the DE has, over the past decade, developed and put in place various instruments and measures for implementing the said action. These instruments and measures are notably:

- Governance and coordination of various ministries involved in environmental management;
- Strategic planning and programming;
- The legislative and regulatory framework;
- Environmental assessment;
- Environmental monitoring and control;
- Financial and economic support;
- Training, communication and sensitization.

#### **High Commission for Forestry and Desertification Control (HCEFLCD)**

HCEFLCD is involved in the development and management of forestry, biodiversity protection and desertification control.

#### **Water Basin Agencies (WBA)**

Created under Law N° 10.95 concerning water, the WBAs are highly tasked local agencies. They are responsible for managing and protecting public water, initiating and implementing the water policy in accordance with Law N° 10-95, and with national policy, objectives and issues specific to their area of competence. They are in charge of controlling water.

#### **Ministry of Infrastructure and Transport (MET)**

Within the framework of its missions concerning infrastructure and transport, some relate to environmental management, for example:

- MET's prerogatives concerning the authorization of facilities classified by the Dahir of 1917;
- Control of noise and air emissions of vehicles under the new Highway Code.
- Storage, handling and transportation of hazardous substances.

### **Ministry of Health**

This ministry is an inevitable advisory body for the development of technical standards and legal instruments related to the environment.

### **Ministry of Home Affairs and Local Government**

The Ministry of Home Affairs oversees local authorities through the General Directorate of Local Government and the Department of Water and Sanitation. In the context of decentralization undertaken by the Ministry of Home Affairs, it has by law granted major powers to local authorities (Regional Councils, Provincial Councils, Prefectural Councils and Municipal Councils) in environmental management and protection.

### **Ministry of Agriculture and Maritime Fisheries (MAPM)**

The MAPM also contributes to environmental management through some of its prerogatives, including those related to agricultural waste management, and use and storage of pesticides and chemical fertilizers.

### **Environmental Management within ONE**

The National Electricity Board is a public industrial establishment set up in 1963 with mission to satisfy electricity demand in Morocco under the best possible conditions in terms of cost and service quality. ONE carries out electric power generation, transmission and distribution.

ONE currently has no environmental policy of its own developed in the form of an environmental charter outlining an environmental strategy that can lead to the implementation of environmental procedures to be applied when developing projects. However, for each of its projects, be it power generation or transmission, ONE conducts an Environmental Impact Assessment.

The environment has been part and parcel of ONE since 1996, through the creation of an Environment Division reporting directly to Management. Since 2010, environment-related activities are managed by the Environmental Quality and Safety Department, which also reports directly to Management.

This Department includes three divisions:

- Safety Division
- Health Division



- Environment Division. This division comprises two units: Research Unit and Action Unit.

The Environment Division has three engineers and three officers. Some of the team members have had no special training in the field of environment.

To offset the weaknesses of this Division, the following is recommended:

- Increasing its resources:
  - Recruitment of three additional persons to monitor environmental and social projects from upstream to downstream
- Capacity Building
  - Supplementary training on environmental and social aspects of:
    - Wind energy projects
    - Hydropower projects
  - PERG projects
    - Supplementary training of national institutions: CNEIE on the same themes.

## **VII. Framework Environmental Management Plan**

### ***1. Organizational Aspects***

Environmental management is integrated into the organizational structure of ONE by the Department of Health, Safety and Environment, which includes the Environment Division, and reports directly to Management.

However, mainstreaming environmental management into all its components would require appointing an environmental officer- who could be a technical officer but with environmental training - in the different technical departments and at the local agencies (regional or provincial, depending on the level of projects developed).

### ***2. Procedures***

The summary of this SESA will be published on the ADB website and the Bank Board of Directors will approve the programme. Then, depending on the categorization of subprojects, the Borrower must conduct an ESIA and/or ESMP and/or PCR. These documents will be analysed and each sub-project must comply with environmental and social policies of the Bank, on the one hand, and of Morocco, on the other. The public inquiry is then opened in Morocco for 20 days and the ADB for 30 days (Category 2 sub-projects) or 120 days (Category 1 sub-projects). This is followed by environmental acceptability to be granted by CNEI in order to validate the process in Morocco. **Once the sub-project is approved by the CNEI and the Bank** , disbursement can take place and execution of the sub-project may begin.

### **3. *Environmental Measures***

According to **the ADB project categorization procedure**, the sub-projects are in Category 2 (at the current state of knowledge). However, given the location of the sub-projects, some may switch to **Category 1**. If more than 200 people are to be displaced under one of the wind energy sub-projects, it would then be moved to Category 1. Similarly, the El Mdez Menzel Hydropower Complex, could be moved to Category 1 if the presence of endangered species is confirmed, as it is located in the Argan plantation zone.

According to Law N° 12-03 on EIA, the hydropower programme and wind energy projects should be the subject of an environmental impact assessment to be presented to the CNEI to obtain environmental acceptability. As part of this environmental acceptability process, an environmental monitoring and surveillance plan (EMSP) is prepared as an undertaking by the developer to finance measures identified, as well as the environmental monitoring and surveillance plan.

#### **Specific Recommendations**

##### **Preparation of Detailed ESMP**

In general, the ESMP should be true tools for managing and monitoring the implementation of projects with regard to environmental issues. They should detail the items to be taken into account in the contractors' specifications, the environmental monitoring components and the responsibility of different stakeholders in implementing the ESMP.

##### **EIA of Wind Farm Projects**

The EIAs in progress should rather be considered framework studies for identifying key environmental issues. The parallel implementation of ornithological studies will also help to identify areas where the passage of birds should be avoided and determine the layout of wind turbine sites. These framework studies must be supplemented by detailed studies to be conducted by developers on the basis of a preliminary design. Such detailed studies can then make more detailed analysis on the acoustic aspects and identify precisely which dwellings will be affected and should be compensated, identify and specify the access roads to be opened and earth works to be carried out.

##### **Preparation of PGES under PERG 5 Projects**

As seen above, the environmental impact of PERG is not significant. However, it is important to prepare an environmental and social management tool for each project, which will guide environmental and social monitoring. For this purpose, model ESMPs should be prepared, taking into account the various measures to be put in place during works. A checklist for monitoring measures to be implemented in the course of the project can also be developed to help the site supervisor assess the integration of environmental aspects.

### **4. *Social Measures - Public Consultation Master Plan***

#### **Implementation of the Public Inquiry Process under Law N° 12-03 on the Environment**

##### **The Public Consultation Process to be Implemented According to ADB Guidelines**

To comply with ADB guidelines, it will be necessary to implement a public consultation process with stakeholders as soon as possible.

### **Wind Energy Component:**

- Preparation of a summary document outlining the project content, the environmental components and expected impact;
- Holding of meetings:
  - Planning meeting with the CNEI, to inform CNEI members in advance;
  - Meeting to present the project (based on the summary document prepared) to local stakeholders, including primary and secondary stakeholders.
- Conduct of the framework EIA and completion of the public inquiry under Law N°12-03;
- Implementation of an abbreviated resettlement plan. The implementation of this plan is to be confirmed in the light of local conditions and actual population resettlement needs.

### **Hydropower Component**

For the hydropower component, project definition is relatively advanced in both technical and environmental terms. For each of the two projects, the following are proposed:

- Holding of a public information meeting bringing together the different stakeholders. This meeting will present the project content and the results of the impact assessment;
- For the Mdez El Menzel Project, an abbreviated population resettlement plan is to be prepared for the 10 homes that will be affected by the project;
- For the ETSP project, no displacement is planned.

### **PERG Component**

Community consultation is carried out as and when necessary during the implementation of the rural electrification project. There are no plans for an additional procedure for this programme component.

## **5. *Capacity Building Plan***

### **Environmental Management Capacity Building Measures within ONE**

Given the specificities of ONE projects and their environmental impact that needs managing, the recruitment of three environmental engineers and one social officer in charge of issues such as public consultations and population displacement is recommended.

## **Capacity Building Measures**

To offset the weaknesses in environmental training, the implementation of a capacity building programme for members of the Environment Division is recommended. Considering the specificities of projects managed by ONE and their inherent environmental and social concerns, consideration of environment modules covering environmental law, impact assessments, environmental monitoring, strategic environmental assessment, natural resources and biodiversity, risk management and safety as well as consultations, procurement and compensation of affected persons is recommended.

## **Technical Capacity Building Measures**

Preparation of internal environmental and social guidelines for drawing up wind farm EIAs.

Preparation of standard environmental clauses to be included in the specifications of contractors carrying out the works.

## **CONCLUSION**

This study shows that the environmental impact can be reduced through mitigation and compensation measures to be identified in detail through comprehensive environmental studies. The social impact is also taken into account in the regulatory process in Morocco. However, the inclusion of social and public information aspects must be reinforced by communication with various stakeholders.

ONE (the project promoter) has integrated environmental management in its organizational process. Institutional development and capacity building must be carried out to enable ONE to ensure effective and rigorous environmental management of the programme and various sub-projects.