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PROJECT : SEMI-URBAN AND RURAL ELECTRIFICATION PROJECT

COUNTRY : DEMOCRATIC REPUBLIC OF CONGO

SUMMARY OF ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

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SUMMARY OF ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

Project Title: SEMI-URBAN AND RURAL ELECTRIFICATION PROJECT

A. Brief description of the project and key environmental and social components

DRC has the 4th hydro-electric power potential in the world, with 600 billion KWH and about thirty power stations mainly located in Katanga, in the eastern part of the country, and in Bas-Congo. Nearly 2.5% of this potential is currently tapped. Electricity is generated by the national utility, the National Electricity Corporation (SNEL), which is the only official operator in the electric power sector. Despite this potential, the obsolete installations and the low equipment rate are such that the current electrification rate is only about 1% in rural areas, 30% in urban areas, and a national average of 6%.

The project will finance the construction electric infrastructure as well as the rehabilitation of distribution networks of the 5 areas presented here-below.

- ✓ Electrification of 5 areas called 'dark centers' in Kinshasa ;
- ✓ Discharge Programme for 16 municipal councils in Kinshasa (rehabilitation of MV/LV networks and MV/LV sub-stations);
- ✓ Rehabilitation and extension of the Ngombe Matadi network in Bas-Congo;
- ✓ Rehabilitation and extension of the Dima and Bendela network in Bandundu;
- ✓ Rehabilitation and extension of the Kabare network in South Kivu;
- ✓ Rehabilitation and extension of the Yakusu in the East Province.

The Works envisaged within the framework of this ADF financed project are described here-below:

• Electrification of 5 areas called 'dark centers' in Kinshasa

(a) Areas of Cogelos, Mandela and Mbanza Lemba : Installation of 20 kV MV line from the Campus sub-station (450 m underground lines, 5,67 km overhead grid towards Mandela, 3,89 km overhead grid towards Mbanza Lemba) and 8 cabins MV/LV

(b) Areas of Mbala and Buka Mikwa : Installation of 20 kV MV line from the Badiadingi sub-station (150m underground lined + 2,07 km overhead network towards Mbala + 2,43 km overhead network towards Buka Mikwa) and 2 cabins MV/LV

(c) Areas of Mpsa 4, Bibwa and Mikonga : Installation of 20 kV MV line from the Kinkole sub-station (600 m underground lines + 4,56 km overhead network towards Mpsa 4 + 4,98 km overhead network towards Bibwa + 6,23 km overhead network towards Mikonga) and 11 cabins MV/LV

(d) Areas of Matadi Mayo, Mitendi and surrounding areas : Installation of 20 kV MV line from the Mitendi sub-station (650 m underground lines + 12,5 km overhead network towards Matadi Mayo + 8,5 km overhead network towards Mitendi + 6,21 km overhead network surrounding areas) and 12 cabins MV/LV

(e) Areas of Armée du Salut, Tuvedila and Makala : Installation of 20 kV MV line from the Campus sub-station (150 m underground lines + 3,92 km overhead network) and 2 cabins MV/LV

- **Rehabilitation and extension of the Ngombe Matadi network in Bas Congo**
 - (a) Supply of conductors et accessories for the installation of the 70kV line, measuring approximately 30 km from the Sanga plant and Ngombe Matadi ;
 - (b) Equipment of the Ngombe Matadi sub-station (without the transformer) ;
 - (c) Connection and electricity supply of Nkamba through a 30kV MV line of 25 km from Ngombe Matadi sub-station;
 - (d) Connection and electricity supply of Ngombe Lutete from a diversion of the Ngombe Matadi-Nkamba line;
 - (e) Construction of a MV/LV distribution network in Ngombe Matadi (2,5 km MV overhead network, 2 switch poles of 250 kVA, 4 km of LV underground network and 30 spots for public lighting);
 - (f) Installation of a MV/LV distribution network in Ngombe Lutete (2 km MV overhead network, 2 switch poles of 250 kVA, 4 km of LV underground network and 30 spots for public lighting) ;
 - (g) Installation of a MV/LV distribution network in Nkamba (réseau MT aérien de 6 km, 4 switch poles of 250 kVA, 8 km of LV underground network and 50 spots for public lighting)
 - (h) Connection of 392 households in LV

- **Rehabilitation and extension of the Dima & Bendela network (Bandundu)**
 - (a) Connection and electricity supply of Dima through a 33 kV MV line operated in 15 kV, of 17 km from Bandundu sub-station ;
 - (b) Connection and electricity supply of Bendela through a 33 kV MV line operated in 15 kV, of 15 km from Dima sub-station;
 - (c) Installation of a MV/LV distribution network in Dima (3 km MV overhead network, 3 switch poles of 100 kVA, 5,5 km of LV underground network and 50 spots for public lighting)
 - (d) Installation of a MV/LV distribution network in Bendela (2,5 km overhead network, 3 switch poles of 100 kVA, 4,5 km of LV underground network and 50 spots for public lighting)
 - (e) Connection of 672 households in LV

- **Rehabilitation and extension of the Kabare network (Sud Kivu)**
 - (a) Installation of 2 transformers of 200 kVA replacing one 100kVA transformer
 - (b) Overcharge and one defective 160 kVA transformer;
 - (c) Installation of 10 new switches of 200 to 400 kVA each with a total 2300 kVA ; extension of the MV 15 kV network for 17,5 km ;
 - (d) extension of the LV for 24 km ;
 - (e) extension of the public lighting network for 160 lighting spots.
 - (f) Connection of 500 households in LV

- **Rehabilitation and extension of the Yakusu network (Province orientale)**

- (a) Erection of a new sub-station in Kisangani ;
- (b) Connection of Yakusu through a 33 kV MV line from Kisangani ;
- (c) Installation of a MV/LV distribution network in Yakusu (2,5 km overhead network, 1 switch poles of 250 kVA, 3 km of LV underground network and 60 spots for public lighting) ;
- (d) Connection of 100 households in LV.

In urban areas, more specifically in Kinshasa, HV and MV electric lines have already been erected during construction, in inhabited bays. Following anarchic urbanization, HV lines are now overhanging houses in lots of areas et constitute potential danger and health risks.

In urban areas, natural ecosystems have been damaged, comprising deep bays which comprise the city marshland activities'. The parcels are planted with palm and mango trees. In rural area, a majority of lands crossed by the lines are routes alongside in barely habited areas, far from villages and constituted by bush savannah, forestry massifs and trees (mango tree, banana trees, agrums trees) and agricultural lands comprising marshlands. The key natural environments are the forestry and pre forestry areas or savannah, which level of preservation are sizeable. We can notice some marshy galleries along the lines. The flora has limited specificities and is highly shaded off (wooden coal, cuts of woods for warming fires). The majority of areas are poor fauna quality due to the neighbor routes and habited areas.

In Kinshasa, the project areas are evidenced with high level of poverty due to lack of social equipment : connection to clean water and sanitation, connection to electricity supply, poor road maintenance, no standards for urbanization, important erosion, high rate of unemployment, insecurity due to mafia groups etc. Urban electricity access rate which is estimated around 40% would be only 3 % in suburbs districts of the city.

The project areas in Bandundu, du Bas-Congo, Province Orientale and South Kivu are mainly agricultural environments (gardening, maize, cassava, potatoes, yams, banana trees, oil palm trees, orchards, etc.).

B. Major Environmental and Social Impacts

Temporary Negative Impacts due to the Works

Physical Environment

These impacts will concern any hydrocarbon leaks from worksite machines or transformers, which will pollute the soil, superficial water tables, and nearby waterways (soil leaching by rains). The compacting of earth fills can locally reduce soil permeability. The air could be slightly polluted by gas emissions from worksite machines and by noise: the impact will not be significant in most cases because houses are far away. These temporary impacts due to the construction sites will be localized in space and will be of short duration.

Natural Environment

The fauna and flora may be disrupted by worksite activities and noise caused by MV line construction works. In urban areas, the natural environment consists mainly in fruit tree plantations and lowlands used for market gardening. There are no fauna, except birds. In rural areas, the power line routes generally run through bush savannah and marshy lowlands (Lower Congo, Bandundu) or in forest areas, such as Yakusu, that require felling a lot of trees. It should be noted, in particular, that the power line between Dima and Bendela will run across marshlands and forest galleries along the river. The installation of lines along roads will limit impacts on the flora. Experience shows that after the works, the fauna and original vegetation will be restored around the project structures.

Agricultural activities

Employees of SNEL or companies working for it will need to go into private properties at different times: creation of access roads to the power line route, positioning of new pylons and poles, and drawing of cables, which will be abandoned subsequently. These various operations could damage crops.

Permanent Negative Impacts: Line Construction

Physical Environment

A medium-voltage overhead line could be affected by any shifting of soil in geologically unstable areas. By erecting pylons away from these unstable areas, the project will avoid risks of landslide.

Biodiversity and Ecosystems

Savannah slashing and tree cutting in forest massif corridors for the installation of pylons and creation of access paths could destroy a particular type of endemic (medicinal) vegetation or valuable tree species. However, this could be prevented by laying the lines well above the vegetation and trees (citrus orchards, etc.) using raised pylons, and thus avoid destroying the vegetation beneath them, unless it is herbage. The site access works and installations (pylon platforms and cables) will produce the same impacts: loss of vegetation. Generally, the vegetation is rapidly restored to its original state through spontaneous regeneration.

Regarding birdlife, the risk of accidental collision into conductors is improbable, the risk of MV electrocution is practically inexistent.

Agro-economic Activities

In the urban areas of Kinshasa, MV lines will avoid to the extent possible gardenlands (lowlands- shoulders of avenues and boulevards).

Land use in rural areas for installation of lines poses no constraints on agricultural activity, unless the activities themselves are detrimental to the security of the line. Access tracks will be constructed on the land areas concerned, without dispossessing the owners.

The height of aerial electricity line conductors can be adapted to the type of normal farming activities in the area (orchards and irrigation). The main constraint is the pylons that will be generally placed at 60-metre intervals. The positioning of pylons will somehow limit the arable areas, and could hinder the development of irrigated or irrigable land.

Land (housing, farmlands and forests)

Works in urban areas in Kinshasa and provincial areas will not require the acquisition of land for the installation of cabins as they will be installed on SNEL land. However, in Kinshasa, some works could require that people vacate some houses that are not well located (non-compliance with dimensions of roads, construction under MV lines, construction on SNEL land, etc.). This impact will be particularly perceptible in dark areas, which are unequipped or urbanized districts.

Works in rural areas are not expected to cause any serious land problem. They will not disrupt rural housing of project areas in the 4 provinces, because the lines will carefully avoid inhabited areas.

Health and Safety

The expected electric lines will not cause negative impacts on health. The risk of electrocution is practically inexistent due to the fact that MV line conductors are placed far away from population and LV lines are isolated. Besides, MV/LV networks are equipped with protective and security devices.

Little health impacts can arise due to the electromagnetic fields (EMF), noise and ozone produced by the MV lines. The EMF impact on health is a subject of controversy and is very low for MV lines. There could be some risk of leukemia for children living in the immediate vicinity of the lines. The electric power lines are equipped with lightning conductors, earth connections and anti-climbing devices.

Land use planning

The route of MV lines does not affect the use of rural areas for farming, and is compatible with land use in farming areas. Reservations will be issued on protected natural areas because of the risks of distortion of the natural sites, landscapes, and their ecological and aesthetic interests. The ecological, agricultural and landscape constraints should be assessed after SNEL's detailed review of the real impact of the structure on the protected land. The project areas will not be subject to this impact.

Easements and Cultural Sites Landscape

There will be no historic, religious or cultural sites in the study area because the power line route circumvents such emblematic sites. Regarding yet unknown archeological sites, there is an extremely low risk of damage during the digging for the pylon foundations and construction of access tracks for underground cables.

Permanent Negative Impacts of Sub-stations

Physical Environment

During construction of the HV/MV/LV sub-stations, the soil and run-off water could be contaminated by machine oil leaks and effluent from the sites. Wind-blown dust could pollute the air. Noise made by the machinery could also be a source of disturbance at the sites. In the operation phase, the transformer station could pose risks of contamination of the water table by accidental leakage of insulating oil from transformers which are not installed on concrete drains filled with stones. It should be noted that most of the transformers are compliant with the regulations relating to liquid dioxin compounds.

There is always the risk of explosion of transformers, causing fire outbreak and spillage of the dielectric oils they contain.

Natural Environment

The slash of savannah and trees cut in the forest necessary for installation of poles and pylons for access roads could damage a unique vegetation (medicinal plants), endemic and valuable trees. Nevertheless, the alternative is to overhang the vegetation with uplifted poles. The direct impact on the natural environment concerned is considered negligible. The sub-stations will generally be constructed on small plots of SNEL.

Human Environment

The socio-environmental impacts of a sub-station in the urban environment will depend on the visual effect of the equipment (gantry cranes, transformers, fences, etc.), which has been scaled down significantly. Noise pollution will be from the transformer windings or fans installed in the air-oil coolers. As many of the sub-stations are near roadways, the noise will be partly drowned out by that of traffic, except at night.

Compressed SF₆ gas will be used in certain airtight compartments of electrical equipment in the transformer stations. The use of SF₆ (a heavy gas) in a confined area presents the risk of asphyxia, since it reduces oxygen content. Ventilation of the areas concerned, in addition to permanent surveillance of the gas volumes, will help to eliminate the risk of SF₆ accumulation outside the compartments. SF₆ is a stable gas, heavier than air, not harmful to humans, non-toxic and non-corrosive. It is also non-explosable and non-inflammable. SF₆ does not contribute to impoverishment of the ozone layer.

Indirect Impacts of the Project

The definition and analysis of indirect impacts require that the exact are covered by the power network construction, rehabilitation, expansion or consolidation project, which corresponds to worksites and road layout.

The indirect component of the negative impacts mainly concerns the use of access roads and power lines, as well as the corridor directly below the lines for illicit purposes in the regions and exploitation of natural resources, such as poaching, bush-meat hunting, illegal felling of timber, etc.

The project will not have indirect impacts on soils and water resources. As regards the climate, there will be reduced greenhouse gas emissions following rational development of hydropower in Inga, Zongo, Sanga, and Ruzizi I and II, and increased use of individual generators.

Although the construction of MV lines helps to open up natural areas, it will not put additional pressure on wildlife or forest resources.

On the other hand, the construction of the power line will improve safety on the roads, given that the infrastructure will need to be maintained when working on the lines. Many development projects will be gradually implemented in the areas and districts, making the region more attractive for an integrated approach to regional development.

The operation of networks will contribute : (i) to the reduction of poverty due to lack/no access of electricity et will permit the development of artisans, of SMEs, frozen schemes and foster family equipment; (ii) minimize losses and reinforce supply security; (iii) improve security and diversify social equipments (public administration, health centers, public schools) and; (vi) reduce GHG emission due to private power producing.

Power supply will have two special consequences: (i) development of employment requiring a source of energy, and (ii) reduction of jobs in the wood energy sector, following its replacement by electric power.

The project areas do not have indigenous minority populations who are vulnerable to changes that might be introduced by the project.

C. Enhancement and Mitigation Programme

Measures to enhance positive impacts

Considering the dynamism of women in the municipal council areas of Kinshasa and the 4 rural areas, they will be the main beneficiaries of the project, although it has not been designed from a gender perspective.

During the works implementation, efforts will be made to create maximum number of labour-intensive jobs for workers in the areas concerned. The contractors will seek to favour artisans and traders of the region for delivery of services.

In addition to the jobs during construction, the positive impacts of the project will essentially be indirect, and will become apparent only during the operational phase of the new networks. Their enhancement will depend directly on the quality of maintenance of equipment under the responsibility of SNEL. The positive impact of reliable power supply will be socio-economic: development of small-scale activity in all sectors (agriculture, stockbreeding and value-adding processing of their products by cold chains, sawmills carpentry workshops, metal-works, tailoring, embroidery, hairdressing, soap-making, oil mills, etc.). Easier access to bank credit and microcredit in areas benefitting directly from the project will enable the population to invest in different trade and handicraft sectors, thereby improving the population's living conditions. It should be noted that the main livelihood of the 4 project areas is agriculture, while Kinshasa is mainly engaged in handicraft, trade and processing of products.

Key Mitigation and Compensation Measures

Measures to reduce temporary impacts

The local population will be notified, prior to the start of works, of provisional limited access to certain areas after worksite organization for security reasons. The sites will remain well marked out (signboards, indicators, blinking lights, etc.) and protected by security barriers, set up in conjunction with the highway services of the municipal councils, etc. Road deviations will be organized as necessary. The machinery used will have soundproofing devices to limit sound nuisance to the extent possible. The vehicle exhaust levels will comply with constructors' standards. Soil compacted during the works will be ploughed to restore its natural aeration and pedologic properties; the destroyed herbaceous, shrub or tree vegetation will be restored. The various wastes will be removed; all the sites will be restored.

Measures to reduce permanent impacts

Physical environment of sub-stations and lines

Construction Phase

The worksites will be located away from sensitive areas. They will be marked and access thereto prohibited. Site accommodations will have adequate and required sanitation facilities; effluents and various solid wastes from site accommodations will be collected for disposal.

The land for sub-stations already belongs to SNEL or will be procured by SNEL. It will be drained and covered with gravel. The risks of water table contamination by waste oil and pollutants will be taken into account.

In the event of expropriation, owners and occupants will be compensated before eviction. All land required for installation of the lines will be occupied on a temporary basis. The works will be carried out preferably in dry weather after the harvest. Access tracks will be reduced to the minimum so as to preserve the soil structure as much as possible and avoid degradation of the sites. Equipment will be consistent with international standards and specifications relating to emission of exhaust fumes and noise, as well as accidental leaks or spills. Measures will be taken to avoid the risk of erosion on slopes by building dikes as is the case with terrace cultivation.

Operational Phase

Periodical maintenance will be carried out so as to minimize soil and natural and human environment disruption. There will be no direct measures to reduce noise from transformers and lines, except placing them far away from residential areas and building suitable fences.

Natural Environment

Compensatory forestation will be carried out whenever trees are felled, and the selection of species to be planted will be done taking into consideration native species adapted to the climate. Workers will be sensitized on fauna and flora protection measures to ward off poaching. Sites will be rehabilitated with due consideration given to the rapid resumption of faunal activity.

Agricultural Activities

The works will be organized preferably after harvests, and damage to crops will be fully compensated; packed terrain (carting on access roads) will be ploughed after the works up to 50 cm. Pylons will be positioned at locations in such manner as to avoid damage on farmlands along roads, highways and land boundaries. However, in Yakusu, they will be positioned in the primary forest, and this will require the felling of many trees that will be processed. The height of the pylons will take some constraints (irrigation, orchards, etc.) into consideration. Accordingly, the agricultural modernization potential (mechanization, consolidation, and irrigation) will be preserved in active farming areas. The contractors will also strive to: (i) preserve drainage and irrigation systems wherever possible, (ii) temporarily stop work in case of exceptionally bad weather that would likely worsen damage, and (iii) cleanup sites by removing all debris and residues.

Commercial Activities

Traders in Kinshasa who lose income following demolition of shops on street shoulders, temporary or final eviction from stalls close to the MV lines will be compensated according to the Bank policy. New sites for stalls will be identified by the municipal council offices.

Housing and Health

SNEL will, as a precautionary measure, ensure that the new MV lines are not placed overhead houses so as to effectively protect residents against electromagnetic fields. SNEL will compensate owners of homes located in hazardous or dangerous areas: risks of falling pylons, poles or power lines (bare electric wires). Beyond a radius of 30 m away from the conductor, the electric fields lessen significantly. International EU and WHO standards regarding limits of public exposure to electromagnetic fields will be respected.

Living Environment and Landscape Quality

Visual impact can be controlled by placing the lines away from tourist sites. The surroundings of sub-stations will be landscaped for visual impact. The visual impact of the MV line will be taken into account by planning the line route near existing roads and using landscape features to reduce visibility. Line rehabilitation works will have no additional landscape impact.

D. Monitoring Programme and Additional Initiatives

Design and Works Phase

From the outset, the project designers received advice from the "Environment" Division of SNEL. During the works, the contractor and representatives of the relevant Ministries and their regional offices will ensure that the laws in force are applied: protection of physical, natural and human environment. The contractors will present their own environmental management plan before the works begin, to demonstrate their knowledge of environmental and social issues.

Operational Phase

Concerning the monitoring of noise and electromagnetic fields, these factors will be measured periodically in houses near the lines and sub-stations. International standards set by WHO for public exposure limits will be met.

Additional Initiatives

The Safety and Environment Department of SNEL is responsible for environmental and social monitoring of projects implemented. Currently, the staff of the service responsible for monitoring does not have the required and adequate capacity for carrying out this task in electricity generation, transmission and distribution projects.

This unit needs to be reinforced to enable it to deal specifically with environmental and social issues related to power generation, transmission and distribution and to transformer stations. The environmental and social activities of SNEL require a dual institutional approach: first, seminars and second, strengthening the human and logistic resources of the responsible structure, and its specific social and environmental aspects.

Capacity building will allow for: (i) employment of several full-time senior staff specialized in areas not currently covered by the Safety and Environment Department, and (ii) equipping it to fulfill its technical responsibilities, including monitoring of achievements of the company and externally funded projects. A consultant would be recruited initially to supervise the unit; he/she will be an environmental assessment expert with a practical knowledge of the protection policies of Development Banks.

The project also comprises technical measures which will foster the reduction of GHG : (i) rehabilitation of equipment in order to minimize losses; (ii) sensitization in the usage of electrical devices with limited energy consumption through a sensitization campaign; (iii) installation of pre-paid meters and; (iv) reduction of private individual producers highly polluting. Approximately, 30% of energy could be saved with households.

E. Institutional Arrangements and Capacity Building Requirements

Institutional Arrangements

The Ministry of the Environment, Protection of Nature, Forestry, and Tourism is responsible for managing and monitoring of environmental protection issues in DRC. Although the Framework Law on the Environment has not been enacted, and the implementing decrees and orders have not been issued, the technical services previously responsible for environmental issues continue to function normally at national level and in the decentralized services. The “Groupe des Etudes Environnementales au Congo » (Congo Environmental Assessment Group) (GEEC) has been charged by the Ministry to ensure compliance the Impact Assessment with the recommendations made by the Consultant (Sofreco) in the PMURR under World Bank supervision.

The Ministry of Energy and Water Resources is the Ministry responsible for the design, preparation and implementation of Government policy on water resources and energy.

“Electricité de RDC” (SNEL) has an Environmental and Social Management Department (GES) set up on 23 November 2007 by Service Order No. DG/179/2007. This department requires that its capacity be strengthened in terms of equipment, training and operational resources to enable it to fulfill its mission.

Legal framework

The key legal texts on environmental management and protection in DRC were reviewed under this ESMP.

DRC has prepared a framework law on environmental protection and development. It is currently being submitted to Government for approval before signature and enactment. It also stipulates that "the implementation of any development, structure and installation project must be preceded by an environmental impact assessment appended to the technical documents of the application for authorization." A decree implementing the law will list the activities, development works and structures (including electrical fittings) for which an environmental impact assessment is required. The projects will be submitted to the Ministry of the Environment for an authorization establishing their "environmental acceptability", on the proposal of GEEC.

In the energy sector, the ESIA is required for the construction of high-power electrical lines. Other projects for LV-MV power transmission and distribution should produce only a simple Impact Notice, which corresponds to the ESMP required for ADB projects in category 2. The ESIA procedure must include public investigations and adoption of participatory approaches.

F. Public Consultation and Information Dissemination Requirements

The populations and Regional Authorities have been informed through newspapers and the national TV of the project schedule and conduct of an Environmental Assessment. This Participatory Approach continued during the preparation of the ESMP in Kinshasa and Lower Congo. It will continue during the works so as to: (i) ensure that the populations assume

ownership of the project, and (ii) minimize damage to farms and nature value sites, and protect habitats.

During the ESMP preparation phase, a participatory approach was organized by the Consultant in the urban councils of Kinshasa and in rural communities; the Consultant met with the Administrative Authorities of the Municipal Councils, as well as the Civil Society, representatives and Professional and Women's Associations, NGOs, etc.

The objectives of the participatory approach were to:

- disseminate general information on the Government's programme for rehabilitation and extension of SNEL facilities and structures throughout the country;
- provide all information required for project design, worksite organization and work;
- clearly present the socio-economic benefits for the populations, development of tourism, health centres, handicraft, small and medium-size enterprises, and industries that will relocate;
- demonstrate the safety of the project on the natural environment and biodiversity, and the benefits for the people;
- disseminate information on potential risks of expropriation, temporary displacement of some commercial activities (traders' stalls), damage to private property during the works, and possible and scheduled Relocation Plan, and compensations for people who are victims of damage.
- disseminate information in the ESMP, of which a summary will be made available to the population for feedback so as to improve the project document and content;
- answer questions about the location of worksites; and
- hold discussions with target persons or groups on ambiguous or contested issues, as well as correct or, if necessary, complete the ESMP taking into account the remarks made.

Monitoring of grievances: As part of the participatory approach to the populations, a list of grievances will be filed in the municipal councils affected by the different project components. People will be invited to make their remarks in the register. SNEL will be responsible for responding to claims made and taking appropriate measures to remedy them.

G. Cost Estimates

The cost of the mitigation measures is estimated at 1% of the project cost for Kinshasa and the 4 farming areas. The cost of the measures for Kinshasa municipal councils will depend on the number of houses to demolish; the number is not expected to exceed 40. A more accurate estimate will be made, in accordance with SNEL good practices, before the start of the works. The contractors will be responsible for making the estimates 60 days before the start of the works.

General Items	Unit	a) Fixed Prices US\$	
		b) Unit Price \$	TOTAL \$
Description			
Environmental and social management			
Preparation of Environmental and Social Management Plans: 2 Plans per region or tranche of works, to be undertaken by the Works Contractor. The Plans will include staff management, the protection of ecosystems, water resources and soils, the cultural heritage, safety, health, expropriations, sundry compensations, participatory approach, etc.	Lump sum	5 000	25 000
Impact compensation measures; environmental monitoring during works	Lump sum	50 000	50 000
Mission expenses for 4 monitoring missions for 4 experts (SNEL or DIR. ENERGIE, Social, Health) to 4 provincial worksites in DRC	Annual lump sum	2 180 (excl. contingencies)	40 000 (incl. contingencies)
Organization of participatory approach and dissemination of information (publications, media, organization of meetings, etc.)	Lump sum	10 000	10 000
Compensation measures for expropriations, involuntary displacements, destruction of crops and orchards, loss of incomes, land rentals, socio-economic assistance	Lump sum*	500 000	500 000
Epidemiological investigation on diseases common among populations under the HV/MV lines	Lump sum	200 000	200 000
Capacity building for SNEL	Lump sum	162.000	162.000
TOTAL GENERAL ITEMS			825 000
Environmental and social contingencies	Lump sum	175 000	13 000
TOTAL (1% of the project budget)			1 000 000

* This sum was proposed in case of necessity of compensations.

H. Implementation Schedule and Reporting

The project implementation team will implement environmental mitigation and improvement measures and activities. The timeline for implementing these activities and reporting are the same as for the project implementation.

The ADF will also conduct a detailed review of project implementation during its monitoring missions. The reports provided by the project team will include physical progress of work, environmental impact assessment forms, and the audits conducted. These quarterly reports will be forwarded to the Bank. The monitoring mission will, on a quarterly basis, assess the effectiveness of the ESMP and structure in place.