DRC: PRIORITY AIR SAFETY PROJECT - PHASE II (PPSA II)
Category: 2

**SUMMARY OF ENVIRONMENTAL AND SOCIAL MANAGEMENT PLANS (ESMP)**

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<th>Team Leaders</th>
<th>Team Members</th>
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<tr>
<td>R. EKOTO, Chief Aviation Officer, S. ATCHIA, Transport Policy and Planning Specialist</td>
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<td>Team Leaders&lt;br&gt;Sector Division Manager&lt;br&gt;Sector Director&lt;br&gt;Director General - Centre</td>
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<td>PICU.1&lt;br&gt;PICU.1</td>
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September 2018
1. Introduction

The DRC Government, through the Régie des Voies Aériennes (RVA), the body responsible for managing the 52 national airports and airstrips, undertook to modernise its airports and bring them in line with the requirements of the Annexes to the Civil Aviation Convention.

As part of the Priority Air Safety Project - Phase 2 (PPSA 2), RVA decided to carry out rehabilitation/construction of runways, aircraft parking aprons and control towers at the Kindu, Mbuji-Mayi and Kisangani airports, as well as the acquisition of fire safety and rescue vehicles, airport security equipment and other works and equipment intended to improve aviation and passenger safety.

The implementation of this project is in line with the priorities of DRC’s Strategic National Development Plan (PNSD 2018-2022), which is being finalised. Government’s vision in the transport sector is to ensure national mobility in order to support economic growth and national security, through the reform of transport economic policy to achieve a modern transport system. The priority in the aviation subsector is the improvement of airport infrastructure and equipment, and the improvement and dissemination of the regulatory framework on civil aviation and aviation safety.

In accordance with the provisions of the Environment Code of the Democratic Republic of Congo, more specifically Section 21 thereof, and the Bank’s Integrated Safeguards Systems, this infrastructure category is likely to have an impact on the environment and is subject to a prior ESIA with its approved management plan. This document is the summary of the three ESMPS that were produced for each of the airports concerned, since the planned activities and the environmental and social conditions on the three sites are similar.

2. Project Rationale and Description

2.1 Project Rationale

The Bank’s intervention within the framework of PPSA 1 made it possible to begin securing the DRC airspace and to bring infrastructure to the service level required by airlines on the Kinshasa/N’djili, Lubumbashi/Luano and Kisangani/Bangboka platforms.

PPSA 2 will enable the Bank to consolidate Phase 1 outcomes and improve the performance of the sub-sector’s participation in opening up the country and the international transport system by increasing the level of security as well as reception and flight processing capacity in the country’s main airports.

2.2 Project Description

The Bank’s support for PPSA 2 will focus on the following components and sub-components:

(1) Air navigation and safety:
   (1.1) Mbuji Mayi: installation of 6 DVOR/DMEs; 8 radio and VHF stations; 1 ILS/DME;
   (1.2) Kindu: installation of 6 DVOR/DMEs; 8 radio and VHF stations; 1 ILS/DME;
   (1.3) Kisangani: installation of 6 DVOR/DMEs; 8 radio and VHF stations; 1 ILS/DME.
(2) Airport infrastructure:
(2.1) Mbuji Mayi: Rehabilitation of the runway (2,320 m), pavement reinforcement with lighting and signalling, construction of a new control tower and meteorological service building, construction of a power station (building and equipment), construction of a fire station with its annex, development of the site drainage system, gravity water supply installation (DREEM) and sanitation;
(2.2) Kindu: Rehabilitation of the runway (2,200 m); pavement reinforcement with lighting and signalling, construction of a control tower and meteorological service building, construction of a power station (building and equipment), construction of a fire station with its annex, development of the site drainage system, gravity water supply installation (DREEM);
(2.3) Kisangani: Rehabilitation of the runway (3,500 m) and the ramp; pavement reinforcement with lighting and signalling; gravity water supply installation (DREEM) and sanitation.
(3) Institutional support for the Civil Aviation Authority and the RVA;
(3.1) Reform of the airlines sector and the RVA; Training for the AAC and RVA; development of a Civil Aviation Master Plan; Social studies (Mbuji Mayi, Kindu and Kisangani).
(4) Project management and audit.

3. Policy, Legal and Institutional Framework

3.1 Policy and Legal Framework

Social and Economic Policy

The Growth and Poverty Reduction Strategy Paper (GPRSP) II (prepared in September 2011) constitutes the only unifying framework for all macroeconomic and sector policies beyond the 5-year period completed in 2015. The other relevant specific laws for this operation are mentioned below:

Environmental Policies

The national environmental policy framework is marked by the following guidance documents and planning actions:

- The National Environmental Action Plan (PNAE);
- The National Biodiversity Strategy and Action Plan;
- The National Action Plan for Adaptation to Climate Change (PANA)

Section 34 of the 18 February 2006 Constitution states that any decision to expropriate falls within the competence of the legislature. However, this section specifies that: (i) private property is sacred; (ii) the State guarantees the right to individual or collective property, acquired in accordance with the law or custom; and (iii) no one may be deprived of property except for reasons of public interest and subject to just and prior compensation granted under conditions laid down by law.
Section 21 of the **Framework-Law on Environmental Protection No. 11/009 of 9 July 2011** on the fundamental principles relating to environmental protection specifies: "Any project for the development, infrastructure or operation of any industrial, commercial, agricultural, forestry, mining or other activity likely to have an impact on the environment shall be subject to a prior ESIA, accompanied by an approved management plan".

**Decree No. 14/019 of 2 August 2014** lays down the operating rules of the procedural mechanisms for environmental protection, particularly with regard to ESIAs.

**Law No. 14/003 of 11 February 2014 on the Conservation of Nature** (i) defines general measures for the conservation of biological diversity and the use of its components, and requires the preparation of environmental and social impact assessments prior to any project for the creation of protected areas and the need to involve local communities in this process.


**Law 011-2002 of 29 August 2002 on the Forest Code** prohibits all acts of deforestation in areas exposed to the risk of erosion and flooding, and requires compensation by equivalent reforestation in quality and area to the initial forest cover and the obtaining of a deforestation permit for an area greater than 2 ha.

**Law No. 77-001 of 22 February 1977** on expropriation for public purposes.

### 3.2 International Conventions and the Bank’s Integrated Safeguards System

DRC is signatory to several conventions that may be relevant to the project, the most important of which are listed below:

- Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention)
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)
- Convention on the Conservation of Migratory Species of Wild Animals
- Convention on the Protection of World Cultural and Natural Heritage
- United Nations Framework Convention on Climate Change
- United Nations Convention on Biological Diversity
- United Nations Convention against Desertification

The DRC is part of several regional natural resource management organisations, including the Central African Forests Commission (COMIFAC). It is also a signatory to the Treaty on the Conservation and Sustainable Management of Central African Forest Ecosystems.
AfDB Environmental and Social Assessment Procedures

To better articulate its safeguard policies while improving their clarity and consistency, the Bank established the Integrated Safeguards System (ISS), consisting of four (4) interdependent components:

- Integrated Safeguards Policy Declaration
- Operational Safeguards
- Environmental and Social Assessment Procedures (ESAP)

Four operational safeguards are triggered as part of project activities:

- **OS1 Environmental and social assessment**: triggered because it is a programme and de facto subject to environmental and social assessment;
- **OS3 Biodiversity, renewable resources and ecosystem services**: triggered by the biodiversity present in the project right-of-way and near the project area;
- **OS4 Pollution prevention and control, hazardous materials and the efficient use of resources**: triggered by the risk of water and soil pollution during construction and the operational phase of the project; and
- **OS5 Working conditions, health and safety**: triggered because the nature of work involves risks to the health and safety of workers.

PPSA 2 has been proposed as Category 2 because some activities have been postponed to a later phase to enable the country to mobilise the necessary funding for the involuntary resettlement of the population living near the sites. These activities involve:

- **Mbuji Mayi**: pavement extension, rehabilitation of ramps, construction of a fence and the service road;
- **Kindu**: pavement extension, extension of the 1,000 m runway; construction of a fence and the service road;
- **Kisangani**: pavement extension.

Note: It is worth noting that the activities excluded from this phase were still well taken into account in the ESIAs and ESMPs. Given the absolute need for the complete standardisation of the three airports, these activities will be the subject of the third phase planned for next year.

4. Project Environmental and Social Context

4.1 Project Timeframe and Impact Area

**Project timeframe**: The commissioning of the project is planned for 2020, assuming that works start from 2018-2019 and last for 12 months for all the facilities.

**The project direct impact area** is defined as the area that would be directly affected by the facilities planned in the Kindu, Mbuji-Mayi and Kisangani airports. It is specific to the sites as follows:
(i) **Kindu Airport:** Kindu Airport has a single bituminous concrete runway of 2,200 x 45 m long. The service area (pavement) runs linearly over approximately 160 m, bordering the installations (passenger terminal, technical block/control tower, VIP lounge, etc.). The depth of the aircraft parking apron is 85 m. The impact area consists of neighbourhoods situated near the airport platform and on access roads to the latter. The airport is 5 km north of Kindu city centre, in the RVA Neighbourhood of the Kasuku Municipality ("Commune") situated near River Congo.

The absence of a fence has created a risk of urban invasion in certain areas of the airport platform.

(ii) **Mbuji-Mayi Airport:** Mbuji-Mayi Airport has a single 2,320 m long runway that is in an advanced state of degradation. The impact area consists of neighbourhoods situated near the airport platform and on access roads to the latter. The total airport right-of-way is about 230 hectares (RVA). However, the absence of a fence has created the risk of urban invasion in certain areas of the airport platform.

(iii) **Kisangani Airport:** This airport is located 12 km South-east of the city centre, in an area largely surrounded by dense forest.
4.2 Environment Description

4.2.1 Physical and Biological Environment

The PPSA 2 Project is implemented in three different provinces of the Democratic Republic of Congo (DRC), a country situated in Central Africa with a population of nearly 77 million, some 40% of whom live in the urban area.

The country largely consists of a central basin, which is a broad depression of an average altitude of 400 metres drained by the River Congo and its tributaries, and covered by a large tropical forest. Savannah-covered plateaus are found in the South and South-west, the North being bordered by a dense forest beyond the river. High mountains are found at the Eastern end of the country (African Rift Valley region) with the Mitumba Mountains and the Virunga volcanic mountains.

DRC is crossed by the equator, with one-third of the country lying north of this line. The climate is hot and humid in the river basin region, and drier and cooler to the South. South of the equator, the rainy season lasts from October to May, and in the North from April to November. At the Equator, rainfall is relatively constant throughout the year. The level of average rainfall for the entire country is 107 centimetres.

**Tchopo Province** where Kisangani Airport is found and **Maniema Province** where Kindu Airport is found are all located in the central basin. Kisangani is on the Equator line and crossed by the River Congo from South-east to North-west, while Kindu City is located 4° South of the Equator and built on both sides of the River Congo. The climate in these two provinces is tropical humid, with a sub-equatorial tendency. Annual average rainfall ranges from about 1600 to 1800 mm and a very high humidity from 70% to 80%.
The major dominant soil groups in Tshopo Province are ferrasols and ferrasols on undifferentiated rocks, Yangambi-type plateau ferrasols, Salonga-type sand-arreno-ferrasols and recent tropical soils. The latter as well as ferrasols are reputed soils with average agricultural suitability.

**The Kisangani/Bangoka Airport site** is situated on well-drained soil with dense vegetation on both sides. The region’s forest resources, although very dense, are subject to strong anthropic pressure. Land pressure and illicit trade in wild animals lead to gradual disappearance of the regions’s rich wildlife (reptiles, hinds, antelopes, hares, giant rats, wild boars, squirrels, partridges). No protected area is close to the airport.

**Kindu** is partly situated on River Congo’s alluvial plain and a plateau with different soil types including lateritic, deep and leached soils, and clay-sandy or sandy-clay deep soils, characterised by a significant tendency to erosion. The Kindu Airport site is relatively protected against external inputs. However, a swampy area located north of the airport runway limits any possibility of expansion in this direction.

There is a wildlife reserve east of the city, on the other side of the riverbank, rich in indigenous species such as parasol trees and with a variety of wildlife (antelopes, monkeys, hyenas, etc.). There is a sedentary avian fauna living in the marshes north of the airport runway.

**Kasai-Oriental Province, where Mbuji Mayi Airport is found**, is located more to the country’s South. The city is located on the Kasai Plateau, which is slightly hilly and characterised in the North by the equatorial forest, in the centre by wooded savannah and in the South by the extension of the said savannah and steppes. Mbuji-Mayi City is constructed along River Mbuji-Mayi. Rainfall is estimated at 1,476 mm with a rainy season lasting 8 to 9 months, and a dry season of 3 to 4 months.

The region’s geology is characterised by the presence of kimberlite rocks (diamond source rocks) and kimberlite injections that are the source of the very rich diamond mineralisation. The city is characterised by sandy-clay soil particularly prone to erosion, favoured by the many artisanal diamond mining galleries.

However, the **Mbuji Mayi Airport** is built on a ridge, protected against external inputs of rainwater and equipped with two drainage systems at both ends of the runway for rainwater collection and drainage.

### 4.2.2 Socio-economic Environment

**Kisangani** has been the headquarters of Orientale Province since 1913, then headquarters of Tshopo Province from 2015, and had a population of about 1,500,000 inhabitants in December 2016. The city is characterised by the presence of basic infrastructure (roads, water and electricity) and socio-community amenities, most of which are in a state of disrepair.

**The Kisangani International Airport** is situated 12 km from the city and is served by some ten airlines. The dilapidated roads connecting the particularly isolated city have resulted in the direct expansion of the air network linking the city with its region and with the national and international space.
Kindu is the headquarters of Maniema Province. It was created in 1988 along with the said Province. This young semi-urban town has 3 municipalities (Alunguli, Kasuku and Mikelenge), with a population of 453,941.

The town is characterised by inadequate basic infrastructure, particularly water and electricity, which are not accessible to the majority of the population, and socio-community amenities that are not maintained.

The Kindu Airport is found in Kasuku Municipality and was built in 1956 to facilitate the transportation of workers and expatriate executives from local mining companies.

There is uncontrolled extension of urbanisation on agricultural areas and in spaces not served by networks and difficult to reach, especially in the Mikelenge and Alunguli Municipalities. In Kasuku Municipality, this uncontrolled urbanisation has developed around the airport right-of-way and in some areas of the right-of-way, favoured by the absence of a fence.

Mbuji-Mayi is the headquarters of Kasaï Oriental Province. It is located on the right bank of River Mbuji-Mayi (Bakwanga) and was founded in 1914. Since the 1980s, its population has tripled because of political and social crises, and the uncontrolled excitement for mining of diamond, which has become the country’s first export product since the mining crisis in Katanga. It is now the country’s second most populated city, with a population increasing from 1.7 million in 2012 to 3.3 million in 2015. With its 5 municipalities (Bipemba, Dibindi, Diulu, Kanshi and Muya), the city stretches over 135 km².

The Mbuji-Mayi International Airport is situated at about 2 km from the city centre, in the North West. It is located in the Mulekelayi neighbourhood of Bipemba Municipality, right in the semi-urban area, with dwellings and agricultural plots occupying the land holdings of the unfenced airport platform and posing a threat to aviation safety.

5. Project Potential Environmental and Social Impacts and Measures to Mitigate Negative Impacts

5.1 Positive Impacts during the Preparatory and Construction Phase

5.1.1 Socio-economic Impacts

➢ Job creation and revitalisation of local SMEs: during the construction phase, a sizeable share of the work will be done by local or regional companies (earthworks, supplies and materials, etc.).

Therefore, works implementation will generate major positive socio-economic impacts, resulting in the creation of job positions and commercial dynamics in the project area.

5.2 Negative Impacts and Mitigation Measures during the Preparatory and Construction Phase

5.2.1 Impact on the Physical Environment (Air, Water, Soil)

➢ Risks of air pollution: emissions of dust and particles in the air during earthworks, excavations and pavement construction, demolition and
construction of buildings, at borrow and aggregate coating sites and during truck movements for the transportation of materials.

The impact is limited to the construction phase and the areas mentioned, but its scale is deemed average because of the possibilities of expansion under particular climatic conditions and the risks related to air transport.

The mitigation measures will consist in: (i) limiting the speed of machines and trucks; (ii) covering (with tarpaulin) all trucks transporting materials; (iii) mandatory wearing of Personal Protective Equipment (PPE); (iv) watering the tracks used by trucks and construction sites; and (v) preparing the local population.

➢ Risks of pollution of surface water because of risks of accidental pollution related to leakage of fuel, grease or hydraulic liquids from machines and risks of infiltration into groundwater of liquid waste from base camps, construction sites and airports that do not have drainage systems.

The impact is limited to the construction phase and the areas mentioned, but its magnitude is deemed significant because of the proximity of infrastructure with surface water and the risk of direct impact on the water table.

The impact mitigation measures will consist in: (i) appropriately choosing base camp sites, the equipment pool, concrete and aggregate coating plants, and borrow and deposit sites; (ii) developing toilet facilities, a septic tank, a well and a sedimentation tank in base camps and construction sites; (iii) developing collection and storage systems for solid waste from base camps and construction sites, and evacuation to dedicated dumping sites; and (iv) establishing an accidental pollution management plan.

➢ Soil compaction, disintegration and erosion during construction and soil contamination by the production of solid and liquid waste, consisting mainly of cuttings and residues of building materials, and accidental pollution related to leakage of fuel, grease or hydraulic liquids from machines. There will be soil erosion and compaction if the machines are used on the banks of rivers or streams, or in swampy areas.

The impact mitigation measures will consist in: (i) protecting erosion-prone slopes and restoring borrow, equipment storage and aggregate coating sites; (ii) organising the storage, reuse and/or disposal of waste on the site; (iii) regularly cleaning the storage areas as well as the work site; and (iv) establishing an accidental pollution management plan.

5.2.2 Impact on the Biological Environment

➢ Loss of vegetation and destruction of wildlife habitats related to the establishment of base camps and other sites, and the influx of labour.

This impact is deemed limited to the duration of the works and is of low magnitude since most of the work will be carried out in the already developed area.

The impact mitigation measures will consist in: (i) limiting clearing to the strict minimum by preserving as much vegetation as possible where the base camp is built;
(ii) performing landscaping and planting trees in the surrounding neighbourhoods of the airports, in compensation for the trees felled; (iii) conducting a contradictory inventory of present species before and after works; and (iv) including in the company’s internal regulations the prohibition of poaching and illegal exploitation of biological resources on the site.

5.2.3 Impact on the Human and Socio-economic Environment

- **Impact on the living environment of the local population:** disruption of road traffic due to the trucks transporting materials; nuisance, inconvenience and discomfort during works by the emission of dust, noise and vibration of machines, in addition to ordinary air traffic.

This impact is deemed limited to the duration of the works and of low magnitude, provided the spatial organisation of the site and mainly the choice of location of the base camp, borrow pits, crushing and concrete plants and other noisy machinery is appropriate in light of the inhabited areas.

The impact mitigation measures will consist in: (i) informing and sensitising staff and the public of possible nuisance; (ii) setting up an information board at the entrance to the site; (iii) ensuring the marking of the work area; and (iv) regularly maintaining the machines.

- **Risks of accidents and nuisance for workers related to manual or mechanised handling and conditions on the site:** noise pollution from construction equipment/instruments (welder, milling machine, etc.), risks of accidents related to construction equipment/instruments, the presence of poorly protected or misused building materials, collisions or falls in excavations on the construction site.

The impact mitigation measures will consist in: (i) preparing and implementing a solid and liquid waste management plan on the site; (ii) requiring the wearing of PPE, securing the project area and prohibiting entry to unauthorised persons; (iv) regularly maintaining the machines and limiting the speed of vehicles; (vi) implementing hygiene and drinking water supply measures on the site; and (vi) setting up a clinic at the base camp level.

- **Risks of accidents and impacts on the health of the local population:** works will generate dust that can inconvenience local residents and increase acute respiratory infections (ARI); risks of water pollution can lead to the spread of waterborne diseases, and the mixing of people from many walks of life will increase the risk of spread of sexually transmitted infections (STIs) and HIV/AIDS.

Although this impact is limited to the duration of works, it is of average magnitude. Indeed, the interactions of workers with local communities will be limited but the risks of accidents will be high, especially since the works will be executed in a small space without stopping the operation of the airport. The presence of many workers of both sexes on the same site will increase the risk of communicable diseases.
The impact mitigation measures will consist in: (i) organising training sessions in Hygiene-Safety-Environment for staff working on the site; (ii) providing PPE to all workers; (ii) sensitising the local population on the risks of ARIs, transmission of STI/HIV/AIDS and waterborne diseases; (iii) providing drinking water to workers in the base camps and ensuring the regular cleaning of toilet facilities on the sites.

- **Risks of social conflicts** related to the recruitment of project staff and the arrival of non-local workers in the area.

Although this impact is limited to the duration of works, it is of average magnitude.

The impact mitigation measures will consist in: (i) encouraging the recruitment of skilled and unskilled local labour; (ii) establishing a transparent recruitment system; (iii) sensitising construction site staff on the need to respect local habits and customs; and (iv) establishing a conflict prevention and management mechanism.

5.3 Positive Impacts during the Operation of Airports

- **Improvement of aviation services**: Buildings and technical equipment put up for navigation, surveillance and safety, meteorological monitoring and communication, will contribute to upgrading airport services and improving security, bringing the facilities in line with international regulations and making them more attractive to airlines. This will help develop traffic.

- **Increase in trade, economic and industrial opportunities**

- **Creation of direct and indirect jobs**.

An optimisation measure will consist in supporting women’s organisations in communities neighbouring the Kisangani, Kindu and Mbuji Mayi airports in their socio-economic initiatives and training sessions (including providing them with a basic equipment kit).

5.4 Negative Impacts and Mitigation Measures during the Operation Phase of Airports

During the operation phase, negative impacts will come mainly from pollution due to the commissioning and operation of machines; aircraft noise during take-off and landing, and the movement of vehicles and operational equipment; activities related to the maintenance of facilities and equipment; various solid and liquid discharges and consumption of water and energy; etc.

5.4.1 Impact on the Physical Environment (Air, Water, Soil)

- **Air pollution**: emission of particles, volatile organic compounds and gases resulting from the combustion of hydrocarbons (CO, CO₂, NOx, SO₂, PM₁₀, PM₂.₅, COV, O₃...) by aircraft, ground support equipment (runway equipment), auxiliary electrical units such as generators, automobiles, fuel storage facilities, and firefighting practice, etc.
The impact of operation of airports on air quality is deemed low because it is limited to the emission area. Generally, airport operations will have a low impact on the increase in greenhouse gases, given the association of road traffic with air traffic; the impact on air quality is deemed average and permanent.

- **Risks of water and soil pollution** by the presence in drainage water of toxic or hazardous products dumped accidentally or voluntarily in liquid or solid form during the day-to-day operation of the airport, routine maintenance operations and firefighter training (hydrocarbons, oils, heavy metals, emulsions). The risk of water degradation is deemed significant because of the proximity of infrastructure with surface water and the risk of indirect impact on the water table.

**Prevention measures will consist in:** (i) cleaning and maintaining the pipes of the drainage system in place; (ii) fighting soil erosion by revegetation and stabilisation of embankments and banks, protection and verification of the capacity of outlets, and the cleaning of watercourses; (iii) regularly monitoring the quality of water discharged from drainage water systems; and (iv) periodic monitoring of the wastewater treatment process and regular emptying of septic tanks; (v) organising the collection and disposal of solid and liquid waste, including used oils, emulsions, etc. on all airport platforms; and (vi) disposing of them according to regulatory standards.

**5.4.2 Avian accident risk:** avian risk depends on the presence of birds of sufficient size and quantity to affect aircraft performance to the point of causing accidents.

Currently, available data on birdlife in the region does not quantify the probability of a bird hazard in the three airports. Therefore, it is important to identify the existence of bird species to determine that a significant risk exists on the movement of aircraft. Although this risk exists, the probability of occurrence is deemed low.

However, given the long-term growth forecasts for air traffic, the establishment of a bird population database around these three airports may be conducted at a later stage so that mitigation measures can be determined in the RVA’s Hygiene-Safety-Environment Management System (SG-HSE).

**Mitigation measures will consist in:** (i) eliminating sources of attraction in and around the airport enclosure; (ii) defining inspection and scaring procedures, and ways to implement them; and (iii) reporting any collisions.

**5.4.3 Impacts on the Human and Socio-economic Environment**

- **Noise pollution:** project operation will cause significant noise pollution for adjoining areas of the airport site, especially those located within 0.5 km (High Noise Area A and B). The impact is deemed average since air traffic is relatively low in the medium term. It is residual and will grow with the future increase in air traffic in these three airports.
Mitigation measures will need to be identified in a participatory manner with communities living near the three airports and incorporated into the RVA’s SGES, particularly in the case of the Kindu and Mbuji Mayi airports, which are located in a semi-urban area.

5.5 Hygiene-Safety-Environment Management System (SG-HSE)

The SG-HSE will be developed by the airports operator (RVA) and will consist in a series of operation and management procedures to be established, proportional to the nature and scale of operations of the airports concerned as well as the level of environmental and social risks and anticipated impacts. The following themes should feature in this SG-HSE:

- **Waste management programme** consistent with the Congolese Government’s waste management policies and regulations, and including the principles of waste recycling, reuse and minimisation;
- **Sustainable practices of consumption and use of water and electricity** consistent with the Congolese Government’s waste management policies and regulations;
- **Prevention and fire risk management** incorporating the airport fire prevention station;
- **Prevention and risk management on safety** to prohibit access to hazardous areas to unauthorised personnel or individuals;
- **Prevention and risk management related to the handling of goods** incorporating the principles of safety related to the handling, storage and transportation of hazardous, flammable, toxic and other products according to IATA standards;
- **Prevention and risk management of wildlife hazards** according to ICAO standards.

6. Institutional Arrangements

- **The Régie des Voies Aériennes (RVA)** is the body responsible for managing airports and airfields. Being the contracting authority (MO), the RVA will be responsible for implementing the project’s environmental policy and the revision, approval and publication of the environmental report (ESIA). It will be charged with overall responsibility for implementing the ESMP, preparing and executing the SG-HSE. **An Environmental and Social Management Unit (ESMU)** will be set up to optimise the organisation of construction sites, take into account and address the environmental and social issues that may arise at all project phases. It will constitute the framework for consultation between various stakeholders and will bring together the representatives of the RVA contracting authority, engineers specialised in the environmental and social aspects of the control mission, the company in charge of works, local authorities, technical authorities, the labour inspectorate, the Ministry of Health and local NGOs that wish to be involved in the project.
The Congolese Environment Agency (ACE) is attached to the Ministry of Environment and Sustainable Development (MEDD), and is the direct body for the implementation and monitoring of the policy for assessing the environmental and social impact of human and development activities in DRC. Under the PPSA II Project, it will assume its statutory supervisory function on behalf of the Government. ACE will be present during construction and throughout the life of the project.

In accordance with the conditions indicated in the specifications, the Contractor (En) will be responsible for: (i) preparing and implementing a site ESMP; (ii) establishing site internal regulations consistent with the preservation of the natural and human environment; (iii) preparing ESMP implementation progress reports; and (iv) the HIV/AIDS awareness programme and Environment-Health-Safety training for its staff and the MO.

The Control Mission (MdC) is the consulting firm that will be recruited to supervise the works. The MdC shall have an environmentalist in its team, who will be responsible for monitoring ESMP implementation during the construction phase; ESMP implementation during the operation phase is the responsibility of the RVA.

7. Environmental Surveillance and Monitoring Plan

7.1 Surveillance

Surveillance aims to verify and ensure that construction works, the equipment and resources deployed, and activities ancillary to the development and equipment of the airport will be carried out in accordance with ESMP requirements. Surveillance is based on monitoring criteria such as: (i) hygiene and sanitation at site installations; (ii) use of personal protective equipment by staff; and (iii) execution of water and soil conservation and erosion protection works. Various indicators are used to assess the performance of the criteria observed:

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<th>Receiving Environment</th>
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<td>Water</td>
<td>- Septic tank emptied periodicity</td>
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<td></td>
<td>- River water turbidity and colour changes</td>
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<td>- Presence of waste</td>
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<tr>
<td>Soil</td>
<td>- Volume of contaminated soils surveyed</td>
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<td>- Number of erosion claws and gullies around the site facilities</td>
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<td>- Borrow pits, quarries and storage sites</td>
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<td>Health</td>
<td>- Statistics on STI/AIDS</td>
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<tr>
<td></td>
<td>- Work accident statistics, accidents related to traffic disruption during construction</td>
</tr>
<tr>
<td></td>
<td>- Consultation statistics for waterborne or respiratory diseases by quarter in the health centres of the project area</td>
</tr>
<tr>
<td></td>
<td>- Trend of the number of consultations for respiratory diseases (cough, bronchitis) in these health centres</td>
</tr>
<tr>
<td>Economy/Trade</td>
<td>- Statistics of people hired from neighbourhoods in the project area</td>
</tr>
<tr>
<td></td>
<td>- Statistics of local workers versus non-local personnel</td>
</tr>
<tr>
<td></td>
<td>- Statistics of subcontractors hired</td>
</tr>
<tr>
<td>Living environment</td>
<td>- Level of noise recorded</td>
</tr>
<tr>
<td></td>
<td>- Number of complaints noted in grievance registers</td>
</tr>
<tr>
<td></td>
<td>- Number of signs posted</td>
</tr>
<tr>
<td></td>
<td>- Number of awareness signs in place (STI, road, etc.)</td>
</tr>
</tbody>
</table>
Surveillance will be carried out through external site inspection mechanisms conducted by the project monitoring and management unit with reporting to the RVA and MEDD, and internal inspections conducted by the Control Mission with reporting to the RVA.

7.2 Environmental Monitoring

Monitoring is conducted by the Contracting Authority as well as the provincial authorities in charge of the environment, water and forests (Water and Forestry Inspectorate), health, etc. They are responsible for the choice of sampling sites, the conditions for analysing samples and using the results, the frequency of analyses, and the definition of standards and thresholds that will trigger the implementation of corrective measures, etc. Monitoring indicators will depend on the project context and potential impacts (water turbidity, water quality, erosion of sensitive areas, number of workers’ accidents, etc.).

8. ESMP Cost Estimates and Implementation Schedule

The data and assumptions that guided the preparation of the ESMP are:

**Duration of works:** 12 months.

**Average number of workers employed during the construction phase:** about 550 (250 in Mbuji Mayi, 150 in Kindu and 150 in Kisangani).

**Number of dump trucks used on the site:** about 40

Summary Table of Mitigation Measures, Implementation Responsibilities and Schedule:
<table>
<thead>
<tr>
<th>No.</th>
<th>Mitigation/Optimisation Measures</th>
<th>Cost in USD</th>
<th>Implementation Authority</th>
<th>Monitoring Authority</th>
<th>Implementation Period/Frequency</th>
<th>Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Base camp equipment for solid waste management, toilet facilities, septic tank, wastewater well and sedimentation tank for washing water</td>
<td>51,000</td>
<td>Companies</td>
<td>MO/MdC</td>
<td>Before the start of works – Site installation</td>
<td>MdC reports</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Complaints by the population or workers</td>
</tr>
<tr>
<td>2</td>
<td>Recruitment of an MdC firm, with a HSE Expert in the team to ensure the monitoring of ESMP implementation</td>
<td>150,000</td>
<td>MO</td>
<td>MdC</td>
<td>From the beginning of construction</td>
<td>Recruitment contract HSE mission report</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Monitoring sheets</td>
</tr>
<tr>
<td>3</td>
<td>Recruitment of an environmental and social specialist within the RVA</td>
<td>12,000</td>
<td>MO</td>
<td>CC/MdC</td>
<td>From the beginning of construction During the entire period of works</td>
<td>CV- Recruitment contract Activity report</td>
</tr>
<tr>
<td>4</td>
<td>Operation of the CGES, support for environmental monitoring and surveillance by MEDD</td>
<td>24,000</td>
<td>MO</td>
<td>MO / MdC</td>
<td>From the beginning of construction During the entire period of works</td>
<td>Minutes of monthly CGES meetings</td>
</tr>
<tr>
<td>5</td>
<td>Preparation and implementation of a project communication, consultation and dialogue plan</td>
<td>7,000</td>
<td>MO through a specialised firm to be recruited</td>
<td>Coordination Unit (CC &amp; MdC)</td>
<td>From the beginning of construction</td>
<td>Established project communication plan</td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
<td>Periodic construction monitoring reports</td>
</tr>
<tr>
<td>6</td>
<td>Recruitment of an NGO to conduct consultation meetings with local communities and identification of attendant socio-economic measures</td>
<td>90,000</td>
<td>NGO to be recruited by the MO</td>
<td>CC-MdC</td>
<td>From the beginning of construction</td>
<td>Minutes of meetings</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Report describing the desired attendant measures</td>
</tr>
<tr>
<td>7</td>
<td>Socio-economic support programme for the local population and particularly for women</td>
<td>120,000</td>
<td>NGO to be recruited by the MO</td>
<td>CC-MdC</td>
<td>During works</td>
<td>Minutes of meetings Quarterly programme implementation report</td>
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<tr>
<td>8</td>
<td>Training sessions in Hygiene, Safety and Environment for staff working on the construction site (workers, executives, control mission, subcontractors)</td>
<td>37,500</td>
<td>Companies (HSE experts) or specialised firm/consultant</td>
<td>MO/MdC</td>
<td>A 2-day session every 3 months</td>
<td>Evaluation reports</td>
</tr>
<tr>
<td>9</td>
<td>Provision of Personal Protective Equipment for all workers</td>
<td>90,000</td>
<td>Company</td>
<td>MO/MdC</td>
<td>Start of works Ongoing renewal work</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Acquisition (from the PMNLS) of condoms for the workers</td>
<td>18,000</td>
<td>Companies</td>
<td>MO</td>
<td>During works</td>
<td>HSE monthly reports of companies</td>
</tr>
<tr>
<td>11</td>
<td>Agreement with the Ministry of Health or private doctor to carry out monthly medical check-ups in the base camp, control workers’ health, assess hygiene conditions and screen for communicable diseases.</td>
<td>18,000</td>
<td>Companies through approved health institutions</td>
<td>MO/MdC</td>
<td>Every 3 months</td>
<td>Quarterly reports of the health institution</td>
</tr>
<tr>
<td>12</td>
<td>Regular servicing and maintenance of site facilities for hygiene and environment (septic tanks, sedimentation tank, landfill, etc.)</td>
<td>27,000</td>
<td>Companies</td>
<td>MO/MdC</td>
<td>During works</td>
<td>MdC monitoring minutes and reports Complaints of the local population</td>
</tr>
<tr>
<td>Operation Phase</td>
<td>Description</td>
<td>Value</td>
<td>Responsible Party</td>
<td>Reporting Period</td>
<td>Report Type</td>
<td></td>
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<tr>
<td>12</td>
<td>Rehabilitation of borrow pits, quarries, storage and coating sites (slope correction, soil transportation and spreading, reforestation and vegetation restoration)</td>
<td>45,000</td>
<td>Company</td>
<td>At the end of works Before final acceptance</td>
<td>Final inventory report Conditional restitution of the performance bond</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Establishment of the final contradictory inventory (before and after works), including the inventory of species or wildlife of particular interest</td>
<td>30,000</td>
<td>Companies</td>
<td>End of works</td>
<td>Inventory report Report of final works acceptance</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Awareness signs against STI/AIDS</td>
<td>24,000</td>
<td>Subcontracting company</td>
<td>End of works</td>
<td>Final acceptance report</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Planting of trees to compensate for the trees to be felled and landscaping around the airport</td>
<td>45,000</td>
<td>MO</td>
<td>During and after works</td>
<td>Number of trees planted Number of regrowth/replants</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Development of an HSE Management System for airport facilities</td>
<td>20,000</td>
<td>RVA</td>
<td>Permanent</td>
<td>Programme Evaluation Report</td>
<td></td>
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<tr>
<td>TOTAL</td>
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<td></td>
<td></td>
<td>808,500</td>
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</tbody>
</table>
9. Public Consultations and Information Dissemination Requirements

Public consultations were conducted at the local level in various forms: (i) the organisation of information meetings on the project; (ii) meetings during data collection; (iii) meetings with local authorities; (iv) a series of consultations with the local population, on the one hand, and with opinion leaders, on the other.

The local population favourably received the Kisangani, Kindu and Mbuji-Mayi Airports Rehabilitation Project because in their view, they will benefit directly or indirectly from the improvement of airport services in their city, or from the revival of economic activities, better access to goods transported by air or jobs generated by the creation of new industrial or commercial structures.

As part of the studies, some observations made could not be taken into consideration in the ESIA and the ESMP. These mostly concern the land issues relating in particular to the occupation of the airport area right-of-way. They will be taken into account in the third phase (extension of runways and aprons).

9.1 Grievance and Complaint Reception and Handling Mechanism

The RVA’s Environmental Specialist will be responsible for collecting complaints and shall report to CGES to seek solutions to project grievances during the construction and operation phases. During the construction phase, the contractor will take all reasonable steps to respond to grievances in accordance with local regulations, contractual provisions and those of the ESMP. In the operation phase, the RVA will rely on the HSE Management System and other procedures to resolve the grievances submitted to it.

9.2 Dissemination and Publication

In accordance with the Integrated Safeguards System, ESIA and this summary shall be made available to people likely to be affected and local NGOs, in an accessible place, in a form and in a language that is understandable to them. Information will also be disseminated to the public through media such as newspapers, the press and radio broadcasts in national and local languages, and directed at all stakeholders.

After the non-objection opinion of the Congolese Government and the African Development Bank, the summary and reports of environmental and social impact studies for each site, will be published on the websites of the Bank and the Ministry of Environment, Nature Conservation and Sustainable Development (MCNEDD). They will also be available from the local administration concerned.

10. Conclusion

Following the environmental and social assessment of PPSA II for the Mbuji-Mayi, Kindu and Kisangani airports, it appears that most of the environmental and social impacts of the project will be limited to the construction phase and can be mitigated by implementing the measures described in the ESMP, for each of the airport areas. However, a major security concern cannot be solved within the framework of this project, namely the safety of the population living in the direct vicinity of the airport. There is also the issue concerning the efficient use of airport space.
Apron extension activities and the construction of a fence round the airport area on the three sites concerned by this project were postponed to a later phase to enable the country conduct the necessary studies and mobilise funding for involuntary resettlement compensation costs.

It would be advisable for the Contracting Authority to take advantage of this phase of the project to take all the necessary steps to resolve this issue, especially for the Kindu and Mbuji Mayi airports, so that activities abandoned in this phase of the project can be implemented.

References

- DRC - Régie des Voies aériennes: Environmental and Social Impact Assessment; Volumes 1 (Mbuji Mayi), 2 (Kindu) and 3 (Kisangani);
- RDC: Etat des lieux de la biodiversité en RD Congo, Centre de surveillance de la biodiversité (Synopsis of Biodiversity in the Democratic Republic of Congo, Biodiversity Surveillance Centre), Kisangani 2014.
- RDC: Monographie de la Ville de Mbuji-Mayi (Mbuyi-Mayi City Monograph), MES & CRD, 2015

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