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## **AFRICAN DEVELOPMENT BANK GROUP**

**PROJECT : DEVELOPMENT OF THE BOALI ELECTRICAL SYSTEM AND THE INTERCONNECTION OF THE CAR-DRC ELECTRICITY GRIDS PROJECT**

**COUNTRY : MULTINATIONAL : CAR - DRC**

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### **SUMMARY OF ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN**

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## SUMMARY OF ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

<b>Project Name</b>	<b>:</b>	<b>Project to Develop the Boali Electricity System and Interconnect the CAR-DRC Electricity Grids</b>	
<b>Project Number</b>	<b>:</b>	<b>P-Z1-FA0-026</b>	
<b>Country</b>	<b>:</b>	<b>Multi-national CAR-DRC</b>	
<b>Department</b>	<b>:</b>	<b>ONEC</b>	<b>Division: ONEC1</b>

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### A. Description of Project and Key Environmental and Social Components

The project consists in:

- constructing and improving generation plants of the Boali hydro-electricity system (install additional 5-MW generators, extend the Boali 2 plant by 10-MW, rehabilitate Boali 1 and 2 hydro-electricity plants and the Bangui and Zongo thermal plants),
- constructing new HT line portions in CAR (7 + 30 km)
- rehabilitating and reinforcing 100-km of transmission lines from Boali 2 to Bangui (CAR) (replace circuit breaks, regulate cable sag, adjust earthing...)
- extending by 100 km a 132-KV line for the electrification of six localities in DR Congo: Zongo, Bambenga, Nduma, Boyabu, Mole and Libenge.
- executing a programme to rehabilitate and extend MT/HT networks,
- executing a programme to electrify localities along the transmission line in CAR and DR Congo.

The project will be implemented in 2 key phases:

#### **Phase 1: Rehabilitation and strengthening of electricity infrastructure in CAR and electrification of Zongo in the DRC.**

The components of this phase concern:

- i) rehabilitation and strengthening of generation plants in Boali, Bangui and Zongo.*
- ii) rehabilitation of the transmission system in CAR*
  - Construction of a new 30-km, 110-kV bypass section in Bangui;
  - Construction of a 7-km HT transmission line and related structures between Boali 2 and Boali 3.
  - Rehabilitation and reinforcement of 100 km of lines from Boali 2 to Bangui.



The construction of new 7-km and 30-km sections is the focus of an inter-ministerial committee tasked with identifying and assessing private land and properties crossed by transmission lines. Expropriation and compensation (arable land, plantations, pastures...) measures concern 1381 project affected population.

The choice of the route variant consisting in the new 30-km Bangui bypass loop was based mostly on the lower social cost that it entailed since the other much shorter and less costly variant requires passing through highly urbanized zones on the outskirts of Bangui.

Rehabilitation works on CAR's HT transmission network to be performed on the already existing HT line, consist in adjusting some cable sags and replacing circuit breaks.

**iii) *CAR Electrification Programme***

Rehabilitation and extension of MT/HT networks, connection of households and public lighting in CAR;

This programme will mainly concern 5 neighbourhoods in Bangui (Galabadja, Ngongonon, Kolongo, Carmel Bimbo and Boy Rabbé) and the electrification of 6 rural localities along the Boali2-Bangui line and one key peri-urban locality (Sakai) on the new Bangui loop. About 3,000 households will benefit from this rural and peri-urban electrification programme.

**iv) *Electrification of Zongo via MT line from Bangui***

Zongo (whose thermal power plant is out of service ) will be supplied from Bangui via an MT line across the Ubangui River over a distance of about 900m.

**v) *Completion of studies for a 100-km, 132-kV line from Bangui (CAR) to Libenge (DR Congo)***

Finalization of the terms of reference of studies to extend the 110-kV transmission line from the Boali system right up to Libenge passing through Bangui; and the electrification of localities crossed by the line and all related structures. The studies include the conduct of a detailed ESIA.

**Phase 2: DRC Electrification Programme**

The DRC electrification programme has two components:

- i)** Construction of a new 100-km HT transmission line and related structures in DR Congo.
- ii)** Household connections and public lighting for six localities in DR Congo (MT/LT lines and substations).

This Environmental and Social Management Plan applies to Phase 1 of this project. It will concern all the project components financed by ADB, also taking into account the other key components financed by other donors (World Bank, Chinese Cooperation and the AFD)

Apart from works, ADB is also involved in the financing of several components of this project:

- extension and rehabilitation of Boali 3 (installation of two 5-MW turbines) financed by Chinese Cooperation,
- rehabilitation of Boali 1, financed by AFD and the World Bank,
- construction of a 7-km section of HT line (Boali 3-Boali 2) financed by Chinese Cooperation,
- construction of a Bangui bypass network (30 km of HT lines), financed by Chinese Cooperation.

The project area extends from the prefecture of Ombella M'poko (sub-prefecture and municipality of Bangui Boali) in the CAR and the Equator province in the DRC. Bangui is the capital, largest city of CAR, it is separated from the DRC by the Ubangi River. Because of demographic pressure, the natural environments surrounding Bangui are severely degraded (phenomena of deforestation and advanced erosion). The only relatively spared areas are the hills of Bangui (Lower Ubangi and Daouba-Kassai hills), where all development is prohibited. At Boali, the vegetation of the project area belongs to the Sudanese Guinean savannah areas, forest savannahs of the southern district, particularly the district of the plateaus of Bossembele. M'Bali station is an integral part of the forest district. These natural formations, characterized by a high level of human activity (clearing cropping, extraction of firewood and grazing, especially on the Bossembele side) are dominated by tree and shrub savannah more or less degraded. The gallery forests are located along the M'Bali River and its major tributaries. Marshy meadows may also occur on poorly drained plateaus. Each year there are bush fires across the savannas (preparation of crops, traditional hunting, re-growth of grass in farming areas). The savannah vegetation has adapted to these recurrent fires. Often late fires that destroy the ground just before the rains in areas with steep slopes can cause erosion. In the DRC, in the Equator province, forest area accounts for 72% of the total area. We come across forests along the Congo River and major streams. Closed forests have almost disappeared and are essentially replaced by savannah. The rate of urbanization in the area is very low, the population is mainly agricultural and trading with neighboring RCA.

From an environmental point of view, the rehabilitation and production capacity building works (Boali, Bangui and Zongo) will only have environmental impacts specific to the project site, since they will be carried out within generation sites or on land prepared for that purpose.

The construction of a 7-km HT line between Boali 3 and Boali 2 will require a 30-m-wide passage corridor in a zone known for its high human impact factor (clearing of land for farming, harvesting of firewood and pastures) and dominated by more or less degraded savannahs dotted with trees and shrubs.

The construction of the new Bangui loop (30 km) will have no significant environmental impact, since the land now has the physical features of a savannah owing to the recent extensive deforestation and growing urbanization.

These environment-related observations on the construction of new sections of HT lines will be corroborated by the results of studies being conducted by the inter-ministerial evaluation committee whose membership includes representatives from the Ministry of the Environment and Ecology.

The aim of the project is consistent with the poverty reduction objectives set by the two countries involved. The rehabilitation of transmission lines and electrification of Zongo will allow for the supply of electricity to rural areas on the project route, as well as income-generating activities.

About 3,000 households are concerned by rural electrification in CAR and 2,000 connections will be carried out in Zongo, DRC.

Electrification will definitely entail the shrinking of pockets of urban and rural poverty caused by the lack of reliable sources of power and characterized by very frequent ENERCA power outages. The availability of electricity will aid development initiatives: creation of SMEs, organization of handicrafts and workshops (tailoring, embroidery, hair-dressing, carpentry, mechanical sawmill, piping work, painting, carriage work, plumbing, soldering..), cold chains, security lighting, use of the media (television, internet, computers, etc.). Energy will also contribute to improving different sectors of the national economy and foster development.

## **B. Key Environmental and Social Impacts**

### **Temporary Works-related Negative and Positive Impacts**

#### **On the Physical Environment:**

These impacts concern soil and river pollution caused by rain water washing down soil contaminated through leakage of hydrocarbons and other lubricants from construction machines or transformers, solid waste generated, sewage and sanitary and other effluents from works sites (lime slurry etc.).

In most cases, the impact of air pollution caused by exhaust gases from site vehicles and noise is not significant since human settlements are far away and the impact occurs on a limited geographical area and for a short period of time.

#### **On the natural environment:**

The impact on local plant and animal life stems mainly from the construction of HT lines and involves clearing vegetation on the site to create passage corridors for the transmission lines and access paths.

The fact that lines are positioned along the right-of-way will mitigate impact on residual endemic flora. However, some trees will have to be felled along the Boali 3-Boali2 corridor. Wildlife is virtually absent in the zones to be developed.

Experience has shown that, after works, the original wildlife and vegetation will return around the project structures. Another risk will be poaching by project workers.

**Socio-economic aspects:**

The negative impact stems from potential conflicts between the local people and displaced workers. However, the construction and rehabilitation of HT lines and MT/LT networks could have a positive impact in new job opportunities created for the local population and temporary small-scale food activities developed.

**On land-related aspects:**

Construction of transmission lines and rehabilitation works may require the requisitioning or temporary lease of the necessary land.

**Health:**

Construction works may lead to road accidents, disrupt normal traffic and favour the spread of HIV/AIDS by temporary construction workers.

**Permanent negative impact: construction of lines**

**On the physical environment:**

The construction of HT lines generates permanent negative impacts caused by arable land being stripped of organic topsoil, the loss of land at the base of pylons and electric poles and levelling works which increase the risk of erosion.

**Biodiversity and ecosystems:**

The clearing of savannahs and felling of trees along corridors created in the forest (especially the 7-km section from Boali 3 to Boali 2), necessary for installing poles and creating access paths, could wipe out special endemic plants (medicinal) or high-grade species. Site access works or assembly works (pylon platforms or pulling of cables) will produce the same impact: loss of vegetation. Due to the zone's special climate, the self-healing process will allow for the rapid recolonization by vegetation comprising mainly grass cover and shrubs.

HT lines might disrupt the air corridors of migratory birds since birds with a large wing-span might run into them or be electrocuted. However, this impact remains low since mitigative measures will be implemented.

**On socio-economic activities:**

The socio-economic impact is mostly positive and concerns the secured distribution of energy, elimination of power loss on the ENERCA grid and hence frequent technical outages and new opportunities for creating jobs, handicrafts, SMEs, etc.

**Land-related aspects:**

The negative land-related impact has to do mainly with building restrictions on land crossed by overhead HT lines.

In rural areas, the occupation of land by HT lines poses no constraint on agricultural activities unless line safety is at issue. It only entails access paths established on land crossed by these lines, but this in no way dispossesses the owners.

The key constraint is the presence of pylons generally spaced at intervals of 300 metres. Their position somewhat reduces the cultivable area and may impede the development of irrigated or irrigable land.

Some works on the new 30-km loop around Bangui may require the displacement of a number of houses along the line itinerary.

**Health and security:**

HT lines are sources of electro-magnetic radiation and possible disruption of telecommunications.

The risk of electrocution from fallen electric poles is also to be taken into consideration although this is quite rare.

**Permanent negative impacts resulting from the construction of substations****Physical environment:**

In the operational phase, the transformer substation may present a risk of water-table contamination caused by accidental leakage of insulating oil from transformers not placed above stone-filled concrete drains.

There is also the potential risk of explosion of transformers, causing fire outbreaks and the spreading of the dielectric oils they contain.

Noise will be from the transformer coiling process or from fans installed on oil radiators. Since these sub-stations are often located along road sides, these noises will be partly muffled by traffic sounds except at night.

**The natural environment:**

The direct impact on the natural environment is deemed to be negligible because the land on which the two existing A and B sub-stations are installed is highly urbanized while the site chosen for sub-station C belongs to ENERCA and has no special significance in terms of plant and animal life.

**Positive Project Impacts**

The positive impacts of the project are essentially socio-economic. The area covered by the project in the CAR and the DRC is relatively poor. The major positive impact due to the provision of reliable energy will be socio-economic in nature materializing in the

development of local crafts and all sector activities (agriculture, livestock and value-added processed products depending on cold chains, sawmills, joinery, metalwork, sewing, embroidery, hairdressing, soap making, oil mills, etc.). The electrification will also gradually improve the living standards and strengthen the family unit. This impact will result in improving the quality of education of children with the electrification of schools and the quality of health care. Health centers can better store drugs and receive electrical equipment. The project will promote the decline of the rural exodus and the return of young people to the land, and the diversification of small crafts for which incomes will be injected into the local economy. About 3000 rural households are involved in peri-urban and rural electrification in 2000 and RCA connections in the town of Zongo in the DRC.

On the other hand, the project will prevent the use of generators and the equivalent GHG emissions. Indeed, the area affected by the project in CAR is basically supplied with electricity from the Boali 1 and 2 complexes and backup diesel generators of ENERCA. The distribution of electricity in Bangui is characterized by frequent power cuts given the outdated production facilities and transport lines and lack of supply in relation to the growing demand. This forces ENERCA and other consumers who are equipped to use thermal diesel consuming generators which strongly emit GHG. In the DRC, the entire area affected by the project is not electrified. There are only a few generators operating on diesel.

### **Indirect Project Impacts**

The project will have no direct impact on soil or water resources. In contrast, its effect on the atmosphere will concern the climate since the level of greenhouse gas emissions is expected to fall due to the replacement of fossil fuels used in thermal power plants and generator sets with renewable energy.

The project's indirect negative impact mostly stems from the use of access roads to electric lines and the corridors underneath for illicit natural resource exploitation activities such as poaching, the sale of bush meat, illegal logging, etc.

## **C. Improvement/finishing and Mitigation Programme**

### **Improvement/rehabilitation/mitigation measures in the works phase**

#### **Physical environment:**

In the works phase, the contractor will ensure that all measures are taken to prevent erosion, rehabilitate soil after refilling trenches and completing concrete work at the bases of electric poles and pylons, clear access paths to rehabilitated lines after works, remove polluted soil and properly dispose of such wastes.

S/he must also ensure that only equipment compliant with construction standards is used and hospitals, schools, Government offices, houses of worship are avoided and, and to the extent possible, use electric tools rather than pneumatic tools.

The contractor must also avoid dumping polluting wastes (lime slurry from concrete-mixing units) on the soil and in rivers and must organize the cleaning up and sanitary treatment of works sites.

The Contractor will be required to comply with all mitigation measures related to the construction phase through specific clauses in the specifications established by ENERCA and SNEL.

These specifications require the Contractor to implement the following plans: the drainage and erosion control plan, the redevelopment plan for degraded zones, the waste management plan, the emergency response plan for contaminant spills, the management plan for fuel and other hazardous materials and the appointment of an officer responsible for environmental monitoring in construction sites.

### **Eco-systems:**

Mitigation measures consist in choosing the works itineraries away from parks and natural reserves, while (as much as possible) steering clear of forests and reducing the works area to the minimum.

The ESMP includes a reforestation program to offset the inevitable cutting of some woody corridors impacted by the way leave.

### **Socio-economic aspects:**

The prime contractor (states) must use a participatory approach in circulating the contents of the project in order to enlist the cooperation of the populations concerned.

Any works planned in areas under crops should commence after harvests.

Preference should be given to local manpower and work sub-contracted to local craftsmen. Persons suffering socio-economic, income and other losses should be compensated.

### **Land-related aspects**

The prime contractor will manage the risks of expropriation and the relocation of any persons to be displaced, in accordance with professional ethics and standards. S/he must also protect the aesthetics of the landscape, archaeological, historical and religious sites and towns crossed as necessary.

Land leases, damage to private property and working and production tools will be indemnified and paid for in full before the organization of works.

### **Health and security aspects**

The prime contractors will regulate traffic in the immediate vicinity of works.

Before the start of works, the resident population will be informed of temporary constraints regarding access to certain sites due to the organization of works – for security reasons. Works sites will always be clearly marked out (by signboards, blinkers, etc.) and protected by security barriers defined in association with the roads services of local councils, etc.

Deviations will be put in place as needed.

The contractor will ensure that waste from works site is recycled or properly disposed of in controlled dumps.

### **Long-term improvement/rehabilitation/mitigative measures in operational phase**

#### **Physical environment:**

The operator must, to the extent possible, avoid remodeling the soil. The arable topsoil should be removed before the operations and restored afterwards.

The operator will also sort waste, avoid polluting equipment (gas and noise) and control polluting waste.

#### **Ecosystems and biodiversity:**

The operator will carry out maintenance works only on the reduced right-of-way and must rehabilitate the sites after operations.

#### **Socio-economic aspects:**

The key positive impact of the supply of reliable energy will be socio-economic, as seen in the development of local crafts and all sectors of activity (agriculture, stockbreeding and processing of their products with high value added derived from cold chains; saw-mills, carpentry, pipe work, tailoring, embroidery, hair-dressing, saponification, oil-mills, etc.).

In the longer term, ENERCA will ensure through its environmental and social units the smooth functioning of new projects created after electrification and support them if necessary through training sessions and support measures aimed at project proponents with the guidance of local NGOs.

### **D. Monitoring programme and additional initiatives**

Construction works and the management of project components will be financed with the internal resources of ENERCA in CAR and SNEL in RDC.

While both companies will sub-contract part of these works, the selected enterprises will be required to apply the recommendations contained in this Environmental and Social Management Plan concerning mitigation of negative impacts and development of positive impacts. Especially:

- i) The contractors will take necessary steps to minimize the area of the right of way of works and sites and reduce the distances of access to the itinerary layouts. Compensation payable to the populations or local communities for damage to private property (including the crossing of private property) will be included in BDs;
- ii) Workers will have suitable equipment for the works to be executed (protection against risk of electrocution, safety harness for high-altitude works, hard hats, insulating gloves and boots, etc.);

- iii) Trees will be felled or pruned, if required, as provided by law, by the regional technical services concerned;
- iv) The contractor will have to rehabilitate sites on completion of works and dispose of waste generated during works, including stripping soil polluted by accidental spills and 50-cm ploughing of earth compacted by construction equipment;
- v) The contractor will provide guarantees concerning the good working order of construction equipment which will be compliant with the maker's specifications and more particularly concerning fuel and oil leaks, the noise level and rate of polluting gases emitted;
- vi) The contractor will have to install sanitary facilities, if required, for works sites (toilets, drinking water, shelters, etc.) and manage related wastes.

Two units in charge of environmental and social aspects (the unit exists in SNEL, but has to be created at ENERCA) will be responsible for verifying on the ground the contractors' proper application of the environmental and social impact mitigative measures contained in the project's ESMP. Their periodic inspection reports will be submitted to ADB and other competent authorities. They will also include their observations on the relevance and feasibility of measures proposed in ESMP for mitigating impact and providing compensation. The environmental and social monitoring programme will be the responsibility of the prime contractors or under their direct control if a sub-contractor is chosen. Its nature and selected items will depend on the scale of works to be implemented.

A bi-monthly environmental and social monitoring report will be published by ENERCA and SNEL during the construction phase. The reporting period during the operational phase will be annual.

ENERCA and SNEL will also be responsible for setting up a monitoring, facilitation and support committee during the works preparation and site installation phase. The logistics support to ministries and their representatives will be centralized in the local ENERCA and SNEL offices.

The role of this committee will be to:

- i) Verify whether people living close to project sites have been informed about the project's organization and information concerning possible expropriations or eviction measures and modalities for relocating and compensating affected families disseminated;
- ii) Ensure proper application of measures concerning soil quality and structure and the protection of water resources, biodiversity and agricultural land.

## **E. Institutional arrangements and capacity-building needs**

Section 7 of the Law instituting the Environmental Code in the Central African Republic mentions environmental impact assessments (EIA). The law stipulates that: “regulatory instruments shall lay down the content, methodology and procedure of impact assessments, the conditions for publishing these assessments and the manner in which the Minister of the Environment may request or be sent all environmental impact assessment for review”. The law also provides for the holding of public environmental assessment and environmental audit sessions whose implementation modalities will be laid down by regulations. Other regulatory instruments (being validated) are being formulated to determine EIA procedures, the detailed categorization of projects for which EIAs are needed, the procedure of public consultation and participation as well as the dissemination of EIA-related information.

The DRC prepared a draft framework law on the protection and development of the environment. It has been submitted to Government for approval before its signature and enactment. It also stipulates that “the implementation of any development, works or installation project must be preceded by an environmental impact assessment appended to the technical dossier of application for authorization”. An implementing decree of this law will give the list of activities, development or structural works (including electrical fittings) which will be subject to environmental impact assessment. Classified projects will be subject to authorization from the Ministry of the Environment establishing their "environmental acceptability", on the proposal of GEEC.

ENERCA does not have a unit dedicated to the environmental and social monitoring of its projects. To remedy this weakness, an internal technico-administrative unit must be set up, whose roles will include:

- i)** Mainstreaming environmental aspects into the company’s production, transmission and distribution activities as from the project design phase;
- ii)** Determining the content of environmental and social components of future projects, anticipating potential impacts and support measures to mitigate them;
- iii)** Preparing the ESMPs of new projects;
- iv)** Conducting environmental and social monitoring of electricity production, transmission and distribution projects being financed;
- v)** Taking into account the social dimension of electricity transmission and distribution projects – the impact of electricity rates on the level of poverty of the people; organization of expropriations for public utility, eviction and relocation of families, legal compensation, socio-professional support at the new living sites, etc. ;
- vi)** Raising awareness of successful bidding contractors and the population on their role in protecting their environment ;

In addition to the necessary material and logistic resources (logistics, PC...), this unit could benefit from an initial training programme.

SNEL already has the Environmental and Social Management Directorate, which can take proper charge of the implementation of the ESMP as far as components to be implemented in the DRC are concerned.

This directorate can also provide considerable support to the unit to be set up within ENERCA in CAR.

#### **F. Public Consultations and information dissemination requirement**

Consultations and discussions were organized with the local populations during October 2010.

Consultations and meetings were undertaken with the local populations during the month of October 2010.

The views and concerns of the people living in the project area have already been obtained based on discussions and interviews. Three groups of stakeholders were identified:

- i)** The surrounding populations composed of traders, road users, the inhabitants of neighbourhoods and villages, etc.),
- ii)** Local authorities,
- iii)** The different agencies in charge of the town's franchise-holders of the buried network of the town and a number of State or private sector services and agencies.

The respondents' views on the project have been more or less positive since they consider that it will contribute to raising the standard of living of urban households. However, the key concerns identified are (i) rapid installation of cables to reduce inconveniences and (ii) the execution of works during the dry season to enable the populations to harvest their produce from farms located within the project right of way so as to reduce its economic impact.

To address this major concern of the populations, all of the installation or rehabilitation of HV lines will be done during the dry season. The schedule for completion of the work will reflect this priority component.

The authorities in Zongo, DRC, confirmed that investors were ready to come to the town to start projects in agro-food (oil processing, flour milling...), soap-making and even cement manufacture, as soon as they receive assurances of the availability of electricity in the town. The ministry supervising the prime contractor should appoint or recruit a community relations officer to implement the public information and consultation programme.

The ministry responsible for ENERCA shall appoint or hire a Community Relations Manager in order to implement the information and public consultation program,.

The report of the committee responsible for Boali 3 preparatory works (appointed by Order No. 053/2010) should lead to a relocation plan for populations displaced by the project. This plan must highlight:

- i) The precise identification of land and properties affected by the project.
- ii) Accurate assessment that takes into account the country's current inflation must also be conducted and compensation proposed to beneficiaries, be it for physical eviction measures (*a priori* 33 households concerned), or compensation for agricultural land lost, plantations, orchards, fruit trees, pastures....

In CAR, this plan will take into account Law No. 96.018 of 4 May 1996 instituting a general procedure of involuntary resettlement.

Another inter-ministerial committee designated by the law will be responsible for monitoring the effective implementation of the compensation measures. A compensation agreement will be signed between the CAR government and each person eligible for compensation.

Community relations officers must still organize other meetings with the affected populations, especially in zones impacted by the construction of Bangui's new loop. Several mechanisms will be established to ensure that grievances are noted and considered by the prime contractor. This especially involves:

- i) instructing community relations officers to establish dialogue with target populations and community groups;
- ii) planning and organizing public meetings and placing a "grievances" register at the disposal of participants;
- iii) working in close collaboration with ENERCA and SNEL offices, and the Electricity, Environment and Regional Development Directorate, etc.;
- iv) Organizing formal meetings with stakeholders concerned.

This ESMP summary will be posted on the website of the African Development Bank 30 days before the project is submitted for approval by the Bank's Board.

#### **G. Cost Estimates**

The costs of reforestation measures is estimated at FCFA 1,000,000, that of sensitizing the population on the risk of accidents during works phase of various project components stands at FCFA 6,000,000 and that of the participatory approach (generally sensitizing and training the populations in the project area) is estimated at FCFA 8,000,000.

The costs relating to compensation and relocations are approximately UA 0.94 million (approximately FCFA 700 million ).

The costs of environmental and social measures are directly integrated into the operating costs of the facilities by ENERCA.

## H. Implementation and reporting schedule

The project implementation team will play a role in the environmental impact mitigation and rehabilitation measures. The implementation schedule of these activities and reporting time frames will be the same as for the execution of the project.

ADB will also consider the implementation of the project in detail during its monitoring missions. Reports furnished by the project team must include the physical implementation status of works, environmental impact assessment forms and audits conducted. These reports will be forwarded annually to the Bank.

The timetable for the implementation for all all mitigation / enhancement measures with proposed responsibilities and target populations of the program are presented in the following table:

Project phase/ Timetable	Responsibility	Target stakeholders
Preparation and disclosure of the ES MP	Community Relations Manager, ENERCA and SNEL	Specialists in the directly concerned ministries, industries, artisans, the populations on sites chosen for construction; NGO, etc.
Establishment of the construction area and organization of the works : surveillance and monitoring of the works; consideration of technical, environmental and social aspects in the works; disclosure of progress reports	ENERCA, SNEL; Rural Electrification Directorate, contracted enterprises, representatives of the affected populations and NGOs; local administrations	Regional technical departments, directly affected populations, NGOs, etc.
Operation of the facilities, technology tests on the equipment ; health risks due to electromagnetic waves	ENERCA, SNEL; Rural Electrification Directorate, contracted enterprises, representatives of the affected populations and NGOs; local administrations	Urban authorities ; civil society ; NGO ; mayors and section chiefs, communities, ENERCA, SNEL, etc.

Responsibilities for monitoring the effective implementation of the ESMP and the regular preparation of the reports are presented in the table on the following page.

ADB will also conduct a detailed review of the project during its supervision missions. The reports provided by the project team will include the physical progress of work, evaluation forms of the environmental impact and the audits undertaken. These reports will be submitted annually to the Bank.

Responsibility	Environmental Specialist of ENERCA	Socio economist of ENERCA	Environmental Specialist of SNEL	Socio economist of SNEL	Community Relations Specialist CAR/DRC	Coordination committee (representatives from all of the ministries)
Monitoring parameters	Environmental mitigation measures in the ESMP	Social mitigation measures in the ESMP	Environmental mitigation measures in the ESMP	Social mitigation measures in the ESMP	Ensure the documenting of the complaints and their handling, participatory approach	Monitoring reports and minutes from the consultation meetings
Deliverables	Monitoring reports/ Operational reports				Minutes from the consultation meetings	Minutes from the consultation meetings
Frequency of deliverables	Bi-monthly (during construction) and bi-annually (during operation)				At each meeting (before the start and during the works)	Each trimester (during the works)