



**AFRICAN DEVELOPMENT  
BANK GROUP**

## **RWANDA – ENERGY SECTOR**

### **RESULT BASED FRAMEWORK PROGRAM 2 ((RBF2)**

# **ENVIRONMENTAL AND SOCIAL SYSTEM ASSESSMENT (ESSA)**



**Final Version: 15<sup>th</sup> January 2024**

## ACKNOWLEDGEMENT

The Environmental and Social System Assessment (ESSA) of Rwanda Energy Sector RBF2 Program was developed by AFDB in cooperation with Rwanda Energy Group (REG) and the support of the Ministry of Infrastructure.

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## RECORDS FOR REVISION

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## **LIST OF ACRONYMS**

**AFDB / ADB:** African Development Bank

**AFSEC:** African Electrotechnical Standardization Commission

**ECCAS:** Communauté Économique des États de l'Afrique Centrale / Economic Community of Central Africa States

**CEPGL:** Communauté Économique des Pays des Grands Lacs

**CES:** Consultant's Environmental Specialist

**CSOs:** Civil Society Organizations

**CSEO:** Contractor's Site Environmental Officer

**DRC:** Democratic Republic of Congo

**EA:** Environmental Audit

**EAPP:** East African Power Pool

**EARP:** Electricity Access Roll out Program

**EDCL:** Energy Development Corporation Limited

**EDF:** European Development Fund

**EDPRS:** Economic Development and Poverty Reduction Strategy

**EIA:** Environmental Impact Assessment

**EMP:** Environmental Management Plan

**ESIA:** Environmental and Social Impact Assessment

**ESMP:** Environmental and Social Management Plan

**ESSA:** Environmental and Social System Assessment

**eSWAP:** Energy Sector Wide Approach **ESWG:** Energy Sector Working Group

**ESSP:** Energy Sector Strategic Plan

**ESSSAP:** Environmental and Social Safeguards System Strengthening Action Plan

**EUCL:** Energy Utilities Company Limited

**EWSA:** Energy and Water sanitation Agency

**FONERWA:** Rwanda National Green Fund

**GGCRS:** Green Growth and Climate Resilient Strategy

**GGGI:** Global Green Growth Institute **GOR:** Government of Rwanda

**ICT:** Information & Communication Technology

**IVA:** Independent Verification Authority

**KWh:** Kilo Watt/hour

**LNP:** Liquid Natural Gas

**LPG:** Liquefied Petroleum Gas

**MINECOFIN:** Ministry of Finance and Economic Planning

**MINEDUC:** Ministry of Education

**MINICOM:** Ministry of Commerce and Industry

**MININFRA:** Ministry of Infrastructure

**MoE:** Ministry of Environment

**MV:** Medium Voltage

**MW:** Mega Watts

**NDCs:** Nationally Determined Contributions

**NGOs:** Non-Governmental Organizations

**NST1:** National Transformation Strategy – Phase 1

**OP:** Operational Procedures

**OAG:** Office of Auditor General

**PCB:** PolyChloroBiphenyle

**PPA:** Power Purchase Agreement

**PPE:** Personal Protective Equipment

**RAP:** Resettlement Action Pla

**RAPEP:** Rwanda Association for Environmental Practitioners

**RDB:** Rwanda Development Board

**REG:** Rwanda Energy Group

**REMA:** Rwanda Environment Management Authority

**REP:** Rwanda Energy Policy

**RFA:** Rwanda Forestry Authority

**RLMUA:** Rwanda Land Management and Authority

**ROW:** Right-of-Way

**RUEAP:** Rwanda Universal Energy Access Program

**RURA:** Rwanda Utility Regulatory Agency

**SADC:** Southern Africa Development Community

**SAPP:** Southern Africa Power Pool

**SDGs:** Sustainable Development Goals

**SE4ALL:** Sustainable Energy for All

**SEA:** Strategic Environmental Assessment

**SEO:** Site Environmental Officer

**USAID:** United States Agency for International Development

**USD:** United States Dollars

**VAT:** Value Added Tax

**WAPP:** West Africa Power Pool

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# Executive summary

## 0.1. Introduction

The proposed Rwanda - Energy Sector Results Based Financing (RBF) operation – “**RBF2 Program**” will be the second in the sector financed by the Bank and it will support the economic development and social transformation pillars of the National Strategy for Transformation-1 (NST1) program and the Energy Sector Strategic Plan (ESSP) by contributing to strengthening the electricity network, enhancing reliability and increasing access to modern energy services.

The new RBF is a three-year program with three main Results Areas which all contribute directly to achievement of the ESSP 2024/25 - 2028/29:

- ✓ **Results Area 1: *System reliability and Network Strengthening***: to improve the existing electricity distribution network particularly in areas that have seen increased population growth. The scope will largely include upgrade of obsolete and overloaded network equipment, extension of MV and LV circuits and upgrading switchyard equipment, conversion of overhead bare conductors into overhead insulated cables and underground cables in densely populated urban areas (especially in the City of Kigali), undertaking comprehensive maintenance and rehabilitation of existing power plants and distribution network automation through smart intelligent devices. These activities will result in improved distribution network reliability and performance, increased system capacity for more on-grid connections, and a reduction in customer complaints.
- ✓ **Results Area 2: *Increase access to on-grid/off-grid electricity to improve livelihood and public safety***. This result area will support increasing access to electricity country wide for household and productive electricity usage, in particular targeting regions with lower than 34 % access rate located mainly in rural areas in northern, eastern, western and southern provinces of Rwanda. In areas where the grid is available, access will be provided through last mile connection initiatives. In areas without the grid or where the grid cannot reach, off-grid solutions for households will be provided. The activities will therefore comprise construction of MV, LV and services lines and installation of energy-meters to connect to new customers including productive users of electricity, upgrading and installation of new distribution substations, installation of stand-alone solar systems, installation of street lighting and promotion of clean cooking. These activities will result in increased electricity access and support in achieving universal access by 2029, increase the number of households using efficient clean cooking technologies, and support government objective of a secure environment for a 24-hour economy in urban centres and along major roads where population is growing rapidly.
- ✓ **Results Area 3: *Institutional strengthening and capacity building*** to enhance implementation capacity required to deliver on the national mandate of universal access and ensuring that the program is efficiently and timely implemented while achieving its development objective. In addition, this Results Area will address identified energy sector policy gaps in the agreed Program Action Plan necessary for sustainability of the sector and will also facilitate the work of the Independent Verification Agency (IVA). The outcome of this Results Area is improved operational performance of the energy sector and efficient delivery, monitoring of the new ESSP and effective verification of the results of the proposed RBF program.

## 0.2. Description of the Program area.

The scope of this program's activities is located within the City of Kigali and within the four regional provinces of the country: Northern, Southern, Eastern and Western. A summary of the state of the natural environmental and social baseline conditions in Rwanda is described here below:

**Geographic location:** Rwanda is in the Eastern Africa Region, it is a densely populated country (535.11 people per km<sup>2</sup> in 2023) compared to other African countries, with a population of 13,954,471 people (in 2023) with a fertility rate estimated at 3.70 and a total area of 26,338 km<sup>2</sup>. Rwanda is bordered by the Democratic Republic of the Congo (DRC) to the west, Uganda to the north, Tanzania to the east, and Burundi to the south.

**Topography:** Rwanda's relief can be divided into four broad categories: the Congo-Nile Ridge, the Central Plateau, the lowlands of the East and the Bugarama plains. The Congo-Nile Ridge is dominated by eight giant volcanoes and other mountainous relief. The altitude of the Central Plateau ranges between 2000-1500 m. The plateau's relief largely consists of steep hills separated by valleys that plunge by depths of between 15-50 m. Rwanda is fondly referred to as "the land of a thousand hills". The eastern lowlands are dominated by a depressed relief, whose altitude undulates between 1500 m at its highest elevation and 1100 m at its lowest. The Bugarama Plains located in the southwest of Rwanda have an altitude of 900 m and are part of the Great Rift Valley. In general, the Rwanda's topography and local climate is highly sensitive to climate change as the steep, over-cultivated hills and high rainfall give rise to high levels of run-off, erosion and flooding during intense rainfall events that have become more prevalent in the last decade especially in the North-Western regions of the country.

**Climate:** Even though Rwanda is entirely situated within the equatorial zone, it enjoys a moderate tropical climate due to its high altitude, with temperatures average of 20°C. Rainfall follows a bimodal cycle although it is generally abundant throughout the year. The rainfall characteristics are known to exhibit large temporal and spatial variation due to varied topography and existence of large water bodies near and inside the country. However, two rainy seasons are generally distinguishable: one centered in March – May and the other in October – December.

**Forest resources:** Rwanda forests and woodlands can be classified into four categories: the natural forests of the Congo Nile Ridge comprised with Nyungwe national park, Gishwati and Mukura forests in the west; the natural forests of the Volcanoes national park in the north; the natural forests in the savannah and gallery forest of the Akagera national park in the east and remnants of gallery-forests and savannahs of Bugesera, Gisaka and Umutara; and forest plantations dominated by exotic species (Eucalyptus, Pinus, Grevillea robusta) and trees scattered on farmlands (agroforestry) and along anti-erosion ditches. Statistical information on forest cover in Rwanda is varied and contradicting according to authors.

**Land use:** Rwanda is a small country with total arable land of about 1.4 million ha. In addition, lands in Rwanda are used for pasture or exploited as arable marshlands. Given a growing population combined with strong reliance on agriculture, land is one of the scarcest resources in Rwanda. The average size of land cultivated per rural household has decreased in five years in all provinces except the Southern Province, where it was already lowest out of all provinces five years ago, it is now on average around 0.5 ha across all provinces, except the Eastern Province. If the interpretation holds that below this level, no further land sharing is possible, Rwanda might see a lot more young individuals without access to land in the Southern, Western and Northern provinces in the coming years. This possibility is further supported by the fact that the proportion of households cultivating less than 0.3 ha has not changed much between the surveys, suggesting that there is a minimum amount of land under which no further sharing is possible if households wish to sustain themselves through agriculture.

**Housing and Urbanization:** The most common type of habitat in Rwanda is the clustered rural settlement (known as Umudugudu). The type of habitat varies according to the area of residence: rural areas are dominated by clustered rural settlements (53%) and dispersed/isolated housing (38%). On the other hand, the type of habitat varies a lot across Provinces: the clustered rural settlement is more prevalent in the Eastern Province (76%) and least common in Kigali City (2.5%). The dispersed/isolated housing is more frequently found in the Western Province (47.5%) and rarer in the Eastern Province (15%). As for spontaneous/squatter housing, it is more common in Kigali City (66%) and other urban areas (58%) and rarer in the Northern Province (5.4%). Planning for distribution of electricity and other energy resources is governed by the different types of housing and urbanization in the country and by associated planning.

**Energy in housing units:** In Rwanda the main sources of **energy for lighting** used by the households are kerosene lamp (40%), electricity (17.4%), candle (10%) and firewood (8%). However, a high percentage of households (24%) use an unspecified source of energy for their lighting. The percentage using electricity for lighting is higher in Kigali City (67%) than in other provinces where it varies between 8% (in the South) and 13% (in the East). The percentage of the private households using firewood for lighting is higher in the Southern Province (11%). The sources of energy for lighting vary also by area of residence: in urban areas, the main sources of energy for lighting are electricity (68%), kerosene lamp (18%) and candle (10%). In rural areas, the main sources of energy for lighting are kerosene lamps (44%) and other unspecified sources (28%).

At the national level the main sources of **energy for cooking** used by the private households are firewood (82%) and charcoal (13%), and to a lesser extent grass/leaves (3%). The percentage of private households using charcoal for cooking is higher in Kigali City (67%) than in the other Provinces where it varies between 5% (in the Southern, Northern and Eastern Provinces) and 8% (in the Western Province). The main sources of energy used by private households for cooking vary by area of residence: in urban areas, private households use more charcoal (63%) and firewood (32%). In rural areas, households use mainly firewood (93%) for cooking and grass/leaves.

At the national level, one third of the households (34%) **have and use energy-saving stoves**. Possession and use of energy-saving stoves is much more common in rural areas (37%) than in urban areas (19%). Within the Provinces, the use of energy-saving stoves varies a lot by area of residence, the variation by District is linked to the level of urbanization of the districts; the less urbanized the districts are, the higher is the percentage of their households using energy saving stoves.

**Threat on Forestry Resources in Rwanda:** Rwanda's forests continue to be under threat from various human drivers such as agriculture, human settlement, illegal logging, charcoal production, bush fires, and climate change. Statistics show that natural vegetation, including forests, dropped by 59.4% from 6340 km<sup>2</sup> in 1960 to 2575 km<sup>2</sup> in 2010. Akagera National Park's Forest cover decreased by 53% from 2410 km<sup>2</sup> in 1999 to 1121km<sup>2</sup> in 2010. This was largely because a large portion was used to resettle returning Rwandans who had lived as refugees mostly in neighboring countries for over 3 decades. In addition, the high dependence on biomass fuels further contributes to deforestation and erosion of the hilly landscape.

**High and growing demography contributing to environmental degradation:** Rwanda has a fast-growing population which totaled 13,954,471 people in 2023. It is obvious that population growth (with a rate estimated to 3.70 in 2023) is contributing to environmental degradation, putting increased pressure on the assimilative capacity of the environment.

### 0.3. Summary of key environmental and social risks of the program

#### 0.3.1. Environmental impacts and risks:

Overall, the environmental impacts scoped and assessed to be associated with the planned program component activities are deemed to be of Low to Moderate in magnitude and limited and/or localized in scope requiring site specific mitigation. Most activities such as clean cooking and clean power have even more positive environmental and social impacts than negative ones.

Following risks have been assessed through studies carried out on similar projects already implemented by the same PIU, such as: “*Rwanda Transmission System Reinforcement and Last Mile Connectivity*”, “*Rwanda Scaling Up Energy Access II Programme -RBF1*”, ....

#### ❖ *Environmental risks associated with construction of distribution lines:*

During the preparatory and construction phase of distribution lines, the following negative impacts are foreseeable, but they can be mitigated using appropriate measures:

- ✓ **Generation of solid waste** such as packaging materials, plastics, scrap metal, timber, remains demolition waste from substations rehabilitation and dumping around the site that can pose threat to environment and public health. More precautions should be taken regarding management of used cables and replaced transformers.
- ✓ **Pollution of soil and water** can also be generated from machinery fuel and lubricants contamination from accidental spills or inadequate disposal or handling. Particularly, transformers can experience a leak arising from a fault, poor handling and vandalism. These leaks may result in potential contamination of surface and groundwater as well as soil. Substance used for wooden pole preservation can also cause soil and water pollution
- ✓ **Threat on biodiversity** through clearing of indigenous vegetation and disruption of ecosystem functions during preparation and construction phase. This will be temporary and limited, especially because most LV and MV lines will be installed in the roads reserve areas.
- ✓ **Impacts on the soils:** Excavation works for site preparation and distribution lines installation are likely to cause loss of soil cover, which could increase the process of erosion, plus the potential risk of contamination from spillages of oil or other contaminants.
- ✓ **Air and noise pollution** from construction machines and vehicles. These impacts are temporary and will disappear with the end of the construction phase.

#### ❖ *Environmental risks associated with clean power and clean cooking system.*

- ✓ **Clean cooking technologies:** The introduction and promotion of clean cooking stoves, designed to use cleaner and more efficient fuels, can have various environmental and social impacts. These impacts are generally positive compared to traditional cooking methods that rely on solid fuels like wood or charcoal. However, the specific outcomes can depend on factors such as the design of the stoves, the type of fuel used, local contexts, and the extent of adoption. ***The manufacturing process of clean-cooking stoves and their components can contribute to resource depletion. Additionally, improper disposal at the end of the stove's life cycle can result in environmental pollution.***
- ✓ **Solar Home System (SHS):** Solar Home Systems have considerable positive impacts when it comes to environmental protection and socio-economic benefits. However, when the ***disposal and recycling of spent batteries or other produced E-waste is not well managed***, and when there is lack of technological proficiency and poor after-sales facility, the following constraints are suspected to take place: ***Poor disposal of spent batteries:*** In most cases due to poor after-sale facility by Solar Home System providers and lack of knowledge about proper disposal of E-waste by SHS users, spent batteries end up in landfills and open dumping. As the battery casing corrodes, chemicals end up leaching into the ground water from where they contaminate."

### *0.3.2. Negative social impacts*

The only social negative impacts of the project/program are associated with construction of MV&LV lines and rehabilitation of substations, and they are summarized here below:

- ✓ Disrupt local communities, causing inconvenience due to noise and dust.
- ✓ Traffic disruption due to construction site location when it is in the proximity of the main road, for the entry and exit of material supplying trucks.
- ✓ Public health related issues such as HIV/AIDS, communicable and other sexually transmitted diseases (STDs) due to labor influx in the project areas.
- ✓ The influx of workers and increased demand for goods and services may strain local resources and infrastructure.
- ✓ Communicable diseases and unplanned pregnancy can be a critical threat due to labor influx.
- ✓ Young teenagers tend to drop out of schools at profit of getting job for money.

### *0.3.3. Social risks*

The following are social risks associated with the project, noting that all of them can be minimized through adequate safety measures, as ordinary done by REG through EUCL operations and similar project managed by EDCL:

- ✓ **Risk of accidents during clearing, excavation, poles erection and stringing works**, and other installations of equipment and stringing of distribution lines. Adequate signaling of construction sites and the provision of workers with appropriate safety equipment such as helmets, gloves, safety belts and safety shoes are proposed to minimize this risk. Measures of protecting the neighboring population by surrounding the excavated pits with safety banners/posters to protect the public. The excavated pits should be used without any delay.
- ✓ **Risks of pollution of surface water** because of poor storage of hydrocarbons and waste oils from construction site machines. To mitigate this risk, REG shall ensure that construction site machines are maintained, and their oil changed in impervious areas designed for this purpose. Waste oils will be collected and stored in waterproof tanks to be provided for, from the start of works.
- ✓ **Risk of accidents and hazards for both workers and the public from erection of electric poles**, manual transportation of the wooden poles at long distance, cutting and concrete work. Injuries can result from trips and falls and cause other physical and mechanical hazards.
- ✓ **Risk of accidents by electrocution during operation phase**: this risk will be mitigated through International Electrotechnical Commission (IEC) actions on safety rules and measures for newly constructed electrical installations (lines and transformer stations) as well as electrical appliances that will function using this energy. IEC sessions will include aspects such as best practices in electricity consumption as well as prohibitions and penalties for violations (illegal connections, manipulation of meters).
- ✓ **Accident risks also concern specialized workers in charge of equipment maintenance**. They must be provided with appropriate trainings and with safety equipment in use for their profession: helmets, gloves, safety shoes, safety belts...
- ✓ **Risk of noise and Electromagnetic Fields (EMFs)**: Substation operations can generate noise, and the electromagnetic fields associated with high-voltage equipment may raise concerns about potential health impacts on workers, nearby residents and wildlife. However, this risk is minimal in the case of medium and low voltage lines.

### *0.3.4. Categorization of the RBF2 program*

The RBF2 program has been assigned a category 2 by the Bank because the potential environmental and social impacts of the program are moderate, reversible, limited in scope and can be managed by an adapted Environmental and Social Management Plan (ESMP). High risks activities were excluded from the list of activities to be financed through this program.

### **Instruments to be disclosed:**

RBF is a new lending instruments for many lenders, including AFDB. Designing and implementing RBF supported programs involve assessments of the program and its systems, carry out independent results verification, and systematic institutional development. The procedures are different from what is required for usual projects. It is in that context that instead of having an Environmental and Social Impact Assessment (ESIA) as usually required for Category 2 projects, an Environmental and Social System Assessment Report (ESSA) will be carried by the Bank in partnership with REG, to comply with the Bank's policy in preparation of Results Based Financing (RBF) programs.

The ESSA will be disclosed on the websites of AFDB and the Borrower prior to approval of the program by the board of AFDB.

## **0.4. Assessment of the E&S social system of the program**

### *0.4.1. Brief assessment of the Country's ESSA governance*

Rwanda has adopted environmental and social legislation, including environmental impact assessment procedures. According to the National Policy on Environment issued in 2003, Environmental Impact Assessments must be carried out prior to development of infrastructure projects. Rwanda Environmental Management Authority (REMA) was set up to implement this policy. Rwanda Energy Sector Result Based Financing Program - RBF 2 has similar activities like the “*Rwanda Transmission System Reinforcement and Last Mile Connectivity*”, “*Rwanda Scaling Up Energy Access II Programme -RBF1*”, and RUEAP which are being implemented by REG.

In April 2005, Rwanda adopted a legal framework in accordance with its National Policy on Environment, the Organic Law N° 04/2005 of 08/04/2005 determining the modalities of protection, conservation and promotion of environment in Rwanda. Article 67 of this law stipulates that “Every project shall be subjected to an environmental impact assessment, before obtaining authorization for its implementation. More specifically, ESIA must be carried out for large and medium scale infrastructure projects for which some of the planned programme activities qualify and have gone through ESIA of similar projects (as mentioned above). Other relevant national and applicable legal framework and policies include: The National Land Policy, 2004, The National Energy Policy, 2015, The Rwanda Vision, 2050, The Public Transport Policy of Rwanda<sup>11</sup>, 2012, The National Forestry Policy<sup>13</sup>, 2010, Ministerial order No2 of 17/05/2012 determining conditions for occupational and health safety, The National Occupational Safety and Health Strategy (2019-2024), The National Strategy for Growth and Reduction of Poverty (NSGRP II), 2010, Prime Minister's Order N°. 006/03 of 30/01/2017, Development and Management, Law n° 027/2023 of 18/05/2023 amending the Law n° 66/2018 of 30/08/2018 regulating labour in Rwanda, Regulations No 002 of 26/04/2018 governing e-waste management in Rwanda, Environmental Law No 48/2018 of 13/08/2018, N° 27/2021 of 10/06/2021 Law governing land, Law no 32/2015 of 11/06/2015 relating to expropriation in the public interests, Ministerial order no 001/2019 of 15/04/2019 determining determines the list of projects that must undergo environmental impact assessment, instructions, requirements and procedures to conduct environmental impact assessment, and AfDB's Integrated Safeguard System (ISS).

Rwanda is a signatory to several conventions on sustainable development and is a member of various bilateral and multilateral organizations. This ESSA highlights some of the relevant conventions and treaties that Rwanda ratified or signed, applicable to the RBF2 program.

### *0.4.2. Brief assessment of the National Environmental Protection Authority responsible for the enforcement of the ESA.*

Rwanda Environmental Management Authority (REMA) is the Environmental Protection authority in Rwanda. It holds the overall responsibilities for Environmental Management, including monitoring and audit, however, the functions for issuance of EIA / ESIA Certificate for Investment projects lie with Rwanda Development

Board (RDB). Both institutions are competent in the domain. REMA is familiar with supervision of similar RBF programs implemented by REG such as EARP, RUEAP, RBF1...

## **0.5 Assessment of the Program's implementing entity capacity and performance**

REG, as the proponent implementation entity of the program, has the competence and experience to effectively implement the program in compliance with all approvals, as a matter of fact, REG, through its subsidiaries, EUCL and EDCL, has experience in implementing similar projects or programs. However, to ensure that implementation of E&S requirements of this program is effectively implemented, REG will nominate an Environmentalist of EDCL and a Safety Manager of EUCL to supervise the implementation of Environmental and Social Safeguards System Strengthening Action defined in this ESSA. The Social Safeguard specialist of RBF2 should assist, especially in the implementation of social safeguards activities such as stakeholders 'engagement, management of GRM... Together they will constitute the RBF2's E&S team, which should be coordinated by the Senior Environmental and Social safeguard specialist.

To reinforce its capacity in E&S risks management, REG should implement capacity building plans proposed in various E&S studies (ESIA of similar projects, ESA of similar programs.....).

## **0.6. Environmental & social safeguards system strengthening action plan**

As explained above, REG has extended experience in implementing similar projects and programs. Actions proposed in this ESSA to improve the performance of their E&S safeguard system described are based on the recommendations from the observations of the field visit, the meeting with E&S staff of REG, the meetings held with REG and MININFRA and the review of various E&S documents on similar projects and program, namely: the ESIA of the Rwanda Transmission System Reinforcement and Last Mile Connectivity, the Strategic Environmental Assessments (SEAs) of EARP, RUEAP and RBF1 but also the recommendations from "Environmental, Health, and Safety (EHS) Guidelines for Electric Power Transmission and Distribution".

The following actions are proposed:

- ✓ With the advice and the support of its E&S team, REG develop and implement an ESMS, as initially recommended in the SEA of RBF1
- ✓ REG should improve its compliance with "Environmental, Health, and Safety (EHS) Guidelines for Electric Power Transmission and Distribution", starting from the design phase throughout construction, operation and maintenance of power stations and MV and LV lines. Involvement of E&S staff at all phases is imperative.
- ✓ Specifications of electrical Smart substations to comply with while designing, constructing or rehabilitating substations and operating substations are proposed in this ESSA. This allows us to have tangible and workable inputs. The developed specifications will be updated and improved by the REG's E&S team as their involvement and experience will grow.
- ✓ Concerning construction and maintenance of power lines, it is suggested to refer to the ESIA of the Rwanda Transmission System Reinforcement and Last Mile Connectivity which is very well elaborated and based on skilled feasibility study.
- ✓ Based on the assessment of the implementation of RBF1, a capacity building plan for effective implementation of the ESMP of RBF2 is proposed (see table below). A detailed Environmental and Social Safeguards System Strengthening Action Plan (ESSSSAP) of RBF2 program is also recommended.

**Table 1: Identified capacity building need for effective implementation of the ESSSSAP of RBF2**

Nr	Developed assets	Identified capacity building need	Staff to be involved
1.	<b>Substations (Smart)</b>	<p><b>During Construction/rehabilitation:</b></p> <ul style="list-style-type: none"> <li>• Safety measures of workers</li> <li>• Safety measures of communities and customers</li> <li>• Health and Safety measures applied to active electrical construction sites</li> <li>• Awareness campaigns (of workers and communities)</li> </ul> <p><b>During operations:</b></p> <ul style="list-style-type: none"> <li>• Smart operations of substations</li> <li>• Maintenance</li> <li>• Inspections</li> <li>• Guards</li> </ul>	<p>All workers (nr)</p> <p>Special EHS training to be delivered to EHS team of REG</p> <p>Communities/customers</p> <p>Special HSE training to be delivered to E&amp;S team, engineers, branch managers...</p> <p>Toolbox training for staff</p>
2.	<b>Aerial cables</b>	<p><b>Prior to replacement:</b></p> <ul style="list-style-type: none"> <li>• Maintenance</li> <li>• Inspections</li> <li>• Awareness of customers, communities and local authorities</li> </ul>	<p>Special HSE training of EHS team, engineers, ...</p> <p>Toolbox training for staff</p>
3.	<b>Ground cables</b>	<p><b>During operations:</b></p> <ul style="list-style-type: none"> <li>• Maintenance</li> <li>• Inspections</li> <li>• Staff</li> </ul>	<p>Idem as above</p>
4.	<b>Streetlights</b>	<p><b>During operations:</b></p> <ul style="list-style-type: none"> <li>• Maintenance</li> <li>• Inspections</li> <li>• Guards/security</li> </ul>	<p>Special HSE training of EHS team, engineers, ...</p> <p>Districts officers in charge of infrastructure</p>
5.	<b>Solar systems</b>	<p><b>During operations:</b></p> <ul style="list-style-type: none"> <li>• Maintenance</li> <li>• Replacement and disposal of batteries</li> <li>• Utilization of SHS by customers (especially in rural areas)</li> </ul>	<p>Special HSE training of EHS team, engineers, ...</p> <p>Districts and sectors' officers in charge of infrastructure</p> <p>Solar system costumers</p>

### 0.7. Assessment of the reputational risk to the Bank

Section 5 of this ESSA provides an estimate of the overall E&S risk to which the Borrower and the Bank are exposed if the program was not performing satisfactorily.

Based on the conclusions on the strengths and weaknesses of the RBF2 program's E&S system and the measures recommended in section 4, it was highlighted that the main risk for the Bank would only be reputational while the risks for the Borrowers are significant. 2 examples were considered, in both of them, the recklessness in compliance with some EHS measures during construction or rehabilitation of substations or of electrical lines would lead to payment of damage caused to employees or to customers and/or destruction of developed assets.

## 0.8. RBF2 Program monitoring and implementation support

Since the RBF 2 Program is Category 2, quarter reports on the implementation of the program will be developed by the E&S team of RBF2 program, coordinated by the Environmental Safeguard Specialist. The quarter E&S implementation reports will be shared to AFDB for review and approval.

The quarter reports inform AFDB in performances, challenges and gaps encountered during the implementation of the program. In addition, it is required to have monthly monitoring meetings between the E&S team and the E&S officer of AFDB appointed to supervise the RBF2 program, which is also an opportunity to discuss the status of implementation of the E&S measures and proposed recommendations on improvements to be made and solutions to challenges. The monthly meetings and the planned biannual support missions of AFDB's E&S officers offer opportunities for capacity building of the E&S team to overcome identified gaps or weaknesses.

As required for RBF programs, there should be an Independent Verification Authority (IVA) to assess the implementation of E&S mitigation measures. The ESSA proposes to REG and MININFRA 3 options to choose from:

Option 1: Hire an external Consultant to conduct annual E&S audit year (RUEAP plans to have 2 external E&S audits per year – see pg 174/211 of the SEA of RUEAP) and as also required by AFDB for projects

Option 2: Request REMA to carry out annual E&S Audit/monitoring as required by the Law establishing REMA

Option 3: Request REMA to verify the implementation of E&S measures proposed for each result area at the completion of the result area, prior to disbursement of the budget associated with the DLI.

Concerning **key indicators to be monitored during the implementation of RBF2**, the following are proposed:

- ✓ **Smart substations:** All constructed/rehabilitated stations have to comply with the technical specifications of “*smart stations*” as defined in this ESSA.
- ✓ **Vegetation on RoW:** at the end of construction of MV or LV lines, the vegetation of the RoW should be restored or improved compared to baseline status.
- ✓ **The following plans should be available and integrated into the contracts and tender documents in case works to be done by contractors:** Road traffic and community safety management plan, Waste management plan of each site under construction, Standards Human waste management plan for all construction of transmission and distribution lines developed by REG, EHS plan of each site under construction or rehabilitation, Local and regional emergency plan and local major outbreaks in case of infrastructure breakdowns, especially near roads or residential areas
- ✓ **The following OHS measures are required at each site under construction:** Warning signs on sites, Workers wearing adequate PPE, first aid box, Latrines with washing water facilities (at

least one for 20 people), Changing rooms and washing rooms when needed, Drinking water for staff, well maintained safety tools and equipment.

- ✓ **Public awareness campaigns on the following topics are compulsory:** Awareness of local population and customers about planned activities and associated impacts and risks, with planned mitigation measures prior to initiation of each activity, Awareness on planned road traffic and community safety management, Induction trainings of workers on construction sites, Induction trainings for workers in substations, Awareness on safe behavior in presence of electrical lines (especially non isolated aerial cables), Awareness about safety of electricity installation in homes,
- ✓ **Operational GRM committees in the program area** (to be checked through reports and logbooks).

## Section 1: Program description and E&S risks

### 1.1. Description of the program and details of the activities.

The new RBF is a three-year program with three main Results Areas which all contribute directly to the achievement of the ESSP 2024/25-2028/29:

- ✓ **Results Area 1: *System reliability and Network Strengthening***: to improve the existing electricity distribution network particularly in areas that have seen increased population growth. The scope will largely include upgrade of obsolete and overloaded network equipment, extension of MV and LV circuits and upgrading switchyard equipment, conversion of overhead bare conductors into overhead insulated cables and underground cables in densely populated urban areas, undertaking comprehensive maintenance and rehabilitation of existing power plants and distribution network automation through smart intelligent devices. These activities will result in improved distribution network reliability and performance, increased system capacity for more on-grid connections, and a reduction in customer complaints.
- ✓ **Results Area 2: *Increase access to on-grid/off-grid electricity to improve livelihood and safety***. This result area will support increasing access to electricity country wide for household and productive electricity usage, in particular targeting regions with much low access rates located mainly in rural parts of Rwanda. In areas where the grid is available such as urban centers including the city of Kigali, access will be provided through last mile connection initiatives. In areas without the grid or where the grid cannot reach, off-grid solutions for households will be provided. The activities will therefore comprise construction of MV, LV and services lines and installation of energy-meters to connect to new customers including productive users of electricity, upgrading and installation of new distribution substations, installation of stand-alone solar systems, installation of street lighting and promotion of clean cooking. These activities will result in increased electricity access and support in achieving universal access by 2029, increase the number of households using efficient clean cooking technologies, and support government objective of a secure environment for a 24-hour economy in urban centres and along major roads where population is growing rapidly.
- ✓ **Results Area 3: *Institutional strengthening and capacity building*** to enhance implementation capacity required to deliver on the national mandate of universal access and ensuring that the program is efficiently and timely implemented while achieving its development objective. In addition, this Results Area will address identified energy sector policy gaps in the agreed Program Action Plan necessary for sustainability of the sector and will also facilitate the work of the Independent Verification Agency (IVA). The outcome of this Results Area is improved operational performance of the energy sector, and efficient delivery, monitoring of the new ESSP and effective verification of the results of the proposed RBF program.

**Excluded activities** under the RBF program: Consistent with the Bank's RBF Policy, all high risks activities were excluded from the list of proposed activities to be financed through this RBF program, namely: (i) Any activity that will require the preparation of Full Resettlement Action Plan (RAP) and any other high risk/impact activity classified as Category One (1) under the Bank's Integrated Safeguards System (ISS).

Table 1. below summarizes the expected physical works for each Results Areas

**Table 2. Summary of expected activities for each result area of RBF2 Program**

S/N	Results Area	Description
<b>Results Area 1 :System reliability and Network Strengthening</b>		
1	Rehabilitation of switch-yard	Replacement of old 15MVA 6.6/110kV transformer and 30kV Switchgears
2	Rehabilitation of auxilliary power supply for Gikondo & Jabana Substations	Replacement of low voltage AC/DC distribution installation (auxillary power supply) for Gikondo & Jabana substations
3	Rehabilitation of Low voltage network in Kigali	Replacement of 90km of bare conductors by insulated Aerial bundled cables
4	Civil works at Gasogi Substation	construction of fence for protection of the substation and installation of CCTV cameras
5	Supply and Installation of MV power lines materials for productive users	1. Supply of electrical materials ( poles, towers, cables/conductors, transformers, insulators, etc) 2. Installation to be done by inhouse teams and/or contractors
6	Electricity supply to Green city Kigali	1. Supply of electrical materials ( poles, towers, cables/conductors, transformers, insulators, etc) 2. Installation to be done by inhouse teams and/or contractors
7	Karenge water treatment plant	1. Supply of electrical materials ( poles, towers, cables/conductors, transformers, insulators, etc) 2. Installation to be done by inhouse teams and/or contractors
8	Electricity supply to Kigali Innovation City	1. Supply of electrical materials ( poles, towers, cables/conductors, transformers, insulators, etc) 2. Installation to be done by inhouse teams and/or contractors
9	Move from Overhead to Underground the MV line	Consutruction of MV underground line and associated connections.
10	Upgrade/refurbish/extenstion of MV and LV lines and installation of new transformers and its connections	1. Supply of electrical materials ( poles, towers, cables/conductors, transformers, insulators, etc) 2. Installation to be done by inhouse teams and/or contractors

11	Linking MV feeders from different sources to create N-1, 2,-- solution by extension of MV lines	1. Supply of electrical materials ( poles, towers, cables/conductors, transformers, insulators, etc) 2. Installation to be done by inhouse teams and/or contractors
12	Extension of fiber optic network using ADSS and/or OPGW and associated accessories to intensify the distribution grid automation	1. Supply of electrical materials ( poles, towers, cables/conductors, transformers, insulators, etc) 2. Installation to be done by inhouse teams and/or contractors
14	Purchase of materials/spare parts for power plants and/or substations	Supply of electro-mechanical materials/ spare parts for maintenance of power plants and/or substations
<b>Results Area 2: Increase access to on-grid, off-grid electricity and clean cooking to improve livelihood and social safety</b>		
1	purchase of electrical materials (Transformers, Pre-paid meters, poles, cables and other accessories needed for connecting HHs/ grid densification in Kigali City	Connection of 25,000 new households to electricity through construction of MV and LV line and installation of transformers
2	purchase of electrical materials (Transformers, Pre-paid meters, poles, cables and other accessories needed for connecting HHs/ grid densification Northern Province	Connection of 21,000 new households to electricity through construction of MV and LV line and installation of transformers
3	Purchase of electrical materials (Transformers, Pre-paid meters, poles, cables and other accessories needed for connecting HHs/ grid densification Eastern Province	Connection of 20,000 new households to electricity through construction of MV and LV line and installation of transformers
4	Purchase of electrical materials (Transformers, Pre-paid meters, poles, cables and other accessories needed for connecting HHs/ grid densification Southern Province	Connection of 20,000 new households to electricity through construction of MV and LV line and installation of transformers
5	Purchase of electrical materials (Transformers, Pre-paid meters, poles, cables and other accessories needed for connecting HHs/ grid densification in Western Province	Connection of 20,000 new households to electricity through construction of MV and LV line and installation of transformers

6	Provision of streetlighting to newly constructed roads (250km)	Provide streetlighting along: * Nyagatare-Base-Rukomo road * Huye- Kibeho road * Other roads Along these roads there are many business activities that streetlighting will allow them to operate beyond the normal hours(From 6pm and beyond)
7	Investment for productive usage for SMEs and e-mobilty services	Connect 500 productive usage customers including schools, health facilities, irrigation projects, pumping stations, milk collection centres etc.
8	Construction of Low voltage lines and switching cabins to Gabiro Agribusiness Hub irrigation sites	Construction of MV and LV and transformers to Gabiro agro-business hub
9	installation of stand-alone solar home system	the project will connect 25,000 households to Off Grid area countrywide
4	Distribution of improved clean cooking technologies to Institutions and households	Provision of 80,000 improved clean cooking technologies to Institutions and households countrywide. Technologies to be distributed are from Tier 3 and above.
<b>Results Area 3: Institutional strengthening and capacity building</b>		
1	Approval of the agreed capacity building program for the energy sector	Agreed capacity building program implemented
2	Facilitate the work of OAG as an independent verification agency (IVA)	Carry out the verification process of DLI's
3	Program Action Plan (PAP) Activities	Approval of PAP activities

## 1.2. Description of the geographical location of the program

This program's activities are located within the City of Kigali and within the four regional provinces of the country: Northern, Southern, Eastern and Western.

### 1.2.1. Physical Environment of the program area

*Geographic location:*

Rwanda is located in the Eastern Africa Region. It is a densely populated country (535.11 people per km<sup>2</sup> in 2023) compared to other African countries, with a population of 13,954,471 people (in 2023) and with a fertility rate estimated at 3.70 and a total area of 26,338 km<sup>2</sup>. Rwanda is bordered by the Democratic Republic of the Congo (DRC) to the west, Uganda to the north, Tanzania to the east, and Burundi to the south.

### *Topography:*

Rwanda's relief can be divided into four broad categories: the Congo-Nile Ridge, the Central Plateau, the lowlands of the East and the Bugarama plains. The Congo-Nile Ridge is dominated by eight giant volcanoes: Nyamuragira, Nyiragongo, Mikeno, Karisimbi, Bisoke, Sabyinyo, Gahinga and Muhabura. The tallest of these Virunga volcanoes and indeed the highest point in the country is Mount Karisimbi, whose summit elevation is 4507m above sea level.

The altitude of the Central Plateau ranges between 2000-1500 m. The plateau's relief largely consists of steep hills separated by valleys that plunge by depths of between 15-50 m. Owing to the ridge and the plateau's rugged mountainous relief. Rwanda is fondly referred to as "the land of a thousand hills".

The Eastern lowlands are dominated by a depressed relief, whose altitude undulates between 1500 m at its highest elevation and 1100 m at its lowest. The Bugarama Plains located in the southwest of Rwanda have an altitude of 900 m and are part of the Great Rift Valley. In general, the Rwanda's topography and local climate is highly sensitive to climate change as the steep, over-cultivated hills and high rainfall give rise to high levels of run-off, erosion and flooding during intense rainfall events that have become more prevalent in the last decade especially in the North-Western regions of the country.

Here below is figure 1: Elevation map of Rwanda

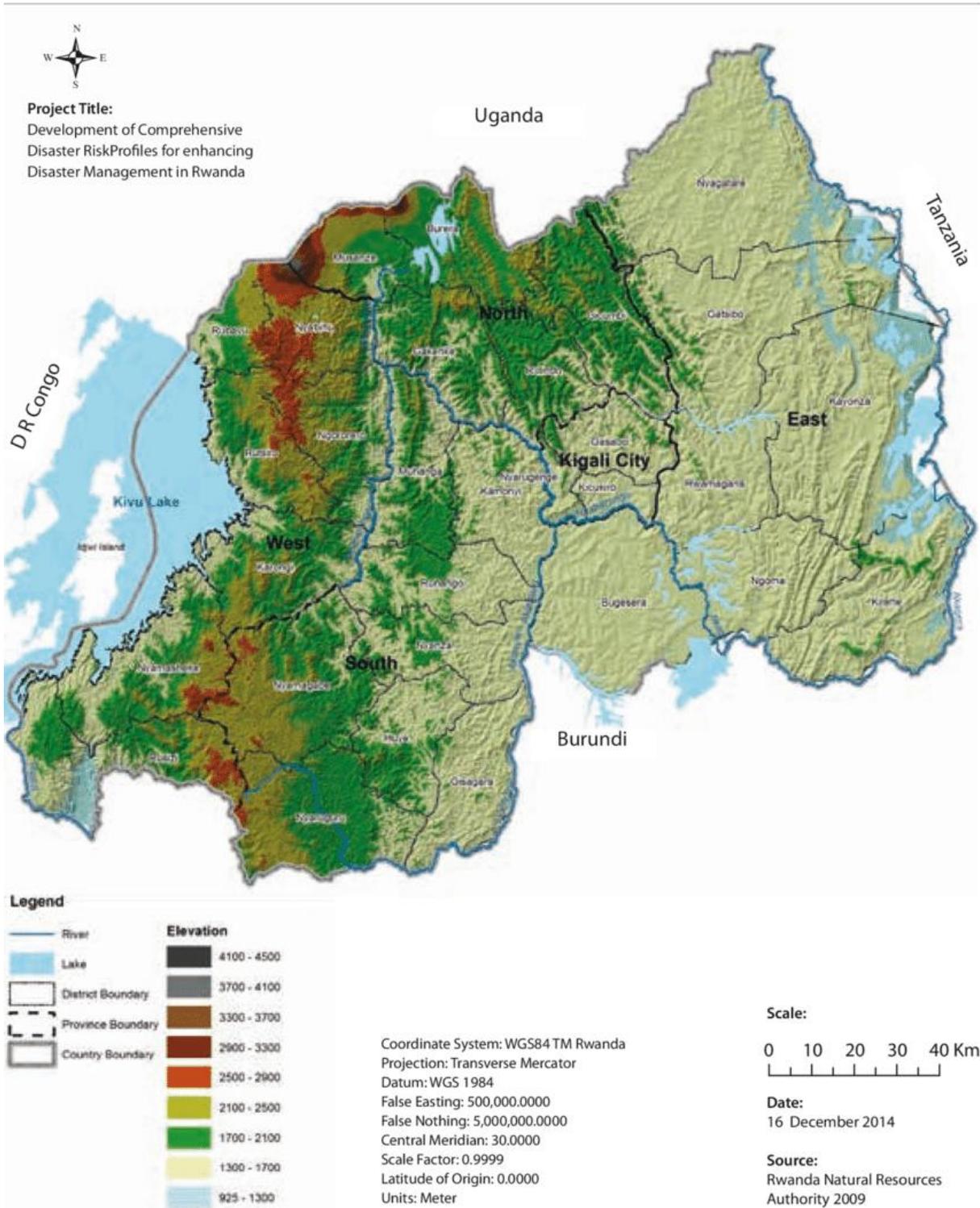


Figure 1: Elevation map of Rwanda

### *Climate:*

Rwanda enjoys a tropical temperate climate due to its high altitude. The average annual temperature ranges between 16°C and 20°C, without significant variations. Rainfall is abundant although it has some irregularities. Winds are generally around 1-3 m/s.

In the high regions of the Congo-Nile ridge, average temperatures range between 15 and 17°C and the rainfall is abundant. The volcanic region has much lower temperatures that can go below 0°C in some places. In areas with intermediary altitude, average temperatures vary between 19 and 21°C and the average rainfall is around 1000 mm /year.

Rainfall is less irregular, and sometimes causes periods of drought. In the lowlands (East and Southeast), temperatures are higher, and the extreme can go beyond 30°C in February and July-August. The absolute temperature of 32.8°C was recorded in the Southeast by Karama-Plateau station on the 4th of September 1980. Thermic constraints are more considerable there than in the remaining part of the country. Rainfall is less abundant in that region (700 to 970 mm/year).

Weather in Rwandan is determined by the rainfall patterns. Thus, the climate of the country is characterized by an alternation of four seasons of which two are wet and the other two are dry. However, one can notice that rainfall is generally well distributed throughout the year, despite some irregularities. Eastern and South-Eastern regions (Umutara, Kibungo, Bugesera, Mayaga) are more affected by prolonged droughts while the northern and western regions (Musanze, Rubavu, Nyamagabe and Gicumbi) experience abundant rainfall that usually causes erosion, flooding, and landslides.

The quantity of total annual rainfall varies between 800mm in the North-East of Rwanda (Eastern Umutara) and 1600 mm in the natural forest of Nyungwe and in the high lands of the North-West (Kinigi). The decrease in rainfall is observed in the region of Bugesera (900 mm) and in the Western part of Rubavu district (1200 mm). The increase of rainfall is observed in some regions like Kibungo (Gahororo, 1200 mm); in the South-West (Mibirizi, 1450 mm) and in the natural forest of Gishwati (1350 mm). The region that is characterized by the highest rainfall (over the average of 1200 mm) is in the western half of the country, from Byumba to Kibeho and from Kinigi to Mibirizi including the region bordering Lake Kivu. Figure 1.2. shows the patterns of the climatology of Rwanda.

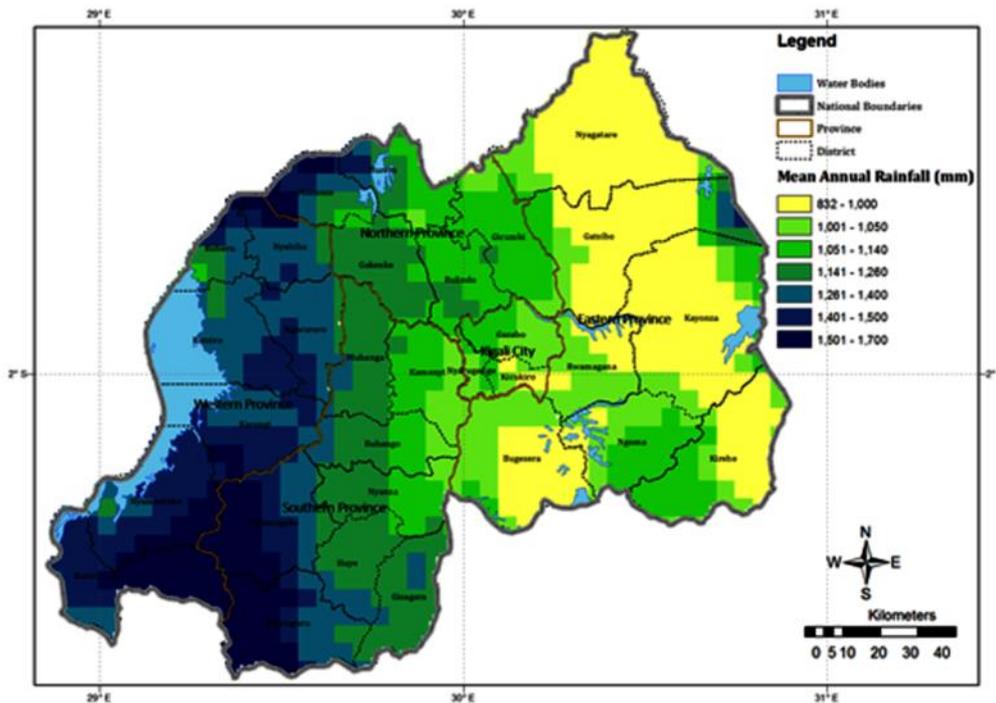


Figure 2. Climatology of Rwanda

### Noise

No data exist on the present noise situation within the planned areas. However, due to the remoteness of the project site and the long distances to major roads and settlements, noise levels and impacts are considered very low to the project.

### Hydrology

Rwanda is endowed with abundant water resources distributed in a very dense hydrological network consisting of 101 lakes covering 149,487 ha, 860 marshlands covering a total surface of 278 536 ha and 861 rivers with a combined length of 6 462 km. However, the impact from the planned program component activities on national hydrology is low and of short duration especially during the construction works and during operational phase.

### 1.2.2. Biological properties

#### Protected Areas

Rwanda's rich biodiversity is mainly preserved in protected areas (three national parks, natural forests, wetlands...). These cover almost 10 per cent of the national territory while the rest of the country is densely populated. Although Rwanda is a small country, it has a remarkable variety of ecosystems and of flora and fauna. Its location at the heart of the Albertine Rift eco-region in the western arm of the Africa's Rift Valley is a contributory factor. This region is one of Africa's most biologically diverse regions. It is home to some 40% of the continent's mammal species (402 species), a huge diversity of birds (1,061 species), reptiles and amphibians (293 species), and higher plants (5,793 species).

The impact on protected areas from the proposed program activities are low to moderate and of limited in duration, since almost all activities of the program are outside the protected areas.

#### Forest resources:

Rwanda forests and woodlands can be classified into four categories: the natural forests of the Congo Nile Ridge comprised with Nyungwe national park, Gishwati and Mukura in the west; the natural forests of the Volcanoes national park in the north; the natural forests in the savannah and gallery forest of the Akagera national park in the east and remnants of gallery-forests and savannahs of Bugesera, Gisaka and Umutara; and forest plantations dominated by exotic species (Eucalyptus, Pinus, Grevillea robusta) and trees scattered on farmlands (agroforestry) and along anti-erosion ditches. Statistical information on forest cover in Rwanda is varied and contradicting figures are reported by several authors, mainly because no thorough forest inventory has ever been carried out in the country.

#### *Flora*

Rwanda harbors very diverse flora due to a considerable geo-diversity and a climatic gradient from West to East. The number of vascular plants is estimated at around 3000 species originating from the different bio-geographical regions. About 280 species of flowering plants from Rwanda are considered to be endemic to the Albertine Rift. Of these endemic species, about 20 are restricted to Rwanda, 50 species confined to Rwanda and Eastern Congo and 20 species found only in Rwanda and Burundi.

#### *Fauna*

Rwanda shelters 151 different types of mammal species, eleven of which are currently threatened and none of which are endemic. Among them are the primates (14 to 16), with half of the remaining world population of mountain gorillas (*Gorilla gorilla berengei*). Others include the owl-faced monkey (*Cercopithecus hamlyni*), the mountain monkey (*Cercopithecus hoesti*) in Nyungwe, the Chimpanzee (*Pan troglodytes*) in Nyungwe and Gishwati, and the Golden monkey (*Cercopithecus mitis kandti*) found in Volcanoes National Park. There are also about 15 species of antelope, and a wide diversity of species such as buffalo, zebra, warthog, baboon, elephant, hippopotamus, crocodile, tortoise and rare species such as the giant pangolin. Rwanda is one of the top birding countries with 670 different birds having been recorded.

### **1.2.3. Human environment**

#### *Population and Demographics*

As mentioned above, Rwanda is a densely populated country (535.11 people per km<sup>2</sup> in 2023) with a population of 13,954,471 people (in 2023) and with a fertility rate estimated at 3.70 and a total area of 26,338 km<sup>2</sup>.

Population density is high in all Districts but varies tremendously from one District to another. The least densely populated Districts are found in the Eastern Province (178 in Kayonza, 280 in Bugesera). The most densely populated Districts are the Kigali City's ones: Nyarugenge (2,124), Kicukiro (1,911) and Gasabo (1,234). Rubavu in the Western Province has the highest population density outside Kigali City with 1,039 inhabitants per square kilometer.

The population density which was already high in 1978 (183 inhabitants per km<sup>2</sup>) has more than doubled in 34 years, reaching 414 inhabitants per km<sup>2</sup> in 2012 and it was 535.11 people per km<sup>2</sup> in 2023. Figure 3 below shows the evolution of the population density and projection up to 2052.

## POPULATION DENSITY AND PROJECTED POPULATION

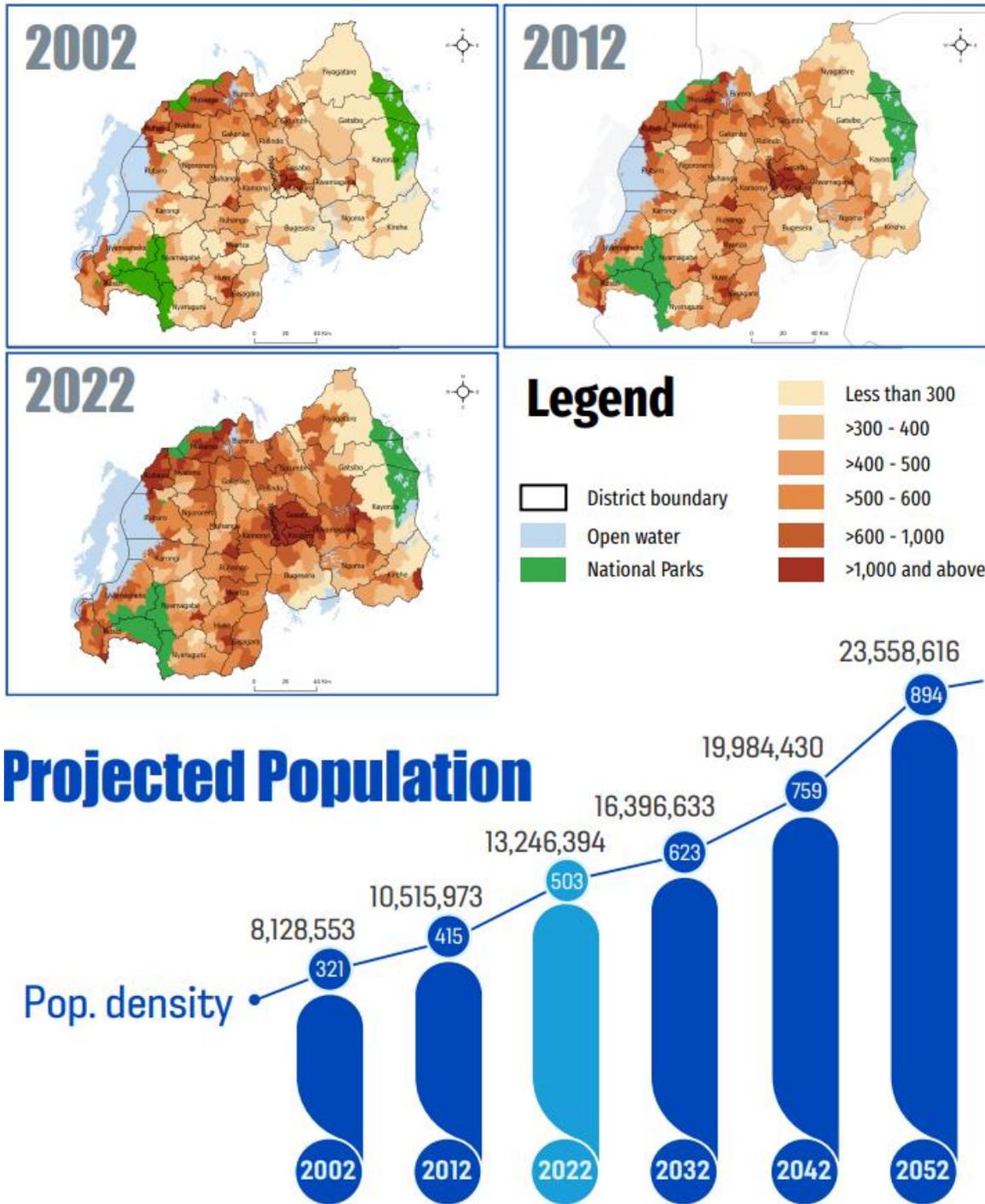


Figure 3. Population density and projected population of Rwanda

### Land use and Tenure

Rwanda is a small country with total arable land of about 1.4 million ha. In addition, lands in Rwanda are used for pasture or exploited as arable marshlands. Given a growing population combined with strong reliance on agriculture, land is one of the scarcest resources in Rwanda. The average size of land

cultivated per rural household has decreased in five years in all provinces except the Southern Province, where it was already lowest out of all provinces five years ago, it is now on average around 0.5 ha per household across all provinces, except the Eastern Province. If the interpretation holds that below this level, no further land sharing is possible, Rwanda might see a lot more young individuals without access to land in the Southern, Western and Northern provinces in the coming years. This possibility is further supported by the fact that the proportion of households cultivating less than 0.3 ha has not changed, suggesting that there is a minimum amount of land under which no further sharing is possible if households wish to sustain themselves through agriculture. It is of course clear that all data on land must be interpreted carefully in the light of the various government programs of land consolidation, rehabilitation and registration that have been implemented over the past years.

Currently, the land tenure system in Rwanda operates in a dual legal system: On one hand, there is: the customary law, which governs almost all the rural land and promotes the excessive parceling out of plots through the successive father-to-son inheritance system. And on the other, there is the written law, which mostly governs land in urban districts and some rural lands managed by churches and other natural and legal persons. This law confers several land tenure rights to individuals such as land tenancy, long term lease and title deeds (particularly in towns).

#### *Economic Livelihoods*

Because so many livelihoods depend on agriculture, factors linked to agriculture such as lack of adequate land or non-productive soils are widely seen as a major cause of poverty and hindrance to economic development. The main food crops are bananas, beans, sorghum, sweet potatoes, Irish potatoes, cassava, maize, and rice. Vegetable crops are mainly tomatoes, cabbages, and peas. Crop yields are generally low, but the agro-diversity present in Rwanda is greater than in many other parts of Africa. Commercial crops such as coffee, tea, pyrethrum, and cut flowers also provide important cover and protection functions. Animal husbandry, especially cattle raising, is an important component of the farming systems in the country. The main areas are the eastern province and southern province.

#### *Housing and Urbanization:*

The most common type of habitat in Rwanda is the clustered rural settlement (known as Umudugudu). The type of habitat varies according to the area of residence: rural areas are dominated by clustered rural settlements (53%) and dispersed/isolated housing (38%). On the other hand, the type of habitat varies a lot across Provinces: the clustered rural settlement is more prevalent in the Eastern Province (76%) and least common in Kigali City (2.5%). The dispersed/isolated housing is more frequently found in the Western Province (47.5%) and rarer in the Eastern Province (15%). As for spontaneous/squatter housing, it is more common in Kigali City (66%) and other urban areas (58%) and rarer in the Northern Province (5.4%). Planning for distribution of electricity and other energy resources is governed by the different types of housing and urbanization in the country and by associated planning. Figure 1.4 below shows Resident population by area of resident.

## RESIDENT POPULATION BY AREA OF RESIDENCE, PROVINCE, AND DISTRICT

	Count			%		
	Total	Urban	Rural	Total	Urban	Rural
<b>Rwanda</b>						
<b>Total</b>	13,246,394	3,701,245	9,545,149	100	27.9	72.1
<b>City of Kigali</b>						
<b>Total</b>	1,745,555	1,517,168	228,387	100	86.9	13.1
Nyarugenge	374,319	315,899	58,420	100	84.4	15.6
Gasabo	879,505	714,069	165,436	100	81.2	18.8
Kicukiro	491,731	487,200	4,531	100	99.1	0.9
<b>Southern Province</b>						
<b>Total</b>	3,002,699	444,106	2,558,593	100	14.8	85.2
Nyanza	365,718	33,765	331,953	100	9.2	90.8
Gisagara	397,051	13,513	383,538	100	3.4	96.6
Nyaruguru	318,126	7,641	310,485	100	2.4	97.6
Huye	381,900	79,744	302,156	100	20.9	79.1
Nyamagabe	371,501	40,592	330,909	100	10.9	89.1
Ruhango	359,121	39,079	320,042	100	10.9	89.1
Muhanga	358,433	87,252	271,181	100	24.3	75.7
Kamonyi	450,849	142,520	308,329	100	31.6	68.4
<b>Western Province</b>						
<b>Total</b>	2,896,484	640,307	2,256,177	100	22.1	77.9
Karongi	373,869	33,542	340,327	100	9.0	91.0
Rutsiro	369,180	20,606	348,574	100	5.6	94.4
Rubavu	546,683	294,448	252,235	100	53.9	46.1
Nyabihu	319,047	78,027	241,020	100	24.5	75.5
Ngororero	367,955	18,142	349,813	100	4.9	95.1
Rusizi	485,529	162,165	323,364	100	33.4	66.6
Nyamasheke	434,221	33,377	400,844	100	7.7	92.3
<b>Northern Province</b>						
<b>Total</b>	2,038,511	353,729	1,684,782	100	17.4	82.6
Rulindo	360,144	38,110	322,034	100	10.6	89.4
Gakenke	365,292	14,788	350,504	100	4.0	96.0
Musanze	476,522	234,258	242,264	100	49.2	50.8
Burera	387,729	38,442	349,287	100	9.9	90.1
Gicumbi	448,824	28,131	420,693	100	6.3	93.7
<b>Eastern Province</b>						
<b>Total</b>	3,563,145	745,935	2,817,210	100	20.9	79.1
Rwamagana	484,953	180,056	304,897	100	37.1	62.9
Nyagatare	653,861	157,894	495,967	100	24.1	75.9
Gatsibo	551,164	55,351	495,813	100	10.0	90.0
Kayonza	457,156	65,071	392,085	100	14.2	85.8
Kirehe	460,860	29,039	431,821	100	6.3	93.7
Ngoma	404,048	37,297	366,751	100	9.2	90.8
Bugesera	551,103	221,227	329,876	100	40.1	59.9

Figure 4: Resident population by area of resident

### *Energy in housing units:*

In Rwanda the main sources of energy for lighting used by the households are kerosene lamp (40%), electricity (17.4%), candle (10%) and firewood (8%). However, a high percentage of households (24%) use an unspecified source of energy for their lighting. The percentage using electricity for lighting is higher in Kigali City (67%) than in other provinces where it varies between 8% (in the South) and 13% (in the East). The percentage of the private households using firewood for lighting is higher in the Southern Province (11%). The sources of energy for lighting vary also by area of residence: in urban areas, the main sources of energy for lighting are electricity (68%), kerosene lamp (18%) and candle (10%). In rural areas, the main sources of energy for lighting are kerosene lamps (44%) and other unspecified sources (28%). Other sources of energy are used for lighting by non-negligible percentages of the rural households are candle (10%), firewood (9%) and electricity (7%).

At the national level the main sources of energy for cooking used by the private households are firewood (82%) and charcoal (13%), and to a lesser extent grass/leaves (3%). The percentage of the private households using charcoal for cooking is higher in Kigali City (67%) than in the other Provinces where it varies between 5% (in the Southern, Northern and Eastern Provinces) and 8% (in the Western Province). The main sources of energy used by the private households for cooking vary by area of residence: in urban areas, private households use more charcoal (63%) and firewood (32%). In rural areas, households use mainly firewood (93%) for cooking and grass/leaves.

At the national level, one third of the households (34%) have and use energy-saving stoves. Possession and use of energy-saving stoves is much more common in rural areas (37%) than in urban areas (19%). Within the Provinces, the use of energy-saving stoves varies a lot by area of residence, the variation by District is linked to the level of urbanization of the districts; the less urbanized the districts are, the higher is the percentage of their households using energy saving stoves. Figure 1.5. below shows the patterns of Energy use, according to National Institute of statistics of Rwanda (NISR) – The 5<sup>th</sup> Population and Housing Census done in 2022.

## DISTRIBUTION OF PRIVATE HOUSEHOLDS BY MAIN SOURCE OF LIGHTING



**47.1%**  
Electricity  
from REG



**28.4%**  
Flashlight/Phone  
Flashlight



**13.9%**  
Solar power



**4.2%**  
Firewoods



**2.9%**  
Candles



**1.6%**  
Kerosene/Paraffin/  
Lantern lamp



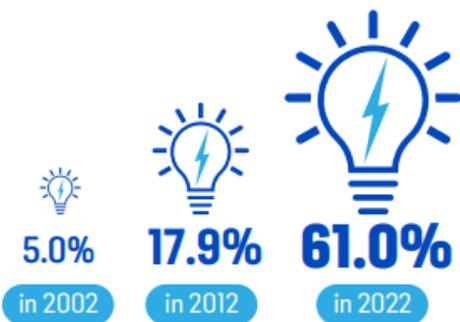
**1.3%**  
Generator/  
Batteries



**0.6%**  
Other

## HOUSEHOLDS THAT USE ELECTRICITY AS THE MAIN SOURCE OF LIGHTING

### National Level



### By Province

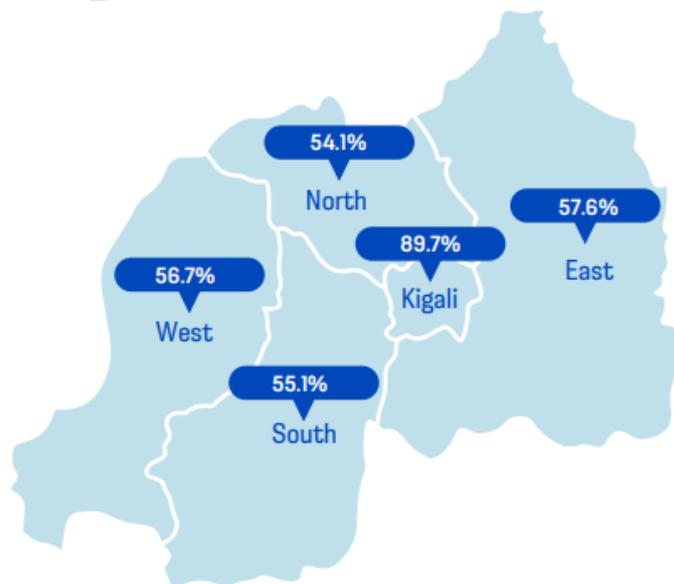


Figure 5. Energy use

### 1.3. List of the main executing agencies and partners involved in the program

This paragraph describes the main agencies and partners involved in the Rwanda – Energy Sector – Result Based Framework (RBF2) program.

The Ministry of Infrastructure (MININFRA) is most important agency, because it is the Executive Agency of the Program. MININFRA is responsible for developing energy policy and strategy, monitoring and evaluation of the implementation of the ESSP programs and projects. MININFRA implements the ESSP through the Rwanda Energy Development Corporation Ltd (EDCL) and Energy Utility Corporation Ltd (EUCL), both subsidiaries of the Rwanda Energy Group (REG). EDCL is responsible for developing new investment projects, while EUCL oversees the day-to-day operations of the power grid including electricity sales and revenue collection for the energy sector in Rwanda. REG, through its subsidiaries (EUCL and EDCL) will be the implementing agency of the RBF2 Program.

Other partners to be engaged in the program are:

- The Rwanda Utilities Regulatory Authority (RURA), an independent regulatory agency covering various infrastructure sectors including transport, energy, water and Information Technology, is responsible for the sector’s operational efficiency, the setting of electricity tariffs and licenses particularly for Independent Power Producers (IPPs), and for ensuring electricity consumer protection.
- Private sector: There is significant private sector participation in the off-grid electricity access initiative, particularly in the Standalone Solar Home System (SHS) and provision of clean cooking solutions.
- Development Partners, led by the AfDB participate in the energy sector development activities through the Energy Sector Working Group (SWG), and by financing public and private sector energy projects in the country.
- Other partners such as Rwanda Environmental Management Authority (REMA), Rwanda Standards Bureau (RSB), Rwanda Development Board (RDB), and others will be involved on a different scale.
- Local leader agencies such Districts, sectors, cells and villages as they are among the facilitators of the projects.

### 1.4. Assessment of the likely environmental and social risks of the program

#### 1.4.1. Positive impacts of the RBF2 program

The program has more positive or beneficial impacts than negative ones:

**Increased rural development and employment.** The program will contribute to the development of the rural areas during the construction phase and during the operation phase because of energy availability. The significance of this impact will be more direct through provision of electricity to Households and to the 2000 SMEs including schools, health facilities, irrigation projects, pumping stations, milk collection centres...

**Household energy use:** The most considerable improvement at the household level can be expected in terms of lighting, where connected households see lighting as the main advantage of electricity. Connected households will most likely totally switch from traditional (kerosene,

candles, torches batteries) to modern electric lighting sources. Having electric lighting will have significant benefits for households by increasing kids' study time at home, access to information (TVs, radios and mobile phones) and it might even reduce expenditures on energy after replacing traditional energy sources like kerosene and batteries. Households connected to electricity will no longer need to spend time and money on charging their mobile phones outside their homes. Finally, this will reduce respiratory diseases caused by indoor air pollution from kerosene lighting of firewood.

**In the case of health centers**, those that will be connected to the grid will have their work and services improved. The main use of electricity in health centers is of course lighting, followed by use for medical machines and for administrative tasks, medicine storage and sterilizing. Electricity will, therefore, change the methods of working environmental conditions and hence improve the quality-of-service delivery to the customers. The most important benefit is that it might reduce costs of health services: Health Centers that will replace fuel generators by grid electricity will pay much less (three times) for power because use of diesel is more expensive. When health facilities save more money and deliver the high quality of services to the patients, this improves the health of the communities/people.

**For Micro and Small Enterprises (SMEs)**: Access to electricity in rural areas increase the creation of small enterprises such as Mills, carpenter workshops, hairdressing shops, welding workshops, bars, restaurants... in general commercial centers will be developed with diversified activities. This will increase the wellbeing of beneficiaries' areas.

**For improved cook stoves**: this will reduce pressure on the forest and biomass in general. It will also reduce time spent by children and women in fetching firewood.

**For rehabilitation/construction of electric substations and MV/LV lines**: this will improve the quality, the safety and the reliability of electricity provided to customers, what will have positive impacts on business opportunities and the quality of life of beneficiaries. This will also increase the number of customers, reduce electricity losses, and consequently increase revenues of EUCL/REG.

**For street lighting**: this will increase safety on concerned roads, it will allow the surrounding population to operate beyond normal hours and might open business opportunities along the roads.

#### ***1.4.2. Negative environmental impacts***

Overall, the environmental impacts scoped and assessed to be associated with the planned RBF2 program's component activities are deemed to be of Low to Moderate in magnitude and limited and/or localized in scope requiring site specific mitigation measures. Most activities such as clean cooking and clean power have even more positive environmental and social impacts than negative ones.

Following risks have been assessed through studies carried out on similar projects/programs already implemented by the same Project Implementation Unit (PIU), such as: "*Rwanda Transmission System Reinforcement and Last Mile Connectivity*", "*Rwanda Scaling Up Energy Access II Programme -RBF1*", *Electricity Access Roll out Program (EARP)*....

#### **1.4.2.1. Environmental risks associated with construction of distribution lines:**

During the preparatory and construction phase of distribution or transmission lines, following negative impacts are foreseeable, but they can be mitigated using appropriate measures:

- Generation of solid waste such as packaging materials, plastics, scrap metal, timber, remains demolition waste from substations rehabilitation and dumping around the site that can pose threat to environment and public health. More precautions should be taken regarding management of used cables and replaced transformers since they are special solid wastes that will be generated through the program and that need special/adapted waste management plans.
- Pollution of soil and water can also be generated from machinery fuel and lubricants contamination from accidental spills or inadequate disposal or handling. Particularly, transformers can experience a leak arising from a fault, poor handling and vandalism. These leaks may result in potential contamination of soil, surface water and groundwater.
- Threat on biodiversity through clearing of indigenous vegetation and disruption of ecosystem functions during preparation and construction phase. This will be temporary and limited, especially because most LV and MV lines will be installed in the roads reserve areas. It is recommended to restore the vegetation of the RoW at the end of installation of LV or MV lines.
- Impacts on the soils: Excavation works for site preparation and distribution lines installation are likely to cause loss of soil cover, which could increase the process of erosion, plus the potential risk of contamination from spillages of oil or other contaminants as discussed above.
- Air and noise pollution from construction machines and vehicles: these impacts are temporary and will disappear with the end of the construction phase.

#### **1.4.2.2. Environmental risks associated with clean power and clean cooking system**

- Clean cooking technologies: The introduction and promotion of clean cooking stoves, designed to use cleaner and more efficient fuels, can have various environmental and social impacts. These impacts are generally positive compared to traditional cooking methods that rely on solid fuels like wood or charcoal. However, the specific outcomes can depend on factors such as the design of the stoves, the type of fuel used, local contexts, and the extent of adoption. The manufacturing process of clean-cooking stoves and their components can contribute to resource depletion. Additionally, improper disposal at the end of the stove's life cycle can result in environmental pollution.
- Solar Home System (SHS): Solar Home Systems have considerable positive impacts when it comes to environmental protection and socio-economic benefits. However, when the disposal and recycling of spent batteries or other produced E-waste is not well managed, and when there is lack of technological proficiency and poor after-sales facility, the following constraints are suspected to take place: Poor disposal of spent batteries: In most cases due to poor after-sale facility by Solar Home System providers and lack of knowledge about proper disposal of E-waste by SHS users, spent batteries end up in landfills and open dumping. As the battery casing corrodes, chemicals end up leaching into the ground water from where they contaminate".

### **1.4.3. Negative social impacts**

Most social negative impacts of the program are associated with construction of MV&LV lines and rehabilitation of substations, and they are summarized here below:

- Disrupt local communities, causing inconvenience due to noise and dust.
- Traffic disruption due to construction site location when it is in the proximity of the main road, for the entry and exit of material supplying trucks.
- Public health related issues such as HIV/AIDS, communicable and other sexually transmitted diseases (STDs) due to labor influx in the project areas.
- The influx of workers and increased demand for goods and services may strain local resources and infrastructure.
- Loss of properties and shelter/relocation

### **1.4.4. Social risks**

The following are social risks associated with the program, noting that all of them can be minimized through adequate safety measures, as ordinary done by REG through EUCL operations and similar project managed by EDCL:

- Risk of accidents for workers during clearing and excavation works and other installations of equipment and stringing of distribution lines. These risks can be mitigated through adequate signaling of construction sites and provision of workers with appropriate safety equipment such as helmets, gloves, safety belts, safety shoes ... are proposed to minimize this risk. Regular trainings for workers to remind on how they can prevent accidents/injuries by using PPEs. Regular sensibilization to the Project Affected People and its neighborhood on how to prevent accidents.
- Risks of pollution of surface water because of poor storage of hydrocarbons and waste oils from construction site machines. To mitigate this risk, REG shall ensure that construction site machines are maintained, and their oil changed in impervious areas designed for this purpose. Waste oils should be collected and stored in waterproof tanks to be provided for, from the start of works.
- Risk of accidents and hazards for both workers and the public from erection of electric poles, manual transportation of the wooden poles at long distance, cutting and concrete work. Injuries can result from trips and falls and cause other physical and mechanical hazards. These risks should be avoided through development of adequate Environmental Health and Safety (EHS) management plan prior to each activity and to scrupulously implement it.
- Risk of accidents by electrocution during operation phase: this risk will be mitigated through International Electrotechnical Commission (IEC) actions on safety rules and measures for newly constructed electrical installations (lines and transformer stations) as well as electrical appliances that will function using this energy. IEC sessions will include aspects such as best practices in electricity consumption as well as prohibitions and penalties for violations (illegal connections, manipulation of meters).
- Accident risks also concern specialized workers in charge of equipment maintenance. They must be provided with appropriate trainings and with safety equipment in use for their profession: helmets, gloves, safety shoes, safety belts...

- Risk of noise and Electromagnetic Fields (EMFs): Substation operations can generate noise, and the electromagnetic fields associated with high-voltage equipment may raise concerns about potential health impacts on workers, nearby residents and wildlife. This risk is minimal in the case of medium and low voltage lines.

### **1.5. Estimated / approximate cost (human resources, budget) of E&S risk management**

The implementation of E&S mitigation measures to avoid or mitigate risks and impacts of the program on the environment and the communities will have specific costs. This paragraph describes human resources and an estimate of the budget cost of E&S risk management.

RBF2 program has various activities, summarized in table 1.1. Human resources needed for the management of E&S risks are: one Environmental safeguard specialist (from EDCL), one Safety manager (from EUCL) and the social safeguard specialist appointed on RBF1 to assist them, to ensure continuity. The 3 will constitute a team called RBF2's E&S team in this ESSA.

During the planning phase of rehabilitation of power stations/cabins and construction or installation of electrical lines (MV or LV), the E&S team of RBF2 should be involved and contribute to designing planned activity. They will carry out a specific Environmental, Social, Health and Safety (EHS) risks assessment and propose mitigation measures and associated Environmental and Social Management Plan (ESMP) or HSE plan with associated budget.

In case a contractor will be hired to perform an activity/sub project, the E&S team should be involved in the tender document preparation and include the development of ESMP or HSE plan in the tender documents. Costs of ESMP and HSE will be integrated in the Bill of Quantity (BoQ) of each activity/sub project.

In addition, the E&S team will conduct induction trainings for workers (in case the activity is performed by REG) or they will ensure that the Contractor performs induction trainings for workers during their supervision missions.

The E&S team shall also organize awareness campaign of communities around the facility, engage key stakeholders (local authorities, security organs, Kigali city, ...) and be responsible for adequate management of the Grievance Redress Mechanism (GRM).

The budget needed to implement E&S safeguard measures will be calculated in the BoQ of each activity (as indicated in the ESSSSAP). The total budget to be allocated to E&S safeguard measures is estimated to **344,181 USD**.

Here below is a table indicating estimation of budget for be allocated to implement the E&S mitigation measures for each activity of the program:

**Table 3: Budget to be allocated to E&S safeguard measures (see details on attached excel document)**

S / N	Results Area	Description	Output	Location	Cost of activity	Implementer	Year of Delivery (FY)	E&S safeguard costs in USD	Main E&S risks/impacts (refer to ESSAP)
<b>Results Area 1: System reliability and Network Strengthening</b>					<b>51,720,000</b>			<b>79,649</b>	
1	Rehabilitation of switch-yard	Replacement of old 15MVA 6.6/110kV transformer and 30kV Switchgears	Improve power plant availability	Musanze	1,200,000	EUCL	2024 - 2025	1,848	Risk 5 and 6
2	Rehabilitation of auxilliary power supply for Gikondo & Jabana Substations	Replacement of low voltage AC/DC distribution installation (auxiliary power supply) for Gikondo & Jabana substations	improvement of power system operations	Kigali	1,000,000	EUCL	2024 - 2025	1,540	Risks 5 and 6
3	Rehabilitation of Low voltage network in Kigali	Replacement of 90km of bare conductors by insulated Aerial bundled cables	reduction of power outages and corresponding losses	Kigali	1,500,000	EDCL	2024 - 2025	2,310	Risks 1,2,3,4 and 5
4	Civil works at Gasogi Substation	construction of fence for protection of the substation and installation of CCTV cameras	improved security and safety	Kigali	300,000	EDCL	2024 - 2025	462	Risks 5 and 6
5	Supply and Installation of MV power lines materials for productive users	1. Supply of electrical materials (poles, towers, cables/conductors , transformers, insulators, etc) 2. Installation to be done by inhouse teams and/or contractors	Increased efficiency and reliability in the area supplied through creation of redundancy supply	Countrywide	6,000,000	EDCL	2024 - 2026	9,240	Risks 1,2,3,4 and 5
6	Electricity supply to Green city Kigali	1. Supply of electrical materials (poles, towers, cables/conductors , transformers, insulators, etc) 2. Installation to be done by in-	reliable power supply to the green city	Kigali	8,000,000	EDCL	2024 - 2026	12,320	Risks 1,2,3,4 and 5

		house teams and/or contractors							
7	Karenge water treatment plant	1. Supply of electrical materials (poles, towers, cables/conductors , transformers, insulators, etc)2. Installation to be done by inhouse teams and/or contractors	reliable power supply to water supply system	Rwamagana	6,000,000	EDCL	2024 - 2025	9,240	Risks 1,2,3,4 and 5
8	Electricity supply to Kigali Innovation City	1. Supply of electrical materials (poles, towers, cables/conductors , transformers, insulators, etc) 2. Installation to be done by inhouse teams and/or contractors	reliable power supply to Kigali Innovation city	Gasabo	220,000	EDCL	2024 - 2025	339	Risks 1,2,3,4, 5, 6
9	Move from Overhead to Underground the MV line	Construction of MV underground line and associated connections.	Contribute to improved operation efficiency, reliability and safety	Kigali and secondary cities	5,000,000	EDCL	2024 - 2026	7,700	Risks 1,2,3,4 and 5
10	Upgrade/refurbish/extension of MV and LV lines and installation of new transformers and its connections	1. Supply of electrical materials (poles, towers, cables/conductors , transformers, insulators, etc) 2. Installation to be done by inhouse teams and/or contractors	Contribute to the improved operation efficiency, reliability, safety and quality of service delivery	Countrywide	2,000,000	EDCL	2024 - 2027	3,080	Risks 1,2,3,4 and 5
11	Linking MV feeders from different sources to create N-1, 2, -- solution by extension of MV lines	1. Supply of electrical materials (poles, towers, cables/conductors , transformers, insulators, etc) 2. Installation to be done by inhouse teams and/or contractors	Contribute to the improved operation efficiency, reliability	Countrywide	10,000,000	EDCL	2025 - 2027	15,400	Risks 1,2,3,4

1 2	Extension of fiber optic network using ADSS and/or OPGW and associated accessories to intensify the distribution grid automation	1. Supply of electrical materials (poles, towers, cables/conductors , transformers, insulators, etc) 2. Installation to be done by inhouse teams and/or contractors	Contribute to smart grid and improve reliability, availability , and efficiency of distributio n system through real time informatio n and quick action	n/a	5,500,000	EDCL	2024 -27	8,470	Risks 1,2,3,4
1 4	Purchase of materials/spare parts for power plants and/or substations	Supply of electro-mechanical materials/ spare parts for maintenance of power plants and/or substations	Maintain effeciency and availability of power plants and improve transmissi on operations	Coun tryw ide	5,000,000	EDCL	2024 - 2026	7,700	Risks 5 and 6
<b>Results Area 2: Increase access to on-grid, off-grid electricity and clean cooking to improve livelihood and social safety</b>					<b>145,800,000</b>			<b>224,532</b>	
1	Purchase of electrical materials (Transformers, Pre-paid meters, poles, cables and other accessories needed for connecting HHs/ grid densification in Kigali City	Connection of 25,000 new households to electricity through construction of MV and LV line and installation of transformers	105,000 new households connected to electricity country wide	CoK	22,000,000	EDCL	2024 -27	33,880	Risks 1,2,3,4 and 5
2	Purchase of electrical materials (Transformers, Pre-paid meters, poles, cables and other accessories needed for connecting HHs/ grid densification Northern Province	Connection of 21,000 new households to electricity through construction of MV and LV line and installation of transformers		Nort hern Province	20,600,000			31,724	Risks 1,2,3,4 and 5

3	Purchase of electrical materials (Transformers, Pre-paid meters, poles, cables and other accessories needed for connecting HHs/ grid densification Eastern Province	Connection of 20,000 new households to electricity through construction of MV and LV line and installation of transformers		Eastern Province	19,750,000			30,415	idem as above
4	Purchase of electrical materials (Transformers, Pre-paid meters, poles, cables and other accessories needed for connecting HHs/ grid densification Southern Province	Connection of 20,000 new households to electricity through construction of MV and LV line and installation of transformers		Southern Province	19,750,000			30,415	idem as above
5	Purchase of electrical materials (Transformers, Pre-paid meters, poles, cables and other accessories needed for connecting HHs/ grid densification in Western Province	Connection of 20,000 new households to electricity through construction of MV and LV line and installation of transformers		Western Province	19,700,000			30,338	idem as above
6	Provision of streetlighting to newly constructed roads (250km)	Provide streetlighting along: * Nyagatare-Base-Rukomo road * Huye- Kibeho road * Other roads Along these roads there are many business activities that streetlighting will allow them to operate beyond	Provision of security to improve livelihood and enhance business activities along the roads	Countrywide	18,000,000	EDCL	2024 - 2027	27,720	Risks 1,2,3,4 and 5

		the normal hours (From 6pm and beyond)							
7	Investment for productive usage for SMEs and e-mobility services	Connect 500 productive usage customers including schools, health facilities, irrigation projects, pumping stations, milk collection centres etc.	Provision of electricity to productive users and stimulate demand	Cout rywide	8,000,000	EDCL		12,320	idem as above
8	Construction of Low voltage lines and switching cabins to Gabiro Agribusiness Hub irrigation sites	Construction of MV and LV and transformers to Gabiro agro-business hub	Improved power supply and stability at the agri-business hub	Nyagatare	8,000,000	EDCL	2024-27	12,320	idem as above
9	Installation of stand-alone solar home system	the project will connect 25,000 households to Off Grid area countrywide	25,000 new households connected to off-grid solutions	countrywide	5,000,000	EDCL	2025-26	7,700	Risks 3 and 4
10	Distribution of improved clean cooking technologies to Institutions and households	Provision of 80,000 improved clean cooking technologies to Institutions and households countrywide. Technologies to be distributed are from Tier 3 and above.	Scale up usage of clean cooking technologies	Cout rywide	5,000,000	EDCL	2025-27	7,700	Risks 2, 3 and 4
<b>Results Area 3: Institutional strengthening and capacity building</b>					<b>5,000,000</b>			<b>40,000</b>	
1	Approval of the agreed capacity building program for the energy sector	Agreed capacity building program implemented	Approval of the plan and trainings	n/a	1,000,000	MINI NFRA	2024 - 2027	40,000	See Table 9: Needed capacity building plan for effective implementation of the ESSAP of RBF2

2	Facilitate the work of OAG as an independent verification agency (IVA)	Carry out the verification process of DLI's	Verification for DLI's done	n/a	2,000,000	MINI NFRA	2024-25	-	
3	Program Action Plan (PAP) Activities	Approval of PAP activities	Planned action plans well developed	n/a	2,000,000	MINI NFRA	2024-25	-	
	<b>TOTAL COSTS</b>				<b>202,520,000</b>			<b>344,181</b>	
<b>Risks and mitigation measures as defined in the ESSSSAP</b>									
<b>Risk 1:</b> Car accidents at project area during construction									
<b>Risk 2:</b> Inadequate Waste Management (resulting in water and air pollution...)									
<b>Risk 3:</b> Improper Vegetation Clearance and restoration									
<b>Risk 4:</b> Water pollution									
<b>Risk 5:</b> Occupational, Health and Safety (OHS) for workers and communities (to mitigate risks of accidents at work and in homes)									
<b>Risk 6:</b> Special risks during constructing/rehabilitation and operating power stations: risks of accidents at work, electrocutions for workers, destruction of substation due to erosion or inadequate water drainage, robbery, intruders, frequent electricity cut off due to rain, reliability and safety of electricity distributed to customers...									

## 1.6. Description of the borrower's experience in E&S risk management with the program.

REG, as the proponent implementation entity of the program, has the competence and experience to effectively implement the programme in compliance with all approvals.

As a matter of fact, REG (EUCL and EDCL) has experience in implementing similar projects (financed by various lenders/donors, such as World Bank, AFDB, Korean Fund for International Development, European Investment Bank (EIB), Agence Francaise de Development,...).

For instance, REG and its predecessor, EWSA (Energy and Water Sanitation Authority) have managed the Strategic Environmental Assessments (SEAs) of various programs: the SEA for the Electricity Access Roll out Program (EARP) conducted in 2012, and the SEA of the ongoing giant Rwanda Universal Energy Access Program (RUEAP). Since EARP is the predecessor of RUEAP, there are many lessons learnt from EARP that have been taken into consideration in the development and implementation of the SEA of RUEAP. Similarly, lessons learnt from RBF1 will contribute to improving development and implementation of RBF2.

Beside the above-mentioned SEAs, EDCL has also been implementing various Environmental and Social Impacts assessment of various energy projects, implementing similar activities like what is planned for RBF2, such as "Rwanda Scaling up Energy Access I Program (SEAP 1)", "Rwanda Transmission System Reinforcement and Last Mile Connectivity", both financed by AFDB.

Impacts, mitigation measures, alternatives and SEAs for EARP, RBF1, RUEAP and ESIA's of the above-mentioned projects provide recommendations applicable to the planned RBF2 during all phases of program activities to inform decision makers for the new program and ensure that

environmental and safety concerns will be appropriately integrated in each activity/sub-project of the program.

To ensure that E&S requirements of this program is effectively implemented, REG will hire or nominate an Environmental safeguard specialist of EDCL to supervise E&S mitigation measures and a Safety manager of EUCL to monitor safety precautions for activities of the program. Together with the Social safeguard specialist of RBF1, they will constitute an E&S team of this RBF2 program and work together to fulfil their respective responsibilities.

RBF2's E&S team, must have: a good working knowledge of all relevant safety, environmental and social policies, legislation, guidelines and standards both locally in Rwanda (or internationally as added value). They should have the ability to conduct inspections and audits and to produce thorough, readable and informative reports. They should also have the ability to manage public communication and complaints; to think holistically about the structure, functioning and performance of environmental systems; and have proven competence in the application of adapted integrated environmental management tools (Environmental Health and Safety guidelines, Environmental and Social Impact Assessment, Environmental and Social Management Plans, Environmental and Social Auditing, mitigation optimization of impacts, and the Monitoring and Evaluation of Impacts).

The RBF2's E&S team should be facilitated to carry out their duties. They should be involved in the implementation of the program at each phase: planning, design, procurement, monitoring construction works and inspections of assets during operation phase. They should seek assistance of E&S colleagues from similar projects or program and from EUCL whenever needed and work as E&S REG team, to harmonize their way of working and to learn and support each other.

REG should also develop and implement a capacity building plan in terms of E&S safeguard and EHS Safety measures during installations and maintenance of substations and LV and MV electrical lines.

## Section 2: Assessment of the environmental and social system of the program

### 2.1. Introduction

This section presents existing regulations, policies and institutions that will govern the implementation of the Rwanda – Energy Sector – RBF2 program. It refers to previous assessment done for the SEA of RUEAP conducted in 2021, and the SEA of RBF1 conducted in 2018, without any noticeable changes in terms of policy, legislation or regulations.

This section exhibits:

- national and international legislative and policies which will guide the implementation of the program,
- policies and institutions involved in the preparation and in the implementation of associated environmental and social safeguards instruments, and
- relevant legal and institutional arrangements that would hinder or guide the development of the program in line with national and international laws.
- international conventions signed by the government of Rwanda in line with national laws applicable to this program.

**Vision of the Energy sector:** the vision of the energy sector is to effectively contribute to the growth of the national economy and thereby improve the standard of living for the entire nation in a sustainable and environmentally sound manner.

The energy policy vision directly contributes to achieving Rwanda’s Vision 2050, medium and long-term goals. It also contributes to promoting Rwanda’s achievement of the Sustainable Development Goals (SDGs) especially poverty reduction, gender empowerment and sustainable growth.

The mission of the energy sector is to create conditions for the provision of sufficient, safe, reliable, efficient, cost- effective and environmentally appropriate energy services to households and to all economic sectors on a sustainable basis.

### 2.2. Political and legal framework for the country's environmental and social assessment

#### 2.2.1. National Legislations/Legislative framework

The Rwandan regulatory framework for environmental management is based on the Law on Environment (2018), which establishes a comprehensive legal framework to regulate the protection and management of the environment in Rwanda. In addition to general provisions, the law regulates the field of the natural environment (soil, subsoil, water resources, biodiversity, and atmosphere), the human environment, the obligations of the State and local authorities, community participation, incentives, control, monitoring and inspection as well as preventive and repressive measures.

In addition to this law, the environmental legal framework consists of a series of laws, decrees and orders including Law n° 70/2013 of 02/09/2013 Governing Biodiversity in Rwanda, Expropriation Law N° 32/2015 of 11/06/2015, Law n°21/2011 of 23/06/2011 governing Electricity in Rwanda, Law no

47bis/2013 of 28/06/2013 determining the management and utilization of forests in Rwanda among others.

**Table 4: National Legislative Framework relevant to RBF2 Program**

<b>The Constitution</b>	<b>Relevance</b>	<b>Compliance aspects</b>
Constitution of the Republic of Rwanda of 2003 revised in December 2015	It should be noted at the outset that, all laws and regulations in Rwanda must be aligned with principles in the Constitution. The Rwandan Constitution was approved in a national referendum and adopted in Parliament on 25 <sup>th</sup> December 2015. It defines the principles and overall legal framework for the management of the water, energy, land and agricultural domains.	This study assesses the project in a manner that signifies the impacts it will have on both the natural and social environment and to ensure the protection of sensitive environmental resources and social aspects.
Law on Environment No 48/2018 of 13/08/2018	<p>The most relevant legislation for this program is the Law on Environmental Protection, Conservation and Management. This law regulates the protection of environment in Rwanda, it sets out general legal framework for environmental protection and management in the country. It also constitutes environment as one of the priority concerns of the Government of Rwanda.</p> <p>Under the fundamental principle on national environmental protection policy, it develops national strategies, plans and programs, aiming at ensuring the conservation and use of sustainable environmental resources. The Relevance of this law lies in the fact that it empowers stakeholders to take legal actions against the developer (REG) for any negative environmental and social consequences that may result from the implementation of the current program.</p>	This study complies with the requirements for impact assessment and the consideration of the required environmental and social criteria.
Law governing biodiversity in Rwanda (N° 70/2013 of 02/09/2013)	Article 9 of the law governing biodiversity in Rwanda states that: “The control, containing and eradication of an invasive species shall be carried out by means of methods that are appropriate for the species concerned and the environment in which it occurs. Any action taken to control, contain and eradicate an invasive species shall be	This program is mostly not located in any Protected Areas, however, E&S risks assessment studies to be done prior to each sub project should consider flora and fauna resources and addresses

The Constitution	Relevance	Compliance aspects
	<p>executed with caution and in a manner that may cause the least possible harm to biodiversity and damage to the environment”.</p> <p>Article 34 on Impact assessment and expert evidence stipulates that before issuing a permit, the issuing authority shall, in writing, require the applicant to submit an independent environmental impact assessment or expert evidence.</p>	<p>how best to protect/preserve them, especially in Marshlands.</p>
<p>Law governing electricity in Rwanda as modified to date (No 52/2018 of 13/08/2018 – modifying law No 21/2011 of 23/06/2011)</p>	<p>This Law governs activities of electric power trading within or outside the national territory of the Republic of Rwanda. This law establishes a system of authorizing licenses for transmission, distribution and Sale of electric power (Art. 5). The license is obtainable after a due filled application and payment of a license fee as determined by the regulatory agency.</p> <p>Art. 8 under this law stipulates that the regulatory agency ensures prior to the issuance of a license, that the concerned individual or institution respect the rights of users and environment protection.</p> <p>Under this law, there is also an establishment of Universal Access Fund whose main purpose is to optimize access to electricity in all areas of the country through cost effective means and minimized support. A Presidential Order determines the functioning of the Universal Access Fund. With regards to the Right of Way (RoW), Art 47 provides for an authorization to operate in a public or a private domain to be granted for electricity transmission or distribution license holder. However, the Art 48 provides for an expropriation of right of way (RoW) for public interest. The right of way is necessary to the operators in production, transmission, distribution and supply of electricity. It shall be exercised in accordance with the standards set by the regulatory agency. Expropriation shall be</p>	<p>This program makes provision for the expansion of rural distribution lines to improve access to electricity. And the ESSA was prepared to safeguard the rights of users and the environment.</p> <p>In Urban areas, especially in the City of Kigali, MV and LV lines will be installed in the Roads reserve areas, no compensation will be required.</p>

<b>The Constitution</b>	<b>Relevance</b>	<b>Compliance aspects</b>
	<p>conducted in accordance with the Law governing expropriation for public interest.</p> <p>In case of issues arising from interference with property, Article 49 provides for their settlement and stipulates those complaints from license holders regarding interference with their property, including right of way, shall be brought to the regulatory agency for handling, and when deemed necessary, to the courts in accordance with laws</p>	
<p>Law determining the management and utilization of forests in Rwanda (N°47bis/2013 of 28/06/2013)</p>	<p>In rural areas, some proposed lines alignments might clear vegetation and trees. Construction activities entail clearing of trees to pave the way for power line erection activities.</p> <p>For aerial distribution lines, it is necessary to cut trees during maintenance of RoW</p>	<p>REG has the duty to conserve and protect forests and trees. They should consult local authorities and sensitize concerned communities/people to make sure that there are no prohibited activities that may negatively affect proper forest management or the communities.</p>
<p>Law n°49/2018 of 13/08/2018 determining the use and management of Water Resources in Rwanda</p>	<p>Law regulating the use, conservation, protection, and management of water resources. It defines the rules to the use, conservation, protection and management of water resources.</p>	<p>The program will be implemented in the context that avoids contamination of water resources or to overuse it, especially during construction phases of some activities of the program.</p>
<p>Law n° 027/2023 of 18/05/2023 amending the Law n° 66/2018 of 30/08/2018 regulating labor in Rwanda;</p>	<p>This law aims to improve health, safety, and general wellbeing of workers and workplaces by promoting occupational health and safe practices in order to eliminate occupational accidents and diseases, hence achieve better productivity in the workplaces.</p>	<p>The project activities will comply with this law by ensuring the labour rights, avoid the forced labour, providing equal opportunity for all, ensure equal pay for both man and women, and overall ensure that the workers have the employment contract among others</p>

<b>The Constitution</b>	<b>Relevance</b>	<b>Compliance aspects</b>
Law no 32/2015 of 11/06/2015 relating to expropriation in public interests	The Expropriation Law provides for public dissemination on the importance of the project to be established and the need for expropriation	During the construction of different MV lines, some trees and crops may be affected and will be compensated in accordance with this existing law

### **2.2.2. Policy framework**

**Table 4: Key national policies relevant to Rwanda - Energy Sector RBF 2 program**

<b>Policy</b>	<b>Relevance</b>	<b>Alignment to the policy</b>
The Vision 2050 and National Strategy for Transformation (NST1 2017-2024)	<p>The National Strategy for Transformation has among other outcomes, the “increased access to basic infrastructure (water, sanitation, electricity, ICT, Shelter achieved)”.</p> <p>Vision 2050 and NST1 shall enable the establishment of a viable infrastructure, which will be capable of addressing its current and future shortcomings and shall contribute to significant growth and economic development of Rwanda to achieve the development objectives that are set out in both policy documents for the benefit of the Rwandan people.</p>	RBF 2 program is a vital program that will contribute to the realization of Vision 2050 (through the NST1), with emphasis on the distribution of electricity to communities, to SMEs, to schools, Health centers... It will in turn boost the process of industrializing the country, diversifying economic activities in rural areas and creating employment, especially through the rehabilitation of substations and distribution lines in the City of Kigali.
The National Environment and Climate Change Policy (2019)	<p>This Environment and Climate Change Policy reaffirms the Government of Rwanda commitment to address climate change and find adaptation measures to face the potential hardships that climate change may pose to sustainable development of the country. The policy, therefore, seeks to provide strategic direction on environment and climate change in Rwanda, bearing in mind its linkages with the socio-economic development</p> <p>The policy provides guidance and direction in addressing the issue of climate change, while enabling the country to adapt and mitigate the effects of climate change.</p>	<p>Energy is mentioned as one of those sectors that the policy takes a key interest in.</p> <p>This ESSA provides for an assessment of the impacts of the project measured against criteria for sustainability, including health, quality of life, long-term sustainable socioeconomic development. The implementation of the program will impact on reduction of deforestation, through improved cook stoves, but also through distribution of electricity that might replace the</p>

Policy	Relevance	Alignment to the policy
		use of charcoal of wood as source of cooking energy.
Energy Policy (2015)	The purpose of the Energy Policy is to respond to the Rwandan population's energy challenges and needs for economic and social development within a viable and sustainable environmental framework.	This study recognizes that the generation, provision and distribution of energy in Rwanda is a key factor for economic growth and must be implemented in a sustainable manner, avoiding negative impacts as far as possible, and where not possible reducing such impacts through effective implementation of proposed mitigation measures. The policy recognizes the need to mitigate both physical, social and environmental impacts and risks.
The Rwanda Rural Electrification Strategy (2016)	This Strategy was developed with the objective of ensuring that Rwanda's households have access to electricity through the most cost-effective means by developing programs that will facilitate both the end users to access less costly technologies and increase private sector participation in the provision of these solutions	The RBF2 program has some activities linked distribution of in rural areas and it will, by that way, accelerate economic development.
The Energy Sector Strategic Plan - ESSP (2018/19 - 2023/24)	<p>The ESSP ensures effective delivery of the targets for the energy sector as set out under the National Strategy for Transformation (NST-1) and guides the implementation of the National Energy Policy (NEP). The ESSP thus functions as a plan that serves to translate policy directives and principles into concrete measures necessary to reach medium-term targets, reflecting current resource constraints and risk and uncertainties.</p> <p>This ESSP reviews the status of the energy sector and outlines high-level target objectives (HLTOs). These have been determined based on political ambitions and rigorous technical analysis. The HLTOs apply to all subsectors and serve to translate the policy goals laid out in the NEP and NST-1 into tangible outcome indicators achievable by the end of the NST-1 period (2018/19 to 2023/24).</p>	This ESSA recognizes that the generation, provision and distribution of energy in Rwanda is a key factor for economic growth and must be implemented in a sustainable manner, avoiding negative impacts and risks as far as possible, and where not possible reducing such impacts or risks through effective implementation of mitigation measures. The policy recognizes the need to mitigate both physical, social and environmental impacts and risks.

Policy	Relevance	Alignment to the policy
National Policy on EIA (2003)	EIA process operates within and towards the global concept of sustainable development. It is intended to achieve benchmarks and embrace commitment to international environmental conventions agreed upon in Ramsar (1971), Vienna (1985), Montreal (1990), Rio (1992), Kyoto (1998), and Stockholm (2001) to all of which, Rwanda is a party. EIA also provides a framework for promotion of efficient decision-making in project approval. Lastly, EIA enables implementation of environmental safeguards to mitigate significant negative impacts, avoid ecological damage and large-scale irreversible loss of natural resource.	The ESSA process confirms the environmental sustainability of the program and was undertaken in the context of compliance with existing laws and international legislations. Appropriate measures are recommended to mitigate the possible adverse impacts.
Biodiversity Policy (2004)	This Policy recognizes that Rwanda's viability is dependent on the conservation of its biological resources as these resources significantly contribute to livelihoods, food sovereignty, health, the environment, cultural diversity and the economy.	A system to conserve protected areas is proposed by the study. Degraded ecosystems if any will be restored and recovery of threatened systems will be promoted through the implementation of the program. All potential sources of impacts on biodiversity will be identified through the environmental assessment and appropriate mitigation measures will be recommended.
The National Wetlands Policy Management Policy (2015)	Sanctions are provided for the ones who: <ul style="list-style-type: none"> <li>• Clears or drains a wetland without a written authorization.</li> <li>• Erects, constructs, places, alters, displaces or destroys any structure that is in, under or on a wetland.</li> <li>• Disturbs a wetland by practicing boring or by excavating a tunnel in a way that is likely to have negative effects on a wetland.</li> <li>• Destroys, damages or disturbs any wetland in a way that is likely to have negative effects on plants, animals or their habitats.</li> <li>• Introduces any exotic plant or animal species that is likely to harm wetlands.</li> <li>• Draws the soil from the wetland or practices bushfire in the wetland.</li> <li>• Omits, neglects or refuses to protect shores against environmental degradation.</li> </ul>	This ESSA recommends identifying environmentally sensitive wetlands that might be impacted during implementation of the program. The E&S assessment to be conducted prior to implementation of each subprojects/activities, should take into consideration this policy and provide details on how impacts will be optimally managed to protect wetland resources

Policy	Relevance	Alignment to the policy
	<ul style="list-style-type: none"> <li>Pursues an activity subject to suspension or prohibition.</li> </ul>	
National Water Policy	This policy ensures sustainable management and development of water resources in a coordinated and integrated manner to secure and provide water of acceptable quality and quantity for all social and economic needs	This ESSA recognizes protection of water resources through prevention of water pollution from erosion, siltation, oil spills, creosote and sanitary.

### 2.2.3. Institutional Framework

The institutional framework for environmental management is currently enshrined in the Organic Law determining the modalities of protection, conservation and promotion of the environment in Rwanda, published in the Official Gazette RWA N° 9 of the 1<sup>st</sup> May 2005, particularly in its chapter III relating to the establishment of the institutions.

In Rwanda, the implementation of natural resources management and environment policies and sectoral strategies involves several stakeholders, including government state institutions, NGOs, civil society, the private sector, decentralized entities and donors.

Likewise, at regional levels, many actors in the five member countries are involved in carrying out environmental management interventions at different levels, using different modalities and applying different standards. To co-ordinate and harmonize different management approaches besides policies, laws, regulations, agreements and standards.

The country's institutional architecture for promoting environmental sustainability has also improved. The establishment of REMA in 2006 provided the country with the institutional machinery for supporting the implementation of the environmental policies and laws. REMA has helped to ensure the engagement of the population in development of Rwanda's environmental policies and laws.

Here below are key national institutions relevant to the RBF 2 program, with their mandate and their responsibility in the program.

**Table 5: Key national institutions relevant to the RBF 2 Program.**

Name	Mandate	Responsibility in the Program
Ministry of Infrastructure (MININFRA)	<p>The mission and purpose of MININFRA include among others to:</p> <ul style="list-style-type: none"> <li>Initiate, develop and maintain sustainable power generation facilities to supply clean, cost-effective and uninterrupted energy for the country and the region.</li> <li>To initiate programs aimed at increasing access to affordable energy, water and sanitation, and transport infrastructure and related services for the population.</li> </ul>	MININFRA has mobilized funds for RBF2. It ensures that the program complies with Energy related policies and regulations, orients and supervises the functioning and management of public institutions, agencies and companies under the Ministry, including the Rwanda Energy Group

Name	Mandate	Responsibility in the Program
	<ul style="list-style-type: none"> <li>• To ensure that the development of policies and strategies concerning national infrastructure are in line with regional integration and harmonization policies with the EAC.</li> <li>• To supervise the implementation of quality standards and norms, cost effectiveness, response to environmental sustainability, safety and cross-cutting issues in infrastructure development.</li> <li>• To supervise activities meant to elaborate, monitor and assess the implementation of national policies and programs on matters relating to habitat and urbanism, transport, energy, water and sanitation.</li> </ul>	(REG) and its subsidiaries (EDCL & EUCL).
Ministry of Finance and Economic Planning (MINECOFIN)	<p>MINECOFIN is responsible for Macroeconomic policy instruments, resource mobilization, and coordination of development partners and allocation of budgets to different Ministries and sectors.</p> <p>It is also concerned with mainstreaming natural resources and environmental concerns in the budgetary</p>	MINECOFIN is charged with overseeing and advising on the formation of various Funds to implement the RBF 2 program.
Ministry of Environment (MoE)	<p>The MoE is responsible for:</p> <ul style="list-style-type: none"> <li>• development of land use policy and laws.</li> <li>• development of environmental policies and procedures.</li> <li>• protection of natural resources (water, land, flora and fauna)</li> <li>• environmental legislation,</li> <li>• safeguard of biodiversity and other environmental aspects.</li> </ul>	To oversee environmental protection and compliance with environmental laws.
Rwanda Environment Management Authority (REMA)	<p>Under the supervision of the Ministry of Environment, REMA oversees management of the environment throughout Rwanda. The functions of <b>REMA</b> include:</p> <p>(1) to advise the Government on legislative and other measures for the management of the environment or the implementation of relevant international conventions, treaties and agreements in the field of environment, as the case may deem necessary</p>	<p>REMA has a cross-sectoral mandate to ensure that proper environmental safeguards are observed in the planning and execution of all development projects.</p> <p>REMA carries out its own monitoring through Inspectors and District Environmental Officers.</p>

Name	Mandate	Responsibility in the Program
	<p>(2) to take stock and conduct comprehensive environmental audits and investigations,</p> <p>(3) to prepare and publish biannual reports on the state of natural resources in Rwanda.</p> <p>(4) REMA as the Environmental Authority has the mandate to conduct environmental monitoring to make sure the recommendations of the Environmental studies and proposed mitigation measures are implemented</p>	<p>This will apply to the RBF2 program.</p>
<p>Rwanda Standards Board (RSB)</p>	<p>Rwanda Standards Board (RSB) is a public institution established by Rwanda Government Legislation N° 50/2013 of 28/06/2013.</p> <p>The law determining the mission, organization and functioning of RSB stipulates: to undertake all activities pertaining to the development of Standards, Conformity Assessment and Meteorology services in the country.</p> <p>It is the only body with powers to define and possess national standards. Public services and public or private firms must present their standards to RSB for adoption at national level. RSB publishes standards documents that establish specifications and procedures designed to maximize the reliability of the materials, products, methods, and/or services people use every day. Standards address a range of issues, including but not limited to various processes/systems to help maximize product functionality and compatibility, facilitate interoperability and support consumer safety, trade promotion and public health</p>	<p>The role of RSB in RBF2 program will be to ensure that the project's works, materials, equipment etc. are in conformity with established standards for electricity transmission and distribution.</p>
<p>Rwanda Development Board (RDB)</p>	<p>RDB is a government department that integrates all government agencies responsible for the attraction, retention and facilitation of investments in the national economy.</p> <p>RDB was established in 2009 to coordinate, spur and promote national economic development RDB deals also with issuing of EIA Certificate for investment projects.</p>	<p>Issuance of environmental compliance Certificate</p>
<p>Rwanda Energy Group Ltd (REG)</p>	<p>REG through: - <b>EDCL is mandated to:</b></p>	<p>REG is the overall Authority responsible for the implementation of the RBF2 program through its</p>

Name	Mandate	Responsibility in the Program
	<p>a) Increase investment in development of new energy generation projects in a timely and cost-efficient manner to expand supply in line with EDPRS and other national targets.</p> <p>b) Develop appropriate transmission infrastructure to evacuate new plants and deliver energy to relevant distribution nodes;</p> <p>c) Plan and execute energy access projects to meet the national access targets.</p> <p>- <b>EUCL the Energy Utility Corporation Limited (EUCL)</b> was incorporated to have devoted attention in providing energy utility services in the Country through operations and maintenance of existing generation plants, transmission and distribution Network and retail of electricity to end-user.</p>	<p>subsidiaries EUCL and EDCL.</p>
Administrative Districts (Local Government entities)	<p>The Ministry of Local Government has six programs and directorates that are mandated to implement the ministry's core mission of ensuring the coordination of good governance and high-quality territorial administration programs to promote economic, social and political development throughout the nation. The districts as defined local government entities, responsible for the provision of Access to basic services, including roads, electricity, water, sanitation, and solid waste management. Local governments have financial autonomy (fiscal decentralization); oversee implementing local projects; are encouraged to contract private operators for infrastructure O&amp;M; prepare and implement consolidated district development Plans.</p>	<p>The proposed program falls within the jurisdiction of several Districts across the country. The relevant Technical District personnel directly involved with the program may include the Vice Mayor for Economic Development, Vice Mayor Social Affairs, Infrastructure One stop Centre (OSC), District Environmental Officer, District Planner, Community Development Officer, Health Officer, Forestry Sector Land Manager, District and Sector Agronomists, District Water and Sanitation Officer and District Electrical Engineer.</p> <p>The districts will be especially engaged in management and maintenance of streetlights.</p>
Local community	<p>The purpose of the Community Development is to improve the climate for community development through Government support for</p>	<p>The community Environmental Clubs will play a key role in</p>

Name	Mandate	Responsibility in the Program
(Environmental clubs)	communities and to ensure that Government decisions, activities and outcomes are compatible with the principles of sustainable community development.	implementing this SEA by being consulted for empowerment, human rights, inclusion, social justice, self-determination and collective action.

## 2.3. International Legislations, Conventions and treaties

### 2.3.1. Environmental International Conventions

Rwanda is a signatory to a number of conventions on sustainable development and it is a member of various bilateral and multilateral organizations. This assessment has identified some of the relevant conventions and treaties that Rwanda ratified or signed.

Rwanda has signed and ratified the following environmental international conventions which are to some extent in line with this program and the national policies and laws:

- ✓ The international Convention on Biological diversity and its habitat signed in Rio de Janeiro in Brazil on 5 June 1992, as approved by Presidential Order No 017/01 of 18 March 1995;
- ✓ The CARTAGENA protocol on biodiversity to the Convention on Biological biodiversity signed in NAIROBI from May 15, to 26, 2000 and in NEW YORK from June 5, 2000 to June 4, 2001 as authorized to be ratified by Law No 38/2003 of 29 December 2003;
- ✓ The United Nations framework Convention on Climate Change, signed in Rio de Janeiro in Brazil on 5 June 1992, as approved by Presidential Order No 021/01 of 30 May 1995;
- ✓ The Kyoto Protocol to the framework on climate change adopted at Kyoto on March 6, 1998 as authorized to be ratified by Law No 36/2003 of December 2003;
- ✓ The RAMSAR International Convention of February 2, 1971 on Wetlands of International importance, especially as water flows habitats as authorized to be ratified by Law No 37/2003 of 29 December 2003;
- ✓ The STOCKHOLM Convention on persistent organic pollutants, signed in STOCKHOLM on 22 May 2001, as approved by Presidential Order No 78/01 of 8 July 2002;
- ✓ The ROTTERDAM International Convention on the establishment of the international procedures agreed by states on commercial transactions of agricultural pesticides and other poisonous products, signed in ROTTERDAM on 11 September 1998 and in New York from 12 November 1998 to 10 September 1999 as approved by Presidential Order No 28/01 of August 2003 approving the membership of Rwanda;
- ✓ The Basel Convention on the Control of Transboundary Movements of Hazardous wastes and their disposal as adopted at Basel on 22 March 1989, and approved by Presidential Order No 29/01 of 24 August 2003 approving the membership of Rwanda;
- ✓ The Montreal International Conventional on Substances that deplete the Ozone layer, signed in London (1990), Copenhagen (1992), Montreal (1997), BEIJING (1999), especially in its article 2 of London amendments and Article 3 of Copenhagen, Montreal and Beijing amendments as approved by Presidential Order no 30/01 of 24 August 2003 related to the membership of Rwanda;
- ✓ The Bonn Convention opened for signature on June 23, 1979 on conservation of migratory species of wild animals as authorized to be ratified by Law No 35/2003 of 29 December 2003

- ✓ The Washington agreement of March 3, 1973, on international trade in endangered species of Wild Flora and Fauna as authorized to be ratified by presidential Order No 211 of 25 June 1980.
- ✓ EAC Protocol on Environment and Natural Resources Management, 2006. Article 3 of this Protocol states that “it is a protocol of general application and shall apply to all activities, matters and areas of management of the environment and natural resources of the Partner States, including environmental impact assessment and environmental audits”;
- ✓ The EAC Regional Environment Impact Assessment Guidelines for shared ecosystems, 2005.

### 2.3.2. *International agreements*

The following table indicates different agreements, date of signature and date of ratification where Rwanda is a signatory

**Table 6: Environmental preservation related agreements**

Nr	Agreement	Date of signature	Date of ratification
1.	Agreement on the biological diversity	10/06/1992	18/03/1995
2.	Agreement in Context of the United Nations on the climate changes	10/06/1992	18/8/1998
3.	Agreement related to the fight against desertification	10/06/1992	22/10/1998
4.	The agreement Vienna on the protection of the ozone layer		6/12/2002
5.	Agreement of Ramsar related to humid zones of international importance particularly the wild housing	1971	6/6/2003
6.	International Agreement for the trade of the species in the process of disappearance (IATSPD)	20/10/1980	18/01/1981
7.	Conservation Agreement of the animals of the migrating wild species (CMS)	23/06/1979	06/06/2003
8.	African Agreement on the nature conservation and natural resources	15/09/1968	20/05/1975

### 2.3.3. *African Development Bank Integrated Safeguard System (ISS)*

#### 2.3.3.1. **Integrated Safeguard Policy Statement**

The Bank’s Integrated Safeguards Policy Statement sets out the Bank’s own commitments to and responsibilities for delivering the Integrated Safeguards System (ISS) to:

- (i) ensure the systematic assessment of environmental and social impacts and risks.
- (ii) apply the OSs to the entire portfolio of Bank operations.
- (iii) support clients and countries with technical guidance and practical support in 29 meeting the requirements.

- (iv) implement an adaptive and proportionate approach to environmental and social management measures to be agreed with clients as a condition of project financing.
- (v) ensure that clients engage in meaningful consultations with affected groups; and
- (vi) respect and promote the protection of vulnerable groups, in a manner appropriate to the African context.

### 2.3.3.2. Operational Safeguards (OSs)

The OSs are intended to:

- ✓ Better integrate considerations of environmental and social impacts into Bank operations to promote sustainability and long-term development in Africa;
- ✓ Prevent program from adversely affecting the environment and local communities or, where prevention is not possible, minimize, mitigate and/or compensate for adverse effects and maximized development benefits;
- ✓ Systematically consider the impact of climate change on the sustainability of investment projects and the contribution of projects to global greenhouse gas emissions;
- ✓ Delineate the roles and responsibilities of the Bank and its borrowers or clients in implementing projects, achieving sustainable outcomes, and promoting local participation; and
- ✓ Assist regional member countries and borrowers/clients in strengthening their own safeguards systems and their capacity to manage environmental and social risks.

Considering the program characteristics and the program area, operational safeguards triggered by the RBF2 program are the following:

**OS1: Assessment and Management of Environmental and Social Risks and Impacts:** OS1 applies to all projects, activities, and other initiatives for which Bank financing is sought.

It establishes the importance of:

- (i) the Borrower's existing Environmental and Social Framework in addressing the risks and impacts of the project.
- (ii) an integrated ESA to identify the risks and impacts of a project, activity, or other initiative
- (iii) effective stakeholder engagement through the disclosure of relevant information, consultation, and effective feedback.
- (iv) and the management of E&S risks and impacts, including climate risk and adaptation, by the Borrower throughout the lifecycle of operations.

The Bank requires that all E&S risks and impacts including climate vulnerability and adaptation of the operations be addressed as part of the ESA conducted in accordance with OS. OS 1 is relevant for the program as it governed the categorization of this program and the way this ESSA is being conducted.

**OS2: Labour and working Conditions.** This OS is informed by the International Labour Organization's (ILO) Declaration on the Fundamental Principles and Rights at Work, and the United Nations Guiding Principles on Business and Human Rights.

The objectives of OS2 are as follows: (1) To protect workers' rights. (2) To promote safety and health in the workplace. (3) To promote the fair treatment, non-discrimination, and equal opportunity of project workers. (4) To protect project workers, including vulnerable workers such as women, persons with disabilities, children (of working age, in accordance with this OS) and migrant workers, contracted workers, community workers, and primary supply workers, as appropriate. (5) To prevent the use of all forms of forced labour and child labour.

The scope of application of OS2 depends on the type of employment relationships between the Borrower and the project workers. The term project worker refers to: (i) people employed or engaged directly by the Borrower, including the proponent(s) of project/activities and the implementing agencies that carry out projects, activities or other initiatives, to work specifically on the project (direct workers). (ii) people employed or engaged through third parties to perform work related to the core functions of the project, regardless of location (contracted workers); (iii) people employed or engaged by the Borrower's primary suppliers (primary supply workers); (iv) people employed or engaged in providing community labour (community workers).

OS 2 is applicable to RBF2 program, since the program will employ various types of workers: direct workers, contracted workers, primary supply workers, ...

***OS3: Resources efficiency and pollution prevention:***

This Operational Safeguard (OS) recognizes that economic activities often cause air, water, and land pollution, and consume finite resources that may threaten people, ecosystem services, and the environment at the local, regional, and global levels. The current and projected atmospheric concentration of greenhouse gases (GHGs) threatens the welfare of current and future generations. In addition, more efficient and effective resource use, pollution prevention, and GHG emission avoidance, and mitigation technologies and practices have become more accessible and achievable. OS3 sets out the requirements to address resource efficiency and pollution prevention and management throughout the project life cycle in a manner consistent with Good International Industry Practice (GIIP).

The objectives of OS3 are as follows: (i) To promote the sustainable use of resources, including energy, water, and raw materials. (ii) To avoid or minimize adverse impacts on human health and the environment by avoiding or minimizing pollution from project activities. (iii) To avoid or minimize project-related emissions of short and long-lived climate pollutants. (iv) To avoid or minimize generation of hazardous and non-hazardous waste. (v) To minimize and manage the risks and impacts associated with pesticide use.

The choice of liquid to use as coolant in electric transformers should refer to this OS and avoid gas pollution. Power distribution lines might also be associated with activities that can pollute water resources. Inadequate disposal of used batteries of SHS or replaced transformers, ... can cause also water or air pollution. Therefore, OS3 is relevant to this RBF2 program.

***OS4: Community health, safety and security***

OS4 recognizes that projects, activities, equipment, and infrastructure can increase community exposure to risks and impacts. In addition, communities that are already subjected to impacts from climate change may also experience an acceleration or intensification of impacts due to a project or activities. OS4 addresses the health, safety, and security risks and impacts on project-affected communities and the corresponding responsibility of the Borrower to avoid or minimize them, with particular attention to people who, due to their particular circumstances, may be vulnerable.

The objectives of OS4 are as follows: (i) To anticipate and avoid adverse impacts on the health and safety of project-affected communities during the project or operation lifecycle from both routine and non-routine circumstances. (ii) To help promote public health and safety across the project's area of influence by, inter alia, promoting and supporting programmes that aim at preventing the spread of major communicable diseases. (iii) To promote quality and safety, and considerations relating to climate change in the design and construction of infrastructure, including dams. (iv) To avoid or minimize community exposure to project-related traffic and road safety risks, diseases, and hazardous materials. (v) To ensure that effective measures to address emergency events are in place. (vi) To ensure that the safeguarding of personnel and property through the provision of public or private security is carried out in a manner that

avoids or minimizes risks to the project-affected communities and in a manner consistent with international human rights standards and principles. (vii) To help prevent against sexual exploitation, abuse and sexual harassment (SEAH) of members of the community by project workers.

Construction of electrical lines, construction or rehabilitation of sub stations if not adequately done can have electrocution accident and damages of equipment in households. Inadequate management of the project area might have safety or public health impacts such as electrocution accidents, roads accidents...

Therefore OS 4 is applicable to RBF2 program.

***OS5: Land Acquisition, requisitions on access to Land and Land Use and involuntary resettlement.***

This is not applicable to RBF2 program, since there will be no activity requiring Involuntary resettlement.

***OS6: Habitat and Biodiversity conservation and sustainable Management of Living Natural resources.***

OS6 outlines the requirements for the Borrower to: (i) identify and implement opportunities to conserve and sustainably use biodiversity and natural habitats; and (ii) observe, implement, and respond to requirements for the conservation and sustainable management of priority ecosystem services. OS6 reflects the objectives of the Convention on Biological Diversity to conserve biological diversity and promote the sustainable management and use of natural resources. OS6 recognizes that protecting and conserving biodiversity and sustainably managing living natural resources are fundamental to sustainable development. Biodiversity often underpins ecosystem services valued by humans; hence, impacts on biodiversity can often adversely affect the delivery of ecosystem services. OS6 recognizes the importance of maintaining core ecological functions of habitats, including forests, and the biodiversity they support in a changing climate.

Construction of power distribution and transmission lines are always associated with vegetation clearing, cutting of trees. This should be appropriately mitigated and monitored for conservation of habitat and biodiversity, reason why the OS6 is triggered for this program.

***OS 7: Vulnerable groups: N/A***

***OS 8: Cultural heritage:*** This might be applicable through excavation works. Chance finding procedures will be used in case cultural heritages are affected by the program's activities.

***OS 9: Financial Intermediary: N/A***

***OS 10: Stakeholders Engagement and Information disclosure:***

The objectives of OS10 are as follows: (1) To establish a systematic approach to stakeholder engagement that will help Borrowers identify stakeholders and build and maintain a constructive relationship and channels of communication with them, in particular project-affected parties. (2) To assess the level of stakeholder interest and support for the project and to enable stakeholders' views to be considered in project design and E&S performance. (3) To promote and provide the means for safe, effective, and inclusive engagement with project affected parties, inclusive of women's perspectives, in an equitable manner, and vulnerable groups, in a manner free of reprisal, throughout the project life cycle on issues that could potentially affect them. (4) To enhance project benefits and mitigate harm to local communities. (5) To ensure that appropriate project information on E&S risks and impacts is disclosed to stakeholders in a timely, understandable, accessible, and appropriate manner and format. (6) To provide project-affected parties with accessible and inclusive means to provide input, raise issues, questions, proposals, concerns, and grievances, and allow Borrowers to respond to and manage such grievances. (7) To promote development benefits and opportunities for project-affected communities,

considering the needs of women, including vulnerable groups, in a manner that is accessible, equitable, culturally appropriate, and inclusive

OS10 applies to all the Bank Group's funded operations. The Borrower shall engage with stakeholders as an integral part of the project's ESA and project design and implementation, as outlined in OS1. Stakeholders' engagement for RBF2 program is handled in the next paragraph.

## **2.4. Public Consultation, disclosure, and access to information**

This paragraph describes regulations and the participation of stakeholders in the preparation of specific ESA documents, in the planning of investments/sub projects and in the implementation, communications and information dissemination mechanisms to all relevant actors and affected communities.

Public consultation, disclosure and access to information for RBF2 program shall be harmonized with what was recently done for RUEAP. The preparation of the SEA for RUEAP was done with Reference to relevant national and international requirements for stakeholder engagement and public disclosure.

The main elements of the approach developed by the EDCL Team to facilitate informed participation of RUEAP's stakeholders in the development of the studies were described, public information and consultation activities were performed at different stages of the studies, organizations and institutions reached were indicated and their concerns, and recommendations were reported.

Public consultations were primarily held during the Field visits and Literature review (Laws, strategies, policies decrees among others).

### **2.4.1. Stakeholders' engagement**

Authors of RUEAP identified key stakeholders, they held initial discussions with decision making bodies, sector institutions and specialist experts on the concepts and the nature of the proposed program, giving emphasis on levels of public participation, role of key stakeholders and joint contributions of these actors to the success of the program. In addition, the scope of the proposed program and possible means of maximizing local communities' social, economic, and environmental benefits from the implementation of the program were underlined.

As mentioned above, since RBF2 and RUEAP have similar activities, implemented by the same institution, there is no need of adopting different procedures for stakeholders' engagement. The same stakeholders should be kept and the same procedures to engage them should stay the same.

However, some stakeholders will be engaged by the RBF2's team, prior to each sub project, according to the location and the purpose of each sub project (especially for sub projects located in rural areas). However, institutions involved in this RBF2 program should be engaged in the approval process of this ESSA.

**Key stakeholders identified for consultation during preparation of RUEAP's SEA** include but not limited to the following:

#### **At national level:**

- ✓ Ministry of Environment (MoE)
- ✓ Ministry of Infrastructure (MININFRA)
- ✓ Rwanda Environment Management Authority (REMA)
- ✓ Ministry of Finance and Economic Planning (MINECOFIN)
- ✓ Rwanda Development Board (RDB)

- ✓ Rwanda Land Use and Management Authority (RLUMA)

**At local level:**

- ✓ Local Government Administration (Districts, Sectors, Cells and Villages)
- ✓ REG District Branches
- ✓ Potential Project Affected People (PAPs)
- ✓ Beneficiaries of the program

#### ***2.4.2. Public participation – methods and process***

For RUEAP, public participation and community consultation have been taken up and they should continue to be an integral part of social and environmental assessment process of the program. Consultation was used as a tool to inform program affected people, beneficiaries and stakeholders about the proposed activities both before and after the development decisions are made. It assisted in identification of the problems associated with the program as well as the needs of the population likely to be impacted. This participatory process helped in reducing the public resistance to change and enabled the participation of the local people in the decision-making process.

Initial Public consultation was carried out with administrative districts within the program area, key institutions involved in program implementation and land acquisition. Further consultations were done during the preparation and implementation of Resettlement Action Plans (RAP). The objectives of those consultations were to minimize probable adverse impacts of the project and to achieve speedy implementation of the program through bringing in awareness among the community on the benefits of the project. Since RBF2 doesn't plan to make expropriation or resettlement of people, this consultation is not needed.

During the Public consultation, the authors of the SEA of RUEAP applied different participatory methods, namely, interviews, face-to-face discussions, focused group discussions (FGD) and official meetings with stakeholders. Stakeholders consulted were informed on the proposed program and by using the key guiding questionnaires, the study was able to guide discussions and obtain relevant information on the likely impacts of the project activities. The same procedures should be used to make public consultations prior to implementation of RBF2 sub projects activities.

#### ***2.4.3. Tools used during public consultation***

✓ **Public hearings**

During the Strategic Environmental Strategy (SEA) of RUEAP, authors conducted public hearings in the surveyed areas across the country. Several meetings were conducted based on their occupation and locations. Examples of participant in the public hearings included local leaders (mayors, Executive Secretaries of the sectors, cells and villages), Traders, Teachers, Farmers, students, doctors, youth committees and women committees among others

✓ **Focus group discussions.**

The Environmental and social safeguards staffs employed Focus group discussions tool where it was possible to gather some important information that concerned the EARP and RUEAP activities, people from different walks of life participated in focus group discussions.

#### **2.4.4. Activities Performed during stakeholders' engagement**

The SEA report of RUEAP presents stakeholder engagement activities that were performed. It also highlights the stakeholders reached, key concerns, expectations and issues raised by stakeholders, and the stakeholders' comments on the SEA report.

**Round 1: Initial consultation meetings** as part of the environmental and social scoping exercise, with a limited number of key institutions or decision makers and other key informants. Informative and consultative meetings with local administrative authorities, government technical services and villages opinions leaders from the study area were also held. This exercise can't be applied for RBF2 before the approval of the program, but it should precede the initiation of each sub project by the RBF2's E&S team.

**Round 2 of consultations:** For RUEAP, this was performed through individual exchanges with key technical staff from each one of the concerned institutions, developer, districts, sectors and cells either physically or on the phone. The draft SEA report was shared by email to the representatives as per the signed attendance lists during the first phase of consultations. This was also seen as an opportunity to document any additional concerns or expectations raised by the stakeholders.

For RBF2, the draft ESSA will be first shared with E&S team of REG for inputs. A meeting should be held to discuss the input of the draft ESSA and to agree on which stakeholders will be involved in the review/approval of the ESSA before finalizing it.

#### **2.5. Grievance Redress Mechanisms (GRM)**

This paragraph describes the existing functional community conflict management mechanisms as described in one of the ESIA of a project implemented by REG.

In general, complaints are related to expropriation. In such cases, Article 33 and 34 of the Expropriation Law No 32/2015 of 11/06/2015 is adequately used: it provides complaints procedures for individuals dissatisfied with the value of their compensation. The Article 33 of the expropriation Law stipulates that dissatisfied persons have a period of 10 days from the application for counter valuation by the person to be expropriated. This application should be completed within 7 days after the approval of the valuation report by the expropriator. In practice, grievances and disputes that are most likely to occur during the implementation of a resettlement program are the following:

- ❖ Misidentification of assets or mistakes in valuing them
- ❖ Disputes over plot limits, either between the affected person and the Project, or between two neighbors.
- ❖ Dispute over the ownership of a given asset (two individuals claim to be the owner of this asset); e.g. due to recent change of asset ownership
- ❖ Disagreement over the valuation of a plot or other asset.
- ❖ Successions, divorces, and other family issues, resulting in disputes between heirs and other family members, over ownership or ownership shares for a given asset.

RBF2 program will not have expropriation or resettlement. These precautions are not applicable.

##### **2.5.1. Grievance Management Mechanism**

The experience has shown that many grievances derive from misunderstandings of the Project Policy, or result from neighbor conflicts, which can usually be solved through adequate mediation using customary rules. Most grievances can be settled with additional explanation efforts and some mediation using customary disputes settlement mechanisms:

- ❖ Through explanations (for instance explain in detail how the Project calculated the complainant's compensation and that the same rules apply to all); or
- ❖ Through arbitration, resorting to elders or individuals well regarded by the community and external to it.

In contrast, resorting to the judicial system often results in long delays before a case is processed, and may result in significant expenses for the complainant, and requires a complex mechanism, involving experts and lawyers, which can fall well beyond the complainant's control, and be counterproductive to him/her. Also, courts may declare themselves not competent for matters related to informally owned property. Therefore, the Project will put in place an extra-judicial mechanism for managing grievances and disputes arising from the resettlement process based on explanation and mediation by third parties. Each of the affected people will be able to trigger this mechanism, while still being able to resort to the judicial system.

Procedures relevant to this amicable mechanism are detailed below. It will include three different levels: (1) Registration of the complaint grievance or dispute case by REG in collaboration with local authorities; (2) Processing of the grievance or dispute until closure is established (within 15 days) based on evidence that acceptable action was taken by REG; and (3) In the event where the complainant is not satisfied with action taken by REG as a result of the complaint, an amicable mediation can be triggered involving a mediation committee independent from the Project.

### ***2.5.2. Amicable Resolution Mechanism***

Complaints that cannot be made to the complainant's satisfaction will be handed over to a mediation committee that will include the following individuals:

- One representative of the local Administration.
- One REG representative acting as an observer.
- Three representatives of the affected people, including at least one woman, chosen from the Resettlement and Compensation Committees (RCC) and/or amongst community-based organizations, elders, customary authorities,
- One representative of an NGO or of a religious organization present in the project area.

The main function of the committee would be arbitration and negotiation based on transparent and fair hearing of the cases of the parties in dispute between the Complaints and the implementing agencies for local government. The committee gives solutions to grievances according to the nature of the complaint.

### ***2.5.3. GRM Processing***

After a complaint or dispute has been registered, REG will prepare the technical background to the complaint (for instance, the nature of the complaint, the list of meetings and interviews with the complainant, a description of the exact reason of the dispute, etc.) for consideration by the mediation committee. The complainant(s) will be invited before the mediation committee, which will mediate and attempt to propose a solution acceptable to both parties (REG and the complainant). If need be, other meetings will be held and the committee may resort to one of its members to arbitrate in a less formal framework than meetings, if appropriate. If reached, the agreement will be sanctioned by a consent agreement signed by the parties, and the chair of the mediation committee will be responsible for monitoring the implementation of this agreement, which will include all references to the applicable local law provisions. Grievance resolution is encouraged to be resolved at Cell level, as they are aware of the complaint, they should be primarily involved in the whole process. If the grievance is not resolved in this

way, local courts (ABUNZI) should be used. If not resolved, then the high court or court of appeal of Rwanda remains an avenue for voicing and resolving these complaints.

#### **2.5.4. Grievance Redress Committee (GRC) and composition**

All interested stakeholders have developed a Grievance Redress Mechanism (GRM) for potential use. The aim of the grievance redress mechanism is to achieve mutually agreed resolution of grievances raised by stakeholders. This grievance redress mechanism ensures that complaints and grievances are addressed in good faith and through a transparent and impartial process, but also in a culturally acceptable way. As the GRM works within existing legal and cultural frameworks, it will be effectively implemented by a Grievance Redress Committee (GRC) which is organized in such a way that it will be composed by: local community representative, PAPs representative, local authority representative at village and cell levels, Contractor and Supervising firm representatives (if in place). As mandated by the law on gender equality, women representation will make up at least 30% of the GRC. All PAPs representatives will be directly elected by their peers and the number of members may vary depending on the context and particularities of each sub-project's characteristics.

**Table 7: Proposed Members of GRC and their respective roles under the project**

Nr	Member of GRC	Roles and responsibilities
1.	<b>President (PAPs representative)</b>	<ul style="list-style-type: none"> <li>✓ Chairing meetings.</li> <li>✓ Give direction on how received grievances will be processed.</li> <li>✓ Assign organizational responsibility for proposing a response.</li> <li>✓ Referring cases to next level.</li> <li>✓ Speaks on behalf of GRC and she/he is the one to report to the cell or the sector administration level.</li> <li>✓ Represents the interests of aggrieved parties.</li> <li>✓ Give feedback on the efficiency of GRM.</li> </ul>
2.	<b>Village Leader</b>	<ul style="list-style-type: none"> <li>✓ Represents local government at village level</li> <li>✓ Resolves and lead community level grievance redress</li> <li>✓ Sends out notices for meetings</li> <li>✓ Records all grievance received and report them to next local level</li> </ul>
3.	<b>Cell Executive Secretary</b>	<ul style="list-style-type: none"> <li>✓ Proposes responses to grievances and lead in resolving community grievance unsolved from village level</li> <li>✓ Records and reports all grievances received from village leaders</li> <li>✓ Chairs sensitization meeting at the cell level during public consultations meetings</li> <li>✓ Assists and guides in identifying vulnerable and disadvantaged groups within the cell.</li> <li>✓ Signs the valuations sheets for compensation facilitate a proper Resettlement Plan</li> </ul>
4.	<b>Women and youth Representatives</b>	<ul style="list-style-type: none"> <li>✓ Represent the interests of women and youth</li> <li>✓ Advocate for equity and equal opportunities</li> <li>✓ Help in prevention of sexual harassment and promote wellbeing of the women and youth</li> <li>✓ Take part in resolution of any grievance related to sexual harassment and any gender domestic violence that may arise</li> <li>✓ Mobilize women and youth to be active in income generating activities specifically for opportunities in the project's intervention areas.</li> </ul>

Nr	Member of GRC	Roles and responsibilities
5.	<b>Contractor representative</b>	<ul style="list-style-type: none"> <li>✓ Receive and log complaints/grievances, note date and time, contact details, nature of complaint and inform complainant of when to expect response</li> <li>✓ Handle complaints revolved around nuisance resulted from construction and endeavor to handle them satisfactory</li> <li>✓ Inform engineer (supervisor) and GRC of received complaints/grievances and outcomes and forward unresolved complaints/grievance to GRC</li> <li>✓ Attend community meetings, respond and react to PAPs complaints raised concerning the contractor.</li> </ul>
6.	<b>Supervising firm representative</b>	<ul style="list-style-type: none"> <li>✓ Represent REG</li> <li>✓ Ensure that all grievances raised have been responded to, and that the contractor responds to the complaints raised concerning them,</li> <li>✓ Attend community meetings and respond to all concerns related to the project from community</li> <li>✓ Report on the monthly basis the progress of GRM process.</li> </ul>

The same GRM should be applied to RBF2's sub projects. Special attention should be given to GRM for workers on RBF2's activities (being permanent staff of REG or temporary staff working under contracts or staff of the Contractors hired by REG on activities of this program).

## **Section 3: Assessment of REG's capacity and performance in implementing RBF2 Program**

This section provides information to assess the adequacy of the institutional organization and the division of labour and the likelihood that the objectives of applicable E&S management system meet their objectives. The section will also provide adequacy of the institutional capacities of the implementing agency to assume their responsibilities. Institutional capacities mean here: staff, budget, availability of implementation resources, trainings.... The section will further expose the effectiveness of inter-agency coordination arrangements when multiple agencies or jurisdictions are involved. For RBF2 program, there are no planned coordination arrangements planned for, but it is recommended that E&S team of REG work together to harmonize their procedures and standards.

In addition, the section will describe the performance of the executing agency in ensuring that rules and procedures are followed. Last but not least, the section will provide a summary of any gaps to be filled to ensure that the RBF2 program will manage E&S risks of subprojects in accordance with national requirements and those of AFDB.

As mentioned in previous sections, REG, as the implementation entity of the RBF2 program, has the competence and experience to effectively implement it in compliance with all approvals, because it has implemented similar projects or programs since many years (EARP, SEAP I, SEAP II (RBF1), SEAP I, RUEAP and the Rwanda Transmission System Reinforcement and Last Mile Connectivity).

### **3.1. Projects and programs implementing similar activities/sub projects like RBF2:**

#### **3.1.1. RUEAP and EARP**

Rwanda Universal Energy Access Program (RUEAP) is ongoing (from 2022 – 2027). It is a multi-funded program, financed by the World Bank and co-financed by AFD (joint co-financing), the OFID (parallel co-financing), SFD (parallel), and the Korean Fund for International Development (parallel). This multi-donor energy sector investment financing program will support the Government of Rwanda's energy access objectives during this period of the National Strategy. It runs in parallel with other projects and programs, which have similar activities (see below points 3.2. and 3.3).

RUEAP has a Strategic Environmental Assessment (SEA) developed in June 2021 and currently implemented and monitored by 8 E&S experts. That SEA was developed referring to the SEA done on predecessor program, namely Electricity Access Roll out Program (EARP), implemented by REG and its predecessor Energy and Water Sanitation Agency (EWSA) from 2009 to 2018. The SEA of RUEAP is the update of the SEA conducted for EARP approved by REMA in 2012.

While assessing the implementation of the SEA for EARP, it was realized that the key environmental impacts, mitigation measures, alternatives and SEA for EARP recommendations remain applicable to RUEAP during all phases of the program activities to inform decision makers for the new program and to ensure that environmental concerns will be appropriately integrated in each project and sub-project of the program. One of the key observations from the implementation of the SEA of EARP was that staffing for E&S risk management was one of the areas to strengthen. The gap was addressed in RUEAP's design: more E&S staff (8) have been hired for the new program.

From the assessment of the SEA of RUEAP, the following lessons were deducted and they should be used to improve the performance of RBF2 as well:

- ✓ Environmental and Social Assessment Procedures: carrying out Environmental and Social Assessment and preparing associated Environmental and Social Management and Monitoring Plan.
- ✓ ESAs and ESMP from RUEAP: RBF2 team to cooperate with E&S team of RUEAP in the implementation of ESMP and associated Monitoring plan for similar activities. RBF2 should not make duplications on what was already done through RUEAP. However, RBF2 might make some improvements to the ESAs or ESMP done for RUEAP whenever needed.
- ✓ Monitoring the implementation of ESSAP to be done by RBF2's E&S team with the support of the E&S team of REG.
- ✓ E&S independent verification will be performed by the OAG (as IVA of RBF2). For RBF2 program, there are 3 options to be considered, REG will choose one of them (see below)
- ✓ Cost for implementation of the ESSAP for RBF2 is directly linked to activities. This is one of the best ways to guarantee the implementation of ESSAP because E&S mitigation measures are concomitant to activities, participation of E&S staff at all stages of the project (from the design stage up to operation) is imperative. An estimated budget for implementation of E&S safeguards measures for each activity is provided in Table 3. It also allows to have
- ✓ Involvement of E&S staff should start with planning and be reflected in the procurement.

### ***3.1.2. Rwanda Scaling up Energy Access II Program (SEAP II)***

The Scaling Energy Access Program II (SEAP II) is one of the programs financed by the African Development Bank's using an innovative Results Based Financing (RBF) - which links the disbursement of funds directly to the delivery of defined results. The program is one of the few RBF programs financed by AfDB in Africa, as a pilot. It is under implementation since 2018.

The program development objectives are to improve the power supply reliability, increase on and off grid access in Kigali city and in the southern and western provinces and enhance institutional capacity for effective implementation of the Government's electrification program.

The RBF1 will contribute to four key results areas derived from the 8 sector priority areas of high-level targets of the Government of Rwanda's Energy Sector Strategy Plan (ESSP) 2017 - 2024.

The following outcome indicators are used to measure achievement of the Project Development Objectives (PDOs):

- (i)** *PDO Indicator 1:* Reduction in average number and frequency of electricity interruptions
- (ii)** *PDO Indicator 2:* Number of household and productive usage customers provided with on grid electricity service.
- (iii)** *PDO Indicator 3:* Number of people provided with off-grid electricity access.
- (iv)** *and PDO Indicator 4:* Improved planning and implementation capacity of the electricity sector (to support the achievement of above).

In line with the E&S requirements within the Board approved RBF instrument, a Strategic Environmental and Social Assessment (SESA) has been developed by the Bank to guide the program implementation unit (PIU), namely the Rwanda Energy Group (REG), to manage the identified environmental and social impacts associated with the program component activities especially under Program Areas 1, 2 and 3.

This SESA highlights the key environmental and social assessments and management plans developed jointly by the Bank and REG to guide implementation of the proposed program's component activities to

comply with both national and the African Development Bank's E&S policy requirements (Integrated Safeguard System- ISS).

From the analysis of the status of implementation of the ESMP of SESA for RBF1, it was noted that almost all proposed mitigation measures were implemented and following areas of improvements were proposed:

- ✓ **Road Traffic Impact Management:** This was regularly implemented by contractors and construction teams.

For RBF2, it is proposed to reinforce monitoring the implementation of the road traffic impacts plans by RBF2's E&S team through:

- ❖ Incorporating the "Development of road traffic and community safety management plan" in the TORs for recruitment of the Contractor (if needed). In case of inhouse team, REG should prepare among other: Management Strategies and Implementation Plans of a Traffic and Community Safety Management Plan.
  - ❖ REG to facilitate the E&S team in carrying out regular monitoring of the implementation and to ensure that permits to work are secured well before the construction begins.
  - ❖ Reinforce public awareness through social safeguard experts. Communities and customers to be affected by an activity/sub project should be informed about planned activities, the duration and associated impacts and risks and envisaged mitigation measures. The social safeguard experts should engage local authorities, security organs (if needed) and eventually organize meetings with all project stakeholders to raise awareness on what is planned.
  - ❖ The budget should consider field missions of social staff
- ✓ **Waste Management:** This was routinely implemented by Contractors and REG.

*REG has following special waste management procedures:*

- ❖ Replaced transformers are stored in Kanzenze storehouse, they are reinstalled to serve in places/sites with less customers
- ❖ Replaced cables are reused, when possible, otherwise, they are sold to companies habilitated to recycle old metals.
- ❖ Disposal of solar system batteries and electronics are done through Enviro-serve, a company in charge of e-waste management engaged by the Ministry of Trade and Industry of Rwanda (MINICOM) to dismantle or recycle e-wastes or return it to the manufacturer.

*The following are areas of improvement for waste management:*

- ❖ The requirement to develop "Waste management plan" for each activity, should be incorporated in the ToRs for recruitment of the Contractor (if hired), for inhouse work, REG will develop and implement a waste management plan (to be approved by the RBF2's E&S team).
  - ❖ REG to facilitate RBF2's E&S team carrying out regular monitoring of the implementation of the waste management plan.
  - ❖ The budget of the program should consider also field missions of RBF2's E&S team as done for engineers in charge of each sub activity.
- ✓ **Vegetation Clearance**

This was regularly implemented by contractors, but the following improvements for RBF2 program are proposed in future:

- ❖ Increase public awareness on cutting trees (close to electrical aerial cables during maintenance) and on vegetation clearance for installation of ground cables to concerned communities and customers.
- ❖ Explain to customers and concerned stakeholders about any changes during construction or maintenance of RoW, how long it would take, the effects it might have and the risks and impacts that will be mitigated and what is required by the PAPs or surrounding communities.

✓ **Water Pollution**

This was often partially implemented by REG and Contractors. More efforts should be done to avoid water pollution through inadequate management of human wastes of workers on sub projects by doing the following:

- ❖ REG should develop a human waste management plan on sites (standards for all contractors and for all construction activities, especially for construction of Transmission and distribution lines located in remote areas)
- ❖ REG and Contractors should imperatively provide drinking water and sanitary facilities, not only to avoid contamination of water, but also for their own health. The sanitary facilities should have hand washing facilities with soap to reduce contamination of waterborne diseases.
- ❖ Budget of each activity that need sanitary facilities should include cost of latrines, and their regular maintenance.

✓ **Worker occupational and Community health and Safety**

This was partially implemented by RBF1. More efforts should be made to comply with international standards of safety. The following are some areas of improvement that should be updated as the understanding of Environmental, Health, and Safety (EHS), Good practices for Electric Power Transmission and Distribution will increase:

- ❖ For each infrastructure requiring health and safety precautions, RBF2's E&S team should estimate the cost of tools and equipment needed and include the budget in the associated sub project/activity
- ❖ REG should facilitate E&S team to carry out regular sites monitoring to check compliance with EHS good practices for Electric Power Transmission and Distribution.
- ❖ E&S team, in cooperation with electrical engineers, should develop and implement local and regional emergency plans and local major outbreaks in case of infrastructure breakdowns, especially near roads or residential areas.
- ❖ REG should educate local populations about the safety of electricity installation in their homes and other electricity infrastructures and the need to use experienced and trained staff in electricity for installation in their houses. This should be part of REG's Stakeholders Engagement Plan (SEP).
- ❖ REG should ensure that all workers receive HSE induction training and that all of them have and wear properly the Personal Protective Equipment while on sites.
- ❖ Ensure that all sites have the site Health and Safety Officers trained in first aid and provided with complete first aid kit. The budget will cover the costs of the required tools and equipment and the budget for monitoring and inspections by the E&S team.

✓ **Recruit Dedicated safeguard staff to improve on capacity for SEAP II Implementation.**

For RBF1 program, it was required to hire one Environmental Safeguard specialist and one social safeguard specialist. However, only the social safeguard specialist was appointed to RBF1 program, what is not enough for a big program like this one. To improve the performance in the implementation of the ESSA of

RBF2, it is recommended to have Safety Manager from EUCL, an Environmental safeguard specialist from EDCL and the Social Safeguards specialist of RBF1 to assist in the implementation of RBF2 to ensure continuity. The 3 specialists will work and RBF2's E&S team, coordinated by Senior E&S staff, who will also be responsible for reporting to AFDB. It would even be better to involve the Quality Manager of EUCL to harmonize the standards of infrastructure developed by EDCL and the ones developed/managed by EUCL.

- ✓ **REG to Develop and Implement an Environmental and Social Management System (ESMS).** This activity was proposed in the ESMP of RBF1, but it was overlooked. It is recommended that REG and MININFRA consider this proposal, by seeking advice from the REG's E&S team on the importance and advantages of having such system for REG.
- ✓ **Capacity building:** a budget of USD 344,181 was proposed to cover costs of training on construction of health and safety, first aid, firefighting, emergency response drills, use of PPE including HIV, but it's not sure if that budget was availed by the coordination of the program. For RBF2, it is proposed that costs of health and safety tools, equipment... should be integrated in the costs of associated activity/sub project to make sure that they will not be overlooked. The same apply for capacity building on health, safety and environmental matters, which should be integrated in the capacity building of the RBF2 program.

### ***3.1.3. Rwanda Transmission System Reinforcement and Last Mile Connectivity***

*“Transmission System Reinforcement and Last Mile Connectivity Project”* is a project financed by Africa Development Bank since 2020. The overarching objective of this project is to reinforce the Rwanda transmission network and improve the rate of access to electricity supply for the people of Rwanda. The specific objective of the project is to strengthen the Rwanda transmission network and improve the rate of access to electricity supply especially for regional industrial parks, Bugesera Airport and several productive use centers.

An ESIA of this project was conducted and approved by REMA in 2020. It is still under implementation and the following can be learnt from that ESIA:

There has been a power system analysis of the transmission line and substation using PSS/E and/or Dig SILENT power system analysis models which justified the project benefits in terms of technical loss reduction, transit capacity enhancement, safety (N-1), robustness, stability, etc. The simulations quantified these advantages and disadvantages.

The project should generate quantifiable and non-quantifiable technical and economic benefits.

As part of the economic analysis of the project, the ESIA considered, among other things, the following benefits:

- ✓ Reduction of technical losses; because of better load distribution.
- ✓ The increase in energy supply, caused by access to the network of previously unmet customers because of the capacity limit or the quality of delivery.
- ✓ Reduction of CO2 emissions through access to the network of new customers.

On the other hand, the ESIA provided professional information on:

- ✓ Operation and maintenance of RoW,
- ✓ An analysis on alternatives of airlines versus ground lines
- ✓ Impacts of electrical substations
- ✓ Grievance Redress Mechanism

- ✓ ESMP of the project

ESIA of this project is well elaborated, it can be utilized in the E&S risks and impacts assessment and recommended mitigation measures of activities related to construction of distribution and transmission lines, in construction and rehabilitation of substations.

### 3.2. Activities performed by the 4 main projects/programs like RBF2 Program.

**Table 8: Activities performed by the 4 main projects/programs compared to RBF2 Program**

Nr	Project/Program	Components/Activities
1	<b>RBF 2</b> (from 2024 to 2027) <i>(ESSA under preparation)</i>	<b>Results Area 1: System reliability and Network Strengthening</b>
		Construction/rehabilitation of electrical cabins/sub stations
		Construction of MV and LV lines
		Change of Overhead to Underground MV & LV Network in Developed Urban Areas
		Piloting use of 15kV <b>Overhead Insulated cable</b> for MV overhead power lines in Kigali city
		<b>Results Area 2: Increase access to on-grid/off-grid electricity to improve livelihood and safety.</b>
		Connection of new customers to electricity through construction of MV and LV line, installation of transformers.
		<b>Provision of streetlighting to newly constructed roads</b>
		Installation of stand-alone solar home system (SHS) to households
		<b>Results Area 3: Institutional strengthening and capacity building</b>
2	<b>Electricity Access Roll out Program (EARP)</b> (from 2009 to 2018) <i>SEA conducted and approved by REMA in 2012</i>	<b>Component 1: Grid Roll-out</b>
		Medium Voltage (MV) and Low Voltage (LV) grid reticulation
		Distribution grid strengthening and rehabilitation
		Customer (households, institutions...) connections including partial subsidies
		<b>Component 2: Green connection</b>
		<b>Improve affordability for the consumers: Compact Fluorescent Lamps (CFLs)</b>
		<b>Promote use of solar hot water heaters (mainly in Household)</b>
<b>Component 3: Technical assistance, capacity strengthening, and implementation support</b>		
3	<b>Rwanda Universal Energy Access Program (RUEAP)</b>	<b>Component 1: Increasing access to grid electricity</b>
		Grid connections for households, commercial, industrial, public institutions....
		<b>Component 2: Improving grid reliability and operational efficiency</b>
		Ensure availability of low-cost renewable energy generation in Rwanda, through the rehabilitation of the Ntaruka HPP

Nr	Project/Program	Components/Activities
	<i>(SEA updated in 2021 from EARP's SEA)</i>	Installation of automatic voltage regulator on 220kV system networks, Installation of power system stabilizers and governing systems on main generator.
		Completing installation of smart metering for all distribution transformers and medium/large customers.
		<b>Component 3: Catalyzing private investment in off-grid electricity access and clean cooking</b>
		Off-grid solar connections to reach poorer and more remote areas
		Clean cooking solutions done in partnership with BRD)
		<b>Component 4: Technical assistance, institutional capacity building, and implementation support.</b>
4	<b>Rwanda Transmission System Reinforcement and Last Mile Connectivity</b> financed by AfDB <i>(ESIA developed and approved in 2020)</i>	<b>construction of 110kV lines and Substations to improve the quality of electricity supply in Rwanda and strengthen the backbone of the transmission network</b>
		Construction of 5 new power lines (110 KV transmission lines)
		Construction of 7 new substations in Bugesera, Huye, Kirehe, Gicumbi and upgrade 3 other substations in Rukara and Rilima
5	<b>Rwanda Scaling up Energy Access II Program (SEAP II)</b> <b>Or RBF1</b> From 2017 – 2024 <i>(SESA developed in 2017)</i>	<b>Results Area 1: Improve reliability of electricity supply</b>
		Distribution system expansion and upgrading of the 30/15kV lines
		Upgrade of substations and installation of SCADA/DMS system
		<b>Results Area 2: Increase on-grid access for household and productive usages</b>
		Connecting additional customers in Kigali city and countrywide (construction of MV and LV lines, installation of transformers...)
		<b>Results Area 3: Increase off-grid access to renewable energy</b>
		Off-grid solutions such as solar home systems (SHS) in isolated rural HH in Southern and Western provinces
		<b>Results Area 4: Institutional strengthening and capacity building</b>

### Observations and conclusions:

As can be observed from the above comparison table, REG has extensive experience in following activities planned to be performed by RBF2:

- construction of MV/LV lines and the construction or rehabilitation of sub stations which are performed in all the 4 projects/programs (EARP, RUEAP, RBF1, Last mile connectivity...)
- Provision of SHS done by RUEAP
- Clean cooking done by EARP and RUEAP

It is in that regard that it is confirmed that REG is qualified in the implementation of RBF2 program.

Lessons learnt from all these projects and program as described under 3.1 above, will contribute to optimizing the performance of REG in their operations. REG is becoming an expert in that domain and encouraged to push the application for accreditation in the domain.

### **3.3. Roles and responsibilities in the implementation of the ESSA of RBF2**

#### ***3.3.1. Role of the Project Implementation Unit (PIU).***

The PIU will be embedded in REG. The PIU shall be responsible for oversight the role and the implementation of mitigation measures in this ESSA and in general compliance of the program with any permits, licenses and Approval Conditions and related regulations and standards on environment. The Unit will be responsible for ensuring that, the program facilities comply with the environmental and social requirements as shall be detailed in the contract documents as well as with other guiding contractual provisions and documentations.

#### ***3.3.2. The Role of REG***

REG will be responsible for the implementation of the Program through contractors or by EUCL. To ensure that implementation of E&S requirements of this program is effectively implemented, REG will support the above called RBF2's E&S team.

The RBF2's E&S team should have the basic training and experience in environmental, social and safety issues. They should be involved in the implementation of the program at all stages and provide expert advice to contractors on how to effectively implement the required safeguards measures under the program. REG will be responsible for contract management to ensure that the contactors adhere to their contractual obligations and that they are compliant with the environmental, health and safety standards as spelt out in their contracts. The ESMP of each sub project/activity should be integrated in the tender documents. However, to increase the capacity of the RBF2's E&S team, it is proposed to organize some short-term technical assistance to increase their capacity in the implementation of the program through specialized trainings, equipment and tools whenever needed.

#### ***Specific Role of RBF2's E&S team:***

The E&S team should have a good working knowledge of all relevant safety, environmental and social policies, legislation, guidelines and standards both locally in Rwanda or internationally and the ability to conduct inspections and audits and to produce thorough, readable and informative reports; the ability to manage public communication and complaints; the ability to think holistically about the structure, functioning and performance of environmental systems; and proven competence in the application of integrated environmental management tools (including but not limited to: Health, Safety, Environmental and Social Impact Assessment, Environmental and Social Management Plans, Environmental and Social Auditing, mitigation optimization of impacts and Monitoring and Evaluation of Impacts).

The team should be facilitated to perform their duty by providing all needed logistics and financial resources.

REG should facilitate the implementation of a special capacity building plan in terms of E&S safeguard and Health and Safety measures during installations and maintenance of substations and LV and MV electrical lines, for E&S staff and for other workers involved in such activities/sub activities.

### ***3.3.3. Role of Rwanda Environmental Management Authority (REMA)***

REMA is specifically mandated by the National Environment Act as the principal agency in Rwanda. It is charged with the responsibility of monitoring, supervising, and regulating all environmental management matters in the country. One of the key institutional mandates of REMA includes among others ensuring the observance of proper safeguards in the RBF2 Program planning and execution of all development sub projects including those already in existence that have or are likely to have moderates impacts on the environment.

The role of REMA will be to monitor the RBF2 program's implementation in accordance with the provisions of the Act and the respective regulations, through its collaboration with OAG, which will carry out Independent Verification of compliance with E&S safeguards measures. Both REMA and OAG, confirmed their cooperation in the matter. OAG has internal capacity to carry out E&S audits and E&S verifications, when needed, they will hire E&S experts to support the internal team. ToRs for E&S verification will be shared to OAG prior to project implementation, they will be shared with REMA for inputs. Similarly, the E&S verification report will be shared with REMA for inputs, but it will stay the property of OAG.

### ***3.3.4. District Local Authorities***

District and Local Council in project Districts will be vital in the implementation of the program's activities/sub projects in terms of mobilizing political goodwill and sensitizing communities about the program's activities. Involvement of District Environment Officers (DEOs) is imperative because they will be taking care of environmental and social aspects of the program at their levels.

The DEOs in the respective areas of the program implementation will monitor the program's activities to ensure that E&S mitigation measures are adequately implemented. The DEOs might also be consulted by the RBF2's team to review ESMP of all sub projects prior to implementation. The DEOs will also ensure that the program activities are implemented in accordance with ESMPs of each subproject, they might also be consulted to provide comments on the ESMP implementation reports. The DEOs might attend the monthly site meetings for subprojects and be able to point out issues of concern.

### ***3.3.5. The local leaders***

The local leaders in the project areas will have a role on matters of helping contractors access land for the program's facilities set ups. They will be key in aspects of labour identification and endorsements. The local leaders will support law enforcement agencies in curbing crime during program implementation. They should facilitate communication and awareness campaigns to local populations whenever needed, especially the stakeholder's engagement and the Grievance management.

### ***3.3.6. The Role of the Contractors***

Some activities/sub projects will be implemented by EUCL, others will be implemented by Contractors.

The Contractors and EUCL will be responsible for complying with all relevant legislation and adhere to all mitigation measures specified in the ESSA and its action plan. REG will therefore ensure enforcement of mitigation measures which will be enshrined under contractual obligations.

The contractors will be obliged to have resources to ensure implementation of environmental, social and safety management obligations in the contract (ESMP to be developed for each sub project/activity shall be part of the Contract) through hiring Environmental and Social Management Specialists to operationalize the environmental and social requirements in the ESMP and supporting documentation.

### ***3.3.7. Role of Supervising Consultants***

In case a supervising Consultant will be hired, they should be required to have in their teams at least Environment and Social Management Specialist who will have overall responsibility of ensuring that, project implementation process complies with the ESMP of each sub project as well as the contract provisions. The Environmental and Social Management Specialists of the supervising Consultant shall work closely with REG Environmental and Social Safeguards Team in supervising the contractor. In addition, the Contractors will conduct scheduled site supervisions to monitor state of environmental compliance as documented or executed by the Contractors' Environmentalists. The Supervising Consultants will have obligation to also oversee RBF 2 program's compliance and observation of health and safety and labor requirements alongside other cross-cutting issues in the project.

## **3.4. Institutional capacity strengthening**

Capacity strengthening of institutions involved in environment management is paramount.

Concerned Districts in rural areas could be strengthened to develop their capacities in environment management. Capacity development sessions shall be organized for Districts' staff in charge of environmental issues, which will make it possible to monitor and assess action taken.

Special capacity strengthening will be needed in the management and maintenance of streetlights and in the management and maintenance of Household Solar System.

Facilities will be given to partners that are involved in monitoring and evaluation of mitigation measures.

## **3.5. Environmental Awareness and Training Plan**

Training will be mostly based on environmental laws and regulations in force in the country, but also on the best practices in terms of environmental risk management including:

- Training on sensitization about awareness of risks associated with construction and operation of the subprojects, especially during the construction phase of electrical lines. Those in charge of monitoring and evaluation of mitigation measures will have to receive training in those areas.
- EHS for distribution lines and associated sub stations (during operations)
- Maintenance of RoW through tree removal..., vegetation clearance, ...
- Watercourse and swamp protection.
- Hazardous material management (including old batteries of solar system).
- Waste management.
- Staff in charge of environment in Districts should receive training to strengthen their capacities to fulfill their roles, especially in safety of electrical installations.

- Employees of this program should receive specific training for accident prevention and hazards precautions and procedures for the safe storage, handling, transport and use of potentially harmful materials that are relevant to each employee's job task and work area.
- Training will also be given on emergency response systems and procedures including the location and proper use of emergency equipment, use of personal protective equipment, procedures for raising the alarm and notifying emergency response teams, and the proper response actions for each foreseeable emergency situation.
- Daily safety and environmental briefings include inspections of personal protective equipment (to be conducted by relevant supervisors or shift bosses).
- Safety and environmental induction will be carried out for new employees and for any person arriving on site after a break exceeding two weeks or any contractor arriving on site. The safety induction will mainly cover: the use of personal protective devices, dangerous areas, appropriate conduct, emergency response procedures and waste management.
- The following should be part of the Environmental Awareness and Training Plan Purpose and Scope: All employees will be required to comply with environmental protection procedures and therefore proper training shall be given to workers. The training program aims to ensure that the program employees:
  - ✓ Are aware of the environmental issues associated with the program/sub projects.
  - ✓ Understand their responsibilities with respect to these issues.
  - ✓ Are aware of the potential of liability if adequate and reasonable (due diligence) measures are not taken to protect the environment and the safety of workers and communities.
  - ✓ Understand requirements for protection of the environment, best safety management practices and avoidance measures; and
  - ✓ Are aware of the relevant regulations and guidelines.

**Delivery:** Classroom training should preferably be given to workers before they are assigned on construction work; this can coincide with health and safety orientation.

**Short, follow-up sessions** should be delivered on ground as required. Environmental and safety awareness messages shall be posted in the field office(s).

## Section 4: Environmental & Social Safeguards System Strengthening Action Plan (ESSSAP)

This section includes a summary of the main actions to be undertaken during implementation, recommended actions that should assist counterparts to improve the performance of their system within their own defined procedures. It embraces specific mitigation measures to deal with impacts, or organizational measures to improve the overall effectiveness of the implementation of the program. The recommendations are incorporated into the planned program of action, detailing institutional responsibilities, timing, and indicators of achievement of actions.

### 4.1. Introduction

As explained in section 3, REG has extended experience in implementing projects and programs, which are comparable activities like RBF2 program. The proposed actions to improve the performance of their system described in this section, are based on:

- 1) the recommendations from the site visit carried out on 12/09/2024,
  - 2) the meeting with E&S staff of REG on 17/09/2024,
  - 3) the meeting held with REG and MININFRA on 24/09/2024.
  - 4) the literature review of the Strategic Environmental Assessment (SEA) of EARP,
  - 5) Literature review of the SEA of RUEAP,
  - 6) Literature review of the SEA of RBF1
  - 7) Literature review of the ESIA of the Rwanda Transmission System Reinforcement and Last Mile Connectivity,
- and the 8) recommendations from “*Environmental, Health, and Safety (EHS) Guidelines for Electric Power Transmission and Distribution*”.

### 4.2. Main actions to be undertaken during implementation of RBF2

#### 4.2.1. Develop and implement ESMS for REG

While assessing the implementation of the ESMP of RBF1, it was requested to develop and implement an ESMS for REG. This suggestion is again fully supported by this ESSA, but it remains in the responsibility of the management of REG and MININFRA to decide.

**ESMS stands for Environmental and Social Management System.** According to IFC, ESMS helps companies to integrate the rules and objectives into core business operations, through a set of clearly defined, repeatable processes. As a matter of fact, nowadays, there are thousands of environmental and social codes and standards in the world. The codes and standards define the rules and the objectives, but the challenges are often in implementation. ESMS is a tool that can contribute to addressing those challenges faced during the implementation.

## **Benefits of an ESMS for Company:**

As mentioned above, today, companies are confronted with several significant environmental and social challenges. However, none of the challenges is insurmountable. However, if not effectively assessed and managed, they will hurt the company's profitability, reputation, and prospects for future business. Among these challenges are increasing energy and raw materials costs, the growing power and influence of environmental and labor regulatory agencies, and rapidly evolving consumer awareness and concerns about environmental and social issues. These risks are in addition to the primary risk of failing to meet the companies' business goals or build brand and consumer confidence. All these risks ultimately have financial consequences. Moreover, exports and international exposure are vital to the success of many businesses; but exporting your goods and services also increases demands from international legislation, local industry standards, and consumer requirements, this applies to REG, which plans to export its services in other countries. Many of these requirements are increasingly related to environmental and social practices. All these risks, requirements, and pressures on business are driving forces that should motivate companies to implement a management system.

A management system enables the Company to consistently foresee and address issues confronting its business so it can prevent potential risks from becoming actual problems. Implementing ESMS can have direct business benefits. For example: conserving and using energy and materials more efficiently helps to reduce production costs, reducing waste and discharges, and recycling can minimize costs of waste disposal, which have been steadily increasing over time. In fact, a company can convert certain organic waste into fuel or energy to maximize sustainability and cost savings for its business. A management system can help the company to build processes to benchmark its expenditures against industry standards and identify potential production and operational cost savings.

The same tangible benefits can be realized on the social side: clear, transparent human resource policies and procedures improve communication between workers and managers. This helps to anticipate and avoid labor problems. Effective Occupational Health and Safety (OHS) management procedures will enable the company to identify workplace and process hazards so it can eliminate them or reduce their potential negative impacts. This can not only reduce injuries and fatalities but can also lead to bottom-line business benefits such as reduced absenteeism and worker turnover, and lower insurance premiums for workers' compensation.

Many companies already use management systems for quality control. An ESMS simply extends that approach to the management of the Company' business's impact on the environment, its workers, and other external stakeholders.

Ultimately, the Company management systems should be integrated and centralized in one comprehensive system, instead of having separate systems for quality, occupational health and safety, and the environment.

***Recommendations on development and implementation of an ESMS for REG:*** More research should be carried out by the E&S team of REG to advise decision makers in the matter.

From the brainstorming session done with the E&S team, the following was suggested:

REG should develop and implement ESMS for REG through following actions:

- ✓ Preliminary training of the E&S team of REG on ESMS (Benefits of ESMS, Understanding ESMS, key components of ESMS, implementation and evaluation of an ESMS...). This will allow the E&S team to effectively and actively draft the ToRs, review and evaluate the ESMS that would be developed by the independent consultant.
- ✓ Recruit Consultant to develop ESMS
- ✓ Review and approval of ESMS

- ✓ Disclose and Implement the ESMS of REG (through the implementation of an ESMS implementation plan).
- ✓ Reinforce the capacity building of REG staff in implementing the ESMS through training of E&S team, training of REG's management staff, training of REG staff on EHS matters, awareness of REG's customers and other stakeholders.
- ✓ Apply for international accreditation (as part of ESMS implementation).

#### ***4.2.2. REG to agree on guidelines and standards to comply with, while designing, constructing and maintaining power stations and MV and LV lines***

REG has extended experience in constructing, rehabilitating and maintaining power stations and MV&LV lines, through various projects, programs and even by EUCL through its ordinary operations as utility company. Projects and programs do it following implementation of ESIA's and SEAs, but all of them should lead to the same standards and guidelines.

It is in that regard, that based on experiences, practices of REG and the “**Environmental, Health, and Safety (EHS) Guidelines for Electric Power Transmission and Distribution**”, following standards and procedures are proposed:

##### *4.2.2.1. Specifications of electrical Smart substations*

During the implementation of RBF2, it is planned to construct or to rehabilitate 2 two main types of electrical substations:

**Transmission substations** which contain high-voltage switches used to connect high-voltage transmission lines or to allow specific systems to be isolated for maintenance.

**Distribution substations** are used to transfer power from the transmission system to the distribution system. Typically, at least two sub transmission lines enter a distribution substation, where their voltage is reduced to a value suitable for local consumption. Distribution substations can also be used to isolate faults in either the transmission or distribution systems. Complicated distribution substations containing high voltage switching, and backup systems are often located within large urban centers.

Design, construction/rehabilitation, operation and decommissioning of substations will depend on the size, the type and eventually with EHS risks associated with each activity to be undertaken.

Here below, is a preliminary specification of a “Smart station” to be developed during RBF2 program, to be improved by the E&S team of REG as knowledge and experience in EHS matters arise. Those specifications constitute indicators verified during the E&S monitoring system.

##### ***Specifications of SMART SUBSTATIONS:***

- ✓ **Fenced** (to avoid robbery or any other intrusions that might disturb the stations)
- ✓ **Covered** (to avoid the impacts of rain on the stations and consequently on power cut off, which affects customers' reliability on electricity)
- ✓ **Rest rooms:** each substation should at least have a rest room for workers. For big stations with permanent staff, there should even be more rest rooms for women and men and a changing room.
- ✓ **Safety signs**
- ✓ **Security room**
- ✓ **Water drainage and retaining walls** to avoid the impacts of inadequate water management near or within the station

- ✓ **Graveling, paved or/and green compound,**
- ✓ **Safety equipment** (including fire extinguisher, handling kits and other PPE, ...)
- ✓ **Air insulated switch gears** (prohibit PCB)
- ✓ **Operating manuals** should be accessible to guide any operating staff
- ✓ **Regular trainings of workers**
- ✓ ...

**During the operation phase of the smart stations,** following mitigation measures should be implemented to improve safety of power/cabin stations:

- ❖ **hiring guards or security agents** (especially for Smart stations, mainly the transmission substations or distribution substations serving a big number of customers).
- ❖ **appointing a safety manager/officer for each station** to ensure regular inspections and maintenance,
- ❖ **providing resources** (financial resources - petty cash, spare parts....) to safety manager and/or branch managers to facilitate quick reparation and small maintenance of sub stations,
- ❖ **providing training** to branch managers, engineers, quality managers and safety officers on safe management of the stations.
- ❖ **Organize toolbox meetings of staff** (especially for big stations)
- ❖ **Reporting:** keep record of incidents/accidents, develop an incident/accidents root cause analysis procedure. Reporting on incidents/accidents should also reach to REG and MININFRA management to raise their awareness.

#### 4.2.2.2. *Construction and maintenance of power lines*

The ESIA's of the Rwanda Transmission System Reinforcement and Last Mile Connectivity was based on skilled feasibility study. Mitigation measures proposed in that study are more elaborated than for the SEAs of the 3 programs.

Mitigation measures recommended for construction and maintenance of power lines include but are not limited to:

##### a) **Mitigation measures during the pre-construction phase:**

- a. Establishment of sub project and landscape mitigation measures requires us to use landscape components (vegetation, relief, and housing) and consider them while designing the route to be followed by the MV or LV lines (aerial or ground).
- b. **Soil conservation:** During the planning and especially access to work sites, impacts regarding risks of increased erosion or deterioration of soils may be mitigated through:
  - ❖ The use of existing tracks, if possible.
  - ❖ The creation of new tracks restricted to its minimum needed and in consultation local population and authorities
  - ❖ Construction to be avoided during rain seasons if possible
- c. **Special provisions to be included in Contractors' contracts:** Apart from the measures considered during the design, preventive measures will be also implemented during realization of works. Thus, in the context of works that the Promoter undertakes or has undertaken by others, he will define general and technical clauses for supply, setting and test of network, supply and erection of electric equipment, as well as implementation of all works related to the subproject. Those clauses constitute the best practices in terms of construction of electric network and ensure that the subproject is well integrated into the environment. The successful bidder for the subproject (involving construction of electrical lines) must fully comply with the laws and regulations in force in Rwanda, regarding environment protection and rehabilitation

of environments affected by the subproject. Additionally, the contract will have to require from the Contractor to prepare and implement following plans:

- ❖ A drainage and erosion control plan
- ❖ A rehabilitation plan for disturbed areas
- ❖ A waste management plan
- ❖ An emergency plan in case of spilling contaminants
- ❖ A fuel and other hazardous materials management plan.

In addition to those clauses, specific mitigation measures recommended in the context of the environmental study should also be included in the sub project and its implementation.

### ***b) Mitigation measures during the construction phase***

During the construction phase, following mitigation measures will be implemented:

- ❖ ***Site organization*** should be adequate to address all risks and impacts on the workers and the environment for example by 1) physically marking the RoW delimitation, 2) have at disposal a response kit in case of accidental spillage, 3) having latrines for workers with hand washing facilities, 4) first aid kits in case accident occurs at work, 5) drinking water for workers... In case the subproject requires construction camps, they should be equipped with septic tanks and disposal fields to receive wastewater or latrines (at minimum one for 20 people). The costs associated with these measures should be included in the BoQ.
- ❖ ***Solid waste management***: the requirement to develop and implement a waste management plan should be a harmonized procedure and a culture for all activities/sub projects performed by REG. The requirement to develop "Waste management plan" for each activity, should be incorporated in the ToRs for recruitment of all Contractors. In addition, REG should facilitate the EHS team carrying out regular monitoring of the implementation of the Solid Waste Management Plan. The cost for implementing that plan should be included in the offers of the Contractor.

#### ***❖ Protection of natural environment and vegetation***

Following measures shall be implemented during the marking and initial clearing of the RoW:

- ✓ Before clearing the RoW and work areas, the Contractor or EUCL will have to ensure first that the limits of clearing were marked on the ground before they start to work, with markers, and he must obtain authorization from the site environmental surveillance officer.
- ✓ The Contractor will ensure to respect the limits of deforestation that will have been indicated at the construction site.
- ✓ Only the clearing need for construction works is authorized. Clearing must be limited to the minimum required.
- ✓ To preserve all the vegetation (trees, shrubs, herbaceous, crops) present at the edge of watercourses and on steep slopes.
- ✓ To respect the flow of water and biodiversity,
- ✓ To maintain watercourses, streams, swamps and trenches free of any vegetation debris or any other wastes. Wood harvested must be cut into sections, put and left on site for the benefit of landowners or the community.
- ✓ To compensate for the loss of tree vegetation by planting of equivalent areas

#### ***❖ Water protection***

Several measures need to be implemented to limit accidental risks of polluting surface water and ground water, namely:

- ✓ No watercourse may be crossed. To erect electrical lines, preferably a bridge or a culvert, to allow vehicles and construction equipment to cross a watercourse. The construction of such facilities must respect best practices and should not reduce the width of the watercourse by more than 20%. Their size must allow free flood flow. They should not either impede migration of fish during the development of such facilities, to avoid sensitive periods such as high waters or spawn of fish.
- ✓ To protect ground water during construction, ensure that no tower is erected in a distance less than 50 m around a well or borehole serving for drinking water supply.
- ✓ To forbid any temporary or permanent disposal of excavated materials in a watercourse or in an environment likely to be flooded, except for towers and tower struts.
- ✓ To prohibit supply of vehicles and machinery and maintenance of equipment (oil change, repair) at less than 30 meters from watercourses and flood-prone areas.
- ✓ To prohibit any storage of fuel at less than 60 meters from a watercourse. The Contractor will have to seek approval by competent authority for locations that may serve for handling and storage of hazardous materials.
- ✓ Before beginning of works, the Contractor is required to submit an emergency plan in case of leakage or accidental spillage of contaminant. In case of pollution, procedures of intervention in case of emergency provided for in the above-mentioned plan should be triggered.
- ✓ During the wet season, heavy rains may be responsible for surface soil erosion. Thus, materials accumulated for constructions of the track or substations are likely to be carried away and transported towards watercourses and therefore increase the already high turbidity of water during that season. Before the start of works, the Contractor must submit an erosion control plan to the REG's E&S team for approval; he must install devices for retention and sedimentation of suspension particles (deflectors, pits).

**Areas of improvement or of focus for REG:**

- ✓ REG should develop a human waste management plan on sites (standards for all contractors and for all construction activities including construction of Transmission and distribution lines)
- ✓ Provision of sanitary facilities to workers is critical, not only to avoid contamination of water resources, but also for their own health. The sanitary facilities should have hand washing facilities with soap to reduce contamination of waterborne diseases.
- ✓ Budget for construction of MV and LV lines should include the cost of latrines, and their regular maintenance

❖ **Earthwork**

A series of measures must be introduced to limit the general impacts of earthmoving.

- ✓ Require the Contractor to present a drainage and erosion control plan.
- ✓ Reuse materials resulting from spoils such as ballast materials, if their geotechnical features allow. Otherwise, to dispose of all excess materials (soil, stones, blocks, etc.) in such a way as to reduce their visual impact and allow their optimal integration into the surrounding landscape.
- ✓ Backfill areas of disposal of materials so that once they are completed, their final geometry fits in the natural shape of land and facilitates their integration to the landscape.
- ✓ Not authorize any solid waste (wood, steel, etc.) nor contaminated materials in the ballasts.
- ✓ If need be and if possible, stabilize, drain and pitch or replant spoils and ballasts.
- ✓ Limit at maximum, the loss of arable soils during earthmoving, clean and separately store the layer of topsoil, then proceed to excavation in depth of the remainder soils.
- ✓ The Contractor will have to prepare and implement a plan for rehabilitation of disturbed areas including areas of storage of ballast materials.

- ✓ Immediately after intervening in one section, and without waiting for the end of work site, to stabilize soils against erosion by using indigenous species with rapid growth.
- ✓ At the end of work, reuse the topsoil for rehabilitation of disturbed sites.
- ✓ Not wait until the end of construction work to proceed with rehabilitation works of disturbed areas, but to proceed with progress of works.
- ✓ Check the performance of stabilization measures after rains and take necessary corrective measures to ensure efficiency of measures in the future.
- ✓ During earthmoving works near residences, use water as dust suppressor in order to reduce at minimum the dust coming from movement of trucks and other construction equipment.

### ***c) Mitigation measures during the operation phase***

During the operation phase, the following mitigation measures of impacts and risks will have to be implemented:

- ✓ To use mechanical methods for vegetation control in the ROWs instead of phytocides.
- ✓ To promote the use of RoW for farmers in order to reduce the use of vegetation control methods.
- ✓ To introduce a monitoring program for impacts of the line:
  - Aerial fauna;
  - Water quality;
  - Erosion.
  - Landscape

### ***d) Mitigation Measures for Social Impacts***

Regarding Social Impacts, mitigation measures should include:

#### *d1) During pre-construction phase*

Even though it is expected that the program activities will not involve permanent land acquisition, some crops and trees will be cleared in the Right of Way for the MV lines, and this will involve compensation for the damaged properties. The activities under this phase will involve among others the public awareness campaign, Asset inventory and valuation, compensation and disclosure among others. Local authorities and local population are the primary stakeholders who should help in the project implementation in all its phases and will be kept informed about all activities and be consulted during all phases. This role should be played by the social safeguard specialist prior to construction/rehabilitation of subprojects/activities that might have impacts on the communities/customers.

#### *d2) During construction Phase*

The basic environmental management principles to follow during construction of the transmission lines are outlined below. Adherence to these guidelines will further reduce the potential adverse impacts which may arise during construction:

- ✓ Consult local population/occupants regarding location of valued project's area resources and locate transmission lines to avoid these features.
- ✓ Minimize the need to construct new access tracks wherever possible.
- ✓ Use existing access roads and tracks wherever available.
- ✓ Ensure minimum clearance distances between conductors and ground, waterways, road crossings, buildings, communication systems etc.
- ✓ Strictly define RoW clearing activities in the contract specifications.

- ✓ Decommission and rehabilitate excess temporary access tracks as soon as they are no longer required.
- ✓ Construction to proceed in the dry season (if possible) to minimize soil erosion and mass wasting and to limit loss of crops (which are not grown in the dry season); where construction is required in the rainy season, potentially unstable slopes to be avoided.
- ✓ All site clearance work shall be carried out within defined perimeters and only when necessary.
- ✓ The maximum permissible time lapse between site clearing and initiation of construction operations shall be reduced to a minimum.
- ✓ Vegetation along the RoW shall be kept to the barest minimum to permit safe operation. Trees felled from site shall be re-utilized for the benefit of the host communities or as otherwise requested in consultation with the communities.
- ✓ Areas cleared more than operational requirements during construction shall be restored with indigenous species and maintained for at least three years

### *d3) Worker and Community Occupational Health and Safety (OHS)*

Following OHS measures are recommended for workers and communities around the program area (mainly near electrical lines and sub stations):

- a. Engage only those workers that are trained to operate specific machines and equipment.
- b. Proper signs on site to warn workers of safety requirements as regards machines with moving parts and other equipment at site.
- c. Provide a First Aid box and have a trained person to handle site emergencies and incidences.
- d. Provide safe scaffoldings and railings for workers working at heights. Proper specialized training should also be provided for such workers.
- e. Provide washing (enclosed bathroom) and toilet facilities at substations and store sites with both drinking and washing water. The number of workers engaged determines the number of toilets and bathrooms provided
- f. Providing personal protective equipment (PPE) such safety helmets, safety masks, safety boots, uniforms and hand gloves to the workers.
- g. Using well-maintained equipment by qualified personnel. Train workers on work site safety issues.
- h. Monitor and control illegal connection of electricity.
- i. The substation site shall be fenced and provided with safety signs.
- j. Emergency assembly points will be appointed at the substations site prior to commencement of construction work.
- k. Educate local populations to safe behavior in the presence of high voltage power lines.
- l. Ensure the development of local and regional emergency plans and local major outbreaks in case of infrastructure breakdowns, especially near roads or residential areas.

***The following improvements are proposed to enforce the implementation of the above OHS measures:***

- ✓ For each infrastructure requiring health and safety precautions, REG's EHS staff should estimate the cost of tools and equipment indicated in b, c, d, e, f and include it the budget of associated activity/sub project.
- ✓ Facilitate EHS team to carry out regular sites monitoring to check compliance with points g, h, i, and j.

- ✓ EHS team, in cooperation with electrical engineers, should develop and implement local and regional emergency plans and local major outbreaks in case of infrastructure breakdowns, especially near roads or residential areas.
- ✓ REG should educate local populations about the safety of electricity installation in their homes and other electricity infrastructures and the need to use experienced and trained staff in electricity for installation in their houses. This should be part of REG's Stakeholders Engagement Plan (SEP).
- ✓ The budget for implementation of EHS plan should cover the costs of required tools and equipment and the budget for monitoring and inspections by the E&S team.

#### ***4.2.3. Administrative recommendations in the ESH mitigation measures by REG***

##### ***a) Involvement of E&S staff at all stages of the RBF2 program***

It is a bad culture to have some companies, who only engage E&S staff when there are accidents, incidents, social or other environmental issues raised against the company. They only react to issues instead of preventing risks or mitigate the impact of their operations on the workers or their customers. This kind of bad habit should be avoided: REG should engage E&S staff at all stages of the project/program implementation.

During the implementation of the RBF2 program, REG should improve the involvement and empowerment of E&S staff (Environmental safeguard specialists, social safeguard specialists, safety managers, quality managers, Gender Specialist...):

- ✓ E&S team of the RBF2 program should be involved from the design and planning phases of each sub project (for example rehabilitation of power station, provision of electricity to households...) and contribute to designing a sub project which comply with defined E&S mitigation measures.
- ✓ When the design of each sub project is agreed about, the E&S team will carry out environmental, social and safety risks and impacts assessment of each sub project and develop an adapted ESMP (including HSE plan).
- ✓ The E&S team will be involved in the preparation of the tender document to ensure that all work, services and equipment or tools required in the ESMP of each sub project are incorporated in the tender documents.
- ✓ The ESMP will be integrated in the tender documents and in the contracts.
- ✓ The E&S team will be given facilitations to supervise the implementation of ESMP of each sub project.
- ✓ The E&S team will organize awareness campaign of communities around the facility, engage key stakeholders (local authorities, security organs, Kigali city, ...), including the implementation of the Grievance Redress Mechanism.

##### ***b) Budget for implementation of EHS mitigation measures.***

Since the budget for the implementation of the ESMP of RBF1 was not allocated during the implementation of the program as due, and some proposed E&S activities of the ESMP were not carried out, it is recommended to integrate specific ESMP of each sub project in the costs of associated sub project and linked Bill of Quantity (BoQ). This will guarantee the implementation of the ESMP of each sub project and it will be verified at the end of each result area. This might be more effective than requesting a separate budget for the ESMP for the entire program (with the risk of being ignored as done for RBF1) and it should facilitate the verification by an independent entity, because indicators will be "SMARTER" as before. It is to note that the same procedure is proposed in the SEA of the ongoing RUEAP financed by the World Bank and other lenders.

Therefore, during the design phase of each activity/sub project, the E&S team will work with engineers in charge, carry out EHS risk and impacts assessment according to the size and the nature of each

subproject, they will propose specific EHS precaution measures to take into consideration and eventually develop an associated ESMP or recommend having an ESMP developed by the Contractor. The cost of ESMP will be an integral part of the cost of each activity (as explained above).

Independent Verification of compliance with E&S safeguard measures will be done by the IVA, namely the OAG to confirm implementation of the ESSAP.

*c) E&S mitigation measures to be incorporated in the tender documents and in the contracts*

After the risks and impacts assessment to be done to each sub project/activity, the proposed mitigation measures and ESMP should be incorporated in the tender documents and in the contracts to ensure their full implementation and easy verification by an independent verifier.

*d) Harmonization of EHS procedures within REG*

REG has quality managers and safeguard managers sitting on the planning department of EUCL, they have also Environmental Safeguard specialists and safeguard specialists working sitting in the planning department of EDCL and many others working in various energy projects and programs. They have the same mandate to ensure safety, protect the environmental and social safeguards of REG's operations, however, they rarely work together to harmonize their way of implementing the safety measures and the ESMP of the projects and programs they are working on, although they have a lot in common. It is recommended that all those E&S staff considered as E&S team of REG harmonize their way of working and advise REG's team in ensuring its performance in EHS management.

*e) Reinforce the capacity building of E&S staff and awareness of REG on improved ESG*

During the assessment of the ESMP of RBF1, it was noted that there was no capacity building performed, although a budget was planned for that purpose. This should be improved for RBF2. The capacity building need in EHS below should be integrated in the capacity building plan of the RBF2 program.

**Table 9: Needed capacity building plan for effective implementation of the ESSAP of RBF2**

Nr	Developed assets	Needed capacity building	Staff involved	Cost estimation
1.	<b>Substations (Smart)</b>	<b>During Construction/rehabilitation:</b> <ul style="list-style-type: none"> <li>• Safety measures of workers</li> <li>• Safety measures of communities and customers</li> <li>• Health and Safety measures applied to active electrical construction sites</li> <li>• Awareness campaigns (of workers and communities)</li> </ul>	All workers (nr)  Special EHS training to be delivered to EHS team of REG  Communities/customers	40% of capacity building budget = <b>16,000 USD</b>
		<b>During operations:</b> <ul style="list-style-type: none"> <li>• Smart operations of substations</li> <li>• Maintenance</li> <li>• Inspections</li> </ul>	Special HSE training to be delivered to E&S team, engineers, branch managers...	20% of capacity building budget = <b>8,000 USD</b>

<b>Nr</b>	<b>Developed assets</b>	<b>Needed capacity building</b>	<b>Staff involved</b>	<b>Cost estimation</b>
		<ul style="list-style-type: none"> <li>• Guards</li> </ul>	Toolbox training for staff	
6.	<b>Aerial cables</b>	<b>Prior to replacement:</b> <ul style="list-style-type: none"> <li>• Maintenance</li> <li>• Inspections</li> <li>• Awareness of customers, communities and local authorities</li> </ul>	Special HSE training of EHS team, engineers, ...  Toolbox training for staff	10% capacity building budget = <b>4,000 USD</b>
7.	<b>Ground cables</b>	<b>During operations:</b> <ul style="list-style-type: none"> <li>• Maintenance</li> <li>• Inspections</li> <li>• Staff</li> </ul>	Idem as above	20% capacity building budget = <b>8,000 USD</b>
8.	<b>Streetlights</b>	<b>During operations:</b> <ul style="list-style-type: none"> <li>• Maintenance</li> <li>• Inspections</li> <li>• Guards/security</li> </ul>	Special HSE training of EHS team, engineers, ...  Districts officers in charge of infrastructure	5% of capacity building budget = <b>2,000 USD</b>
9.	<b>Solar systems</b>	<b>During operations:</b> <ul style="list-style-type: none"> <li>• Maintenance</li> <li>• Replacement and disposal of batteries</li> <li>• Utilization by customers (especially in rural areas)</li> </ul>	Special HSE training of EHS team, engineers, ...  District and sectors officers in charge of infrastructure  Solar system costumers	5% of capacity building budget = <b>2,000 USD</b>

#### **4.3. Environmental and Social Safeguards System Strengthening Action Plan (ESSSSAP) of RBF2 program.**

The Environmental and Social Safeguards System Strengthening Action Plan (ESSSSAP) corresponds to ESMP (Environmental and Social Management Plan) for the ESIA of projects and to ESMP of SEAs of the programs implemented by REG so far. It will be based on the above-identified actions to strengthen the E&S safeguard system.

**Table 10: Environmental and Social Safeguards System Strengthening Action Plan (ESSSSAP) of RBF2 program**

Item	E&S Risks/impacts and proposed Mitigation measures	Indicators of achievement	Estimated Costs	Source of funds
<b>1. Risks: Car accidents at project area during construction</b>				
1.1.	<p><b>Develop and implement a road traffic and community safety management plan</b> as part of each work package contract prior to commencement of the works under each result area</p> <p><b>Implementation modalities:</b> Reinforce monitoring the implementation of the road traffic and community safety management plans by REG's E&amp;S team by:</p> <ul style="list-style-type: none"> <li>✓ Incorporate the "Development of road traffic and community safety management plan" in the TORs for recruitment of the Contractor. In case of inhouse team, REG should prepare among other Management Strategies Implementation Plans a Traffic and Community Safety Management Plan.</li> <li>✓ REG to facilitate the EHS team in carrying out regular monitoring of the implementation.</li> <li>✓ Reinforce public awareness through social officers for Communities and customers affected by the construction activity on planned activities, the duration and associated impacts and risks.</li> <li>✓ REG to engage local authorities, security organs (if needed) to support in the implementation of the road traffic safety plan.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Road traffic and community safety management plan integrated in the Tender documents</li> <li>✓ Road traffic and community safety plan integrated in contracts of contractors and supervising firms</li> <li>✓ Reports of awareness campaigns</li> </ul>	Budget for implementation of Road traffic and community safety plan of each sub project	Result area of the performed activity/s ubproject
<b>2. Risks: Inadequate Waste Management (resulting into water and air pollution...)</b>				
2.1.	<ul style="list-style-type: none"> <li>✓ <b>Develop and Implement waste management plan</b> as part of each work package contract.</li> <li>✓ Special attention will be taken to minimize and reduce the quantities of solid waste produced during site preparation and construction.</li> <li>✓ Restriction of burning any vegetation and combustible waste at the site.</li> <li>✓ Reusable inorganic waste (e.g. excavated sand/soils) will be stockpiled away from drainage features and used for filling where necessary and/or possible.</li> <li>✓ Unusable construction waste, such as damaged pipes, formwork and hours or more should use earmuffs whereas those experiencing prolonged noise levels of 70 - 80 dBA should wear earplugs.</li> <li>✓ Limit pickup trucks and other small equipment to an idling time of five minutes, observe a common-sense approach to vehicle use and encourage workers to shut off vehicle engines whenever possible. All construction equipment should be regularly inspected and serviced.</li> </ul>	<p>Waste Management of each sub project integrated in the contracts</p> <p>Sub project areas/sites kept clean</p>	Budget for implementation of waste management plan of each sub project	Result area of the performed activity/s ubproject
2.2.	<p><b>REG to continue to implement following special waste management:</b></p> <ul style="list-style-type: none"> <li>✓ Store and reuse of replaced transformers</li> <li>✓ Reuse replaced cables when possible or sell them to companies authorize to recycle old metals.</li> <li>✓ Disposal of solar system batteries through authorized company in charge of e-waste management.</li> </ul> <p><b>Implementation modalities for other waste management Plan:</b></p>			

Item	E&S Risks/impacts and proposed Mitigation measures	Indicators of achievement	Estimated Costs	Source of funds
	The requirement to develop "Waste management plan" for each sub project, should be incorporated in the ToRs for recruitment of the Contractor.			
<b>3. Risk: improper vegetation clearance and restoration</b>				
3.1.	Minimize vegetation clearance, especially within peri-urban and rural areas through selection of sites for the poles of the RBF 2 program distribution/transmission line works. Restore or improve the initial vegetation of the RoW at the end of construction phase	Vegetation of RoW restored after construction or improved	Included in the BoQ of subprojects	Result area of the subproject
<b>4. Risk: Water Pollution</b>				
4.1.	<p><b>4.1.1.</b> Deposition of excavated materials away from all watercourses and rivers. Storage of bulk fuel, drums and other chemicals in secured storage areas to prevent oil pollution.</p> <p><b>4.1.2.</b> Provision of drip pans for catching oil for vehicles being fueled or repaired, and stationery machinery.</p> <p><b>4.1.3.</b> New and waste oil and fuel to be stored carefully and safely on-site until used or removed from site to an appropriate facility for its safe disposal or re-used in an environmentally safe and sound procedure.</p> <p><b>4.1.4.</b> Except in an emergency, no vehicle will be fueled, lubricated or repaired except within the bounds of a project camp or depot. Similar precautions will be applied to paint or other chemicals or potentially toxic materials of any sort.</p> <p><b>4.1.5.</b> Prohibition of washing vehicles in any watercourses. Prohibition of disposal of any waste material in an uncontrolled manner and especially into the rivers.</p> <p><b>4.1.6.</b> Providing adequate sanitary facilities for workers located in carefully selected areas to avoid underground water contamination.</p> <p><b>4.1.7.</b> REG should develop a human waste management plan on sites (standards for all contractors and for all construction activities including construction of Transmission and distribution lines)</p>	<p>Standards Human waste management plan for all construction of transmission and distribution lines developed by REG</p> <p>Sanitary facilities are available at each site (maximum 1 for 20 people)</p>	Cost included in the BoQ of the subproject	Result area of each subproject
<b>5. Risks: Occupational, Health and Safety (OHS) for workers and communities (to mitigate risks of accidents at work and in homes)</b>				
5.1.	<p><b>5.1.1.</b> Engage only those workers that are trained to operate specific machines and equipment.</p> <p><b>5.1.2.</b> Proper <b>signs on site</b> to warn workers of safety requirements as regards machines with moving parts and other equipment at site.</p> <p><b>5.1.3.</b> Provide a <b>First Aid box</b> and have a trained person to handle site emergencies and incidences.</p> <p><b>5.1.4.</b> Provide <b>safe scaffoldings and railings</b> for workers working at heights. Proper specialized training should also be provided for such workers.</p>	<p>Signs on sites</p> <p>Workers wears adequate PPE</p> <p>First aid box</p> <p>Well maintained safety tools and equipment</p>	Costs of implementation of EHS of each subproject (including PPE, first aid kits, signs on sites....)	Result area of each subproject

Item	E&S Risks/impacts and proposed Mitigation measures	Indicators of achievement	Estimated Costs	Source of funds
	<p><b>5.1.5.</b> Provide <b>washing</b> (enclosed bathroom) and <b>toilet facilities</b> at substation or store sites with both drinking and washing water. The number of workers engaged determines the number of toilets and bathrooms provided.</p> <p><b>5.1.6.</b> Providing <b>personal protective equipment (PPE)</b> such safety helmets, safety masks, safety boots, uniforms and hand gloves to the workers.</p> <p><b>5.1.7.</b> Using well-maintained equipment by qualified personnel. Train workers on work site safety issues Monitor and control illegal connection of electricity.</p> <p><b>5.1.8.</b> The substation site shall be fenced and provided with safety signs.</p> <p><b>5.1.9.</b> Emergency assembly points will be appointed at the substations site prior to commencement of construction work.</p> <p><b>5.1.10.</b> Educate local populations to safe behavior in presence of electrical lines (especially non isolated aerial cables).</p> <p><b>5.1.11.</b> EHS team, in cooperation with Electrical Engineers will develop and implement a local and regional emergency plan and local major outbreaks in case of infrastructure breakdowns, especially near roads or residential areas.</p> <p><b>5.1.12.</b> For each infrastructure requiring health and safety precautions, REG’s EHS should estimate the cost of tools and equipment indicated in 5.1.2, 5.1.3, 5.1.4, 5.1.5 and 5.1.6. and include the budget in the budget of associated subproject</p> <p><b>5.1.13.</b> REG will educate local populations about the safety of electricity installation in their homes and other electricity infrastructures and the need to use experienced and trained staff in electricity for installation in their houses. This should be part of REG’s Stakeholders Engagement Plan (SEP).</p>	<p>Local and regional emergency plan</p> <p>EHS plan for each infrastructure included in the contracts</p> <p>Reports of awareness on safe behavior in presence of electrical lines (especially non isolated aerial cables).</p> <p>Reports of awareness about safety of electricity installation in homes</p>	<p>Costs for supervision by the E&amp;S team.</p>	
<p><b>6. Special risks during construction/rehabilitation and operation of power stations:</b> <i>risks of accidents at work, electrocutions for workers, destruction of substation due to erosion or inadequate water drainage, robbery, intruders, frequent electricity cut off due to rain, reliability and safety of electricity distributed to customers...</i></p>				
<p><b>6.1.</b></p>	<p><b>During the planning phase of rehabilitation of power stations/cabins:</b></p> <ul style="list-style-type: none"> <li>✓ EHS team should be involved from the planning phase of the rehabilitation/construction of each substation and contribute to designing substations which comply with standards (see 7.2 below).</li> <li>✓ Where the contractor will be hired, the E&amp;S team should be involved in the preparation of a tender document to EHS inputs.</li> <li>✓ The EHS team will carry out environmental, social and safety risk assessments of each substation to be developed by EUCL and produce a specific overall HSE plan.</li> <li>✓ The HSE plan will be integrated in tender documents.</li> <li>✓ Carry out Induction training to workers</li> </ul>	<ul style="list-style-type: none"> <li>✓ HSE plan of substations integrated in the contracts and in the BoQ</li> <li>✓ Reports of induction trainings of workers</li> <li>✓ Reports of awareness</li> </ul>	<p>Costs of the implementation of the HSE plan of the substation integrated in the BoQ</p>	<p><i>Result area of the substation</i></p>

Item	E&S Risks/impacts and proposed Mitigation measures	Indicators of achievement	Estimated Costs	Source of funds
	<ul style="list-style-type: none"> <li>✓ The E&amp;S team to organize awareness campaign of communities around the facility, engage key stakeholders (local authorities, security organs, Kigali city, ...)</li> </ul>	<p>campaigns and stakeholders' engagement</p>		
<p><b>6.2.</b></p>	<p><b>Specification of Smart substations for RBF2 program:</b></p> <ul style="list-style-type: none"> <li>✓ Fenced, covered, with rest rooms, safety signs, security room, water drainage, graveling, paved or/and green, safety equipment (including fire extinguisher, handling kits and other PPE, ...)</li> <li>✓ Air insulated switch gears (PCB prohibited)</li> <li>✓ Regular trainings of workers</li> <li>✓ Operating manuals...</li> <li>✓ Emergency assembly points will be appointed at the substations site prior to commencement of construction work</li> </ul> <p><b>Implementation modalities:</b></p> <p>Specifications of smart stations should integrate in the tender documents for recruitment of contractor</p>	<p>Constructed or rehabilitated substations comply with specification of smart substations</p>		
<p><b>6.3.</b></p>	<p><b>Safety precautions during operations of substations</b></p> <ul style="list-style-type: none"> <li>✓ hiring guards or security agents (when needed)</li> <li>✓ appointing safety manager/officer for each station to ensure regular inspections and maintenance,</li> <li>✓ providing resources (financial resources (petty cash), spare parts....) to safety manager and/or branch managers to facilitate quick reparation and small maintenance,</li> <li>✓ providing training to branch managers, engineers, quality managers and safety officers on safe management of the stations.</li> <li>✓ Organize toolbox meetings of staff</li> </ul> <p><b>Reporting:</b> keep record of incidents/accidents, develop an incident/accidents root cause analysis procedure</p>	<ul style="list-style-type: none"> <li>✓ Guards of substations in place</li> <li>✓ Safety manager appointed to each station</li> <li>✓ Report of inspections done by the safety manager</li> <li>✓ Resources for maintenance</li> <li>✓ Reports of staff training</li> <li>✓ Reports of toolbox trainings</li> </ul>	<p>Idem as above</p>	<p><i>Idem as above</i></p>
<p><b>7. Grievance Redress Mechanism</b></p>				

Item	E&S Risks/impacts and proposed Mitigation measures	Indicators of achievement	Estimated Costs	Source of funds
6.1.	Establishment of the Project Grievance Redress Mechanism (GRM) and disclosure to Public	Letter of appointment of GRM Committee  Reports of GRM meetings	500 USD per month	To be included in operational costs of RBF2 program
<b>8. Recruit Dedicated safeguard staff to improve on capacity for SEAP II Implementation</b>				
7.1.	Appoint Environmental safeguard specialist from EDCL to supervise RBF2 activities	Letters of appointment	Salaries, mission fees of the 3 staff	To be included in the budget for operation of the RBF2 program
7.2.	Appoint Safety Manager from EUCL to supervise implementation of safety measures during implementation of RBF2			
7.3.	Facilitate the Social safeguard specialist of RBF1 program to assist RBF2 on social aspects			
7.4.	E&S reporting by the E&S team of RBF2 coordinated by the Environmental safeguard specialist: Quarter reports submitted to AFDB, Incident reports submitted to AFDB and to REG management	E&S quarter to AFDB  Incident reports (when occurred)		
<b>8. Risks: ineffective ESG management by REG (risk of duplication of E&amp;S activities, increased costs on E&amp;S management, ...)</b>				
8.1.	<p><b>REG to develop and implement an ESMS:</b></p> <ul style="list-style-type: none"> <li>E&amp;S team of REG to advise the management of REG and MININFRA on the benefit to develop and implement ESMS of REG.</li> </ul> <p>If both managements are convinced, the following are actions proposed to have effective ESMS:</p> <ul style="list-style-type: none"> <li>Preliminary training of the E&amp;S team of REG and Director of planning in EDCL and EUCL on ESMS (Benefits of ESMS, Understanding ESMS, key components of ESMS, implementation and evaluation of an ESMS...). This will allow the E&amp;S team to effectively and actively draft the ToRs Review and evaluate the ESMS that would be developed by the independent consultant.</li> <li>Recruit Consultant to develop ESMS</li> <li>Implement the ESMS of REG</li> <li>Develop an ESMS implementation plan.</li> <li>Reinforce the capacity building of REG in implementing</li> </ul>	<ul style="list-style-type: none"> <li>Report of REG's E&amp;S team to advise the management on development of ESMS</li> <li>Report of preliminary training on ESMS</li> <li>Contract with Consultant to develop ESMS</li> <li>ESMS of</li> </ul>	40,000 USD	Result area 3

Item	E&S Risks/impacts and proposed Mitigation measures	Indicators of achievement	Estimated Costs	Source of funds
	<p>the ESMS through trainings of EHS staff, training of REG's management and awareness of REG staff and customers</p> <ul style="list-style-type: none"> <li>Apply for international accreditation (as part of ESMS implementation).</li> </ul>	<p>REG</p> <ul style="list-style-type: none"> <li>Annual reports on implementation of ESMS.</li> </ul>		

## Section 5: Assessment of the reputational risk to the Bank

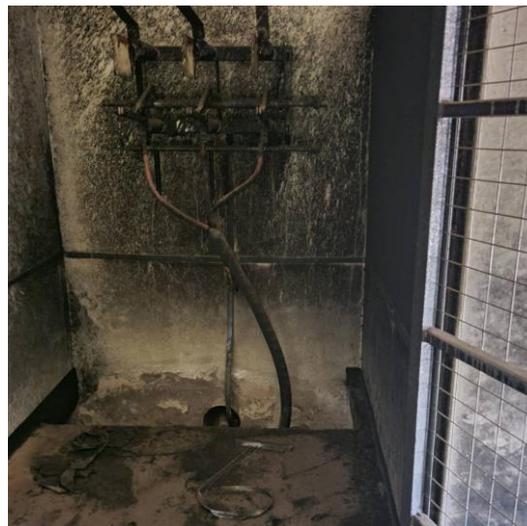
This section will provide an estimate of the overall E&S risk to which the Borrower and the Bank are exposed if the program was not performing satisfactorily, based on the conclusions on the strengths and weaknesses of the RBF2 program's E&S system and the measures recommended in section 4.

The overall E&S risk to the Bank of the program was not performing satisfactorily proposed mitigation measures is mainly a reputational risk. However, for REG (the Borrower), the estimation is considerable.

Here below are 2 examples to estimate the overall E&S risks to REG for noncompliance with few proposed mitigation measures:

### 1. Noncompliance with the specification of Smart station

- ❖ For example, if the constructed substation is not fenced, intruders might disturb the substations, which would affect the quality of electricity distributed to customers and might even damage some of their equipment and REG would have to pay compensation of damaged equipment
- ❖ If the water drainage or retaining wall around the substations are not adequately constructed, this might destroy the whole or a big part station and bring some safety risks for workers and customers (in the worst scenario) and the water drainage or retaining walls would be constructed after damages, although they should be constructed in a preventive manner
- ❖ If workers of substations don't have PPE and adequate trainings in management of substations, they can be electrocuted and brought to hospital, with risks of paying compensation to workers and repair the damaged station.
- ❖ ....



*Figure 6: Visited Substation among those which were supposed to be rehabilitated before the exclusive activity list be released.*

## 2. Noncompliance with proposed OHS measures for construction/rehabilitation of electrical lines

- ❖ For example, if employees working on construction of electrical lines don't have adequate PPE (example: safe scaffoldings and railings), and one of them for down and get injured. This would cost REG to pay compensation of workers and a bad reputational risk.
- ❖ If REG effectuates electricity cut off while rehabilitating electrical lines, without informing customers, this might affect some business, for example food in fridges can get spoiled, or it can damage some household equipment ...
- ❖ If electrical lines don't have adequate signs to warn the population on dangers, people or cars transporting metals can get electrocuted through non isolated aerial lines, what would require that REG pays for the damages.



*Figure 7: Aerial electrical lines to be rehabilitated in Kigali City Center*

## Section 6: Program monitoring and implementation support

This section should describe key indicators and mechanisms for:

- ✓ Regular reporting on the implementation of RBF2 program's E&S due diligence
- ✓ Resolving implementation issues
- ✓ Monitoring the performance of the program E&S system, including implementation of the strengthening measures agreed in the program action plan
- ✓ Monitoring the evolution of the program's E&S risks
- ✓ Management practices to improve program implementation or to address implementation challenges.

### 6.1. Reporting on the implementation of RBF2 program's E&S due Diligence

The E&S team of RBF2 program, coordinated by the Environmental safeguard specialist will develop quarter E&S implementation report and share it with AFDB for review. The quarter reports should comply with AFDB templates for periodic reports (see annex 6). While reviewing quarter reports, AFDB will identify gaps, challenges and performance of the PIU in the implementation of the ESSAP and discuss about it during monthly monitoring meetings.

### 6.2. Resolving implementation issues and strengthen implementation of agreed measures

As explained above, the quarter reports on the implementation of E&S measures will inform AFDB in performances, challenges and gaps encountered by the E&S team. It is planned to have monthly monitoring meetings between the E&S team and the E&S officer of AFDB appointed to supervise the RBF2 program. The monthly meetings will be a good opportunity of communication to discuss about the status of implementation of the E&S measures and proposed recommendations on improvements to be done and solutions to challenges. The monthly meetings will offer opportunities for capacity building of E&S team to overcome identified gaps or weaknesses.

On the other hand, E&S officers of the Bank appointed to each project/program are required to carry out 2 physical implementation support missions (ISM) per year. The ISM are supplementary opportunities to go into details in the evaluation of the status of implementation of agreed mitigation measures. The E&S officer can go on site, meet with various stakeholders involved in the implementation of the program and realistically assess the performance, challenges and gaps in the implementation of the program and provide recommendations on way forward, through an action plan that will be regularly monitored during the monthly monitoring meetings.

### 6.3. External monitoring

As required for RBF programs, there should be the Independent Verification Authority (IVA) also for the implementation of E&S mitigation measures.

It was agreed that the OAG, which was chosen to be the IVA of the overall RBF2 program, will also verify compliance with E&S safeguards measures.

OAG has experience and internal capacity to carry out E&S verifications, they often do it with other institutions/lenders. When needed, they hire E&S experts to support the internal team. During a meeting with the OAG on the matter, it was agreed that the Bank will send the ToRs for E&S verification to OAG prior to project implementation, they will be shared with REMA for input. Similarly, the E&S verification reports will be shared with REMA, but they will stay the property of the OAG.

REMA is comfortable with that arrangement, because both institutions confirmed their cooperation in the matter.

#### 6.4. Key indicators to be monitored during the implementation of RBF2

- ✓ **Smart substations:** at the end of construction or rehabilitation of substations, it should comply with the specification of Smart substations as defined in 4.2.2.1.
- ✓ **Vegetation on RoW:** at the end of construction of MV or LV lines, the vegetation of the RoW should be restored or improved compared to baseline status.
- ✓ **The following plans should be available and integrated in the contracts and tender documents in case** works to be done by contractors:
  - Road traffic and community safety management plan
  - Waste management plan of each site under construction
  - Standards Human waste management plan for all construction of transmission and distribution lines developed by REG
  - EHS plan of each site under construction or rehabilitation
  - Local and regional emergency plan and local major outbreaks in case of infrastructure breakdowns, especially near roads or residential areas
  -
- ✓ **The following OHS measures are required at each site under construction:**
  - Warning signs on sites
  - Workers wears adequate PPE
  - First aid box
  - Latrines with washing water facilities (at least one for 20 people)
  - Changing rooms and washing rooms when needed
  - Drinking water for staff
  - Well maintained safety tools and equipment
- ✓ **Public awareness campaigns on following topics are compulsory**
  - Awareness of local population and customers about planned activities and associated impacts and risks, with planned mitigation measures prior to initiation of each activity
  - Awareness on planned road traffic and community safety management
  - Induction trainings of workers on construction sites
  - Induction trainings for workers in substations
  - Awareness on safe behavior in presence of electrical lines (especially non isolated aerial cables).
  - Awareness about safety of electricity installation in homes

- ✓ **GRM** (to be implemented as described in 2.5)
  - existence of GRC through nomination letters
  - operations of GRC through reports, GRC log looks...
  - GRM of workers to be created and operationalized

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6. *Operational Guidelines on the Implementation of the Bank Group’s Results Based Financing Policy, Strategy and Operational Policies Department (SNSP) - AFDB*, November 2017
7. *5<sup>th</sup> Population Housing Census Rwanda 2022*, National Institute of Statistics of Rwanda
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9. *Energy Sector Strategic Plan 2018/19 – 2023/24; September 2018; Republic of Rwanda, Ministry of Infrastructure, Kigali.*

## Annexes:

### Annex 1: Environmental and Social Management Plan and costs of RBF 1 Program

Item	Mitigation measures	Responsible entity	Deadline	Monitoring Frequency	Budget
<b>1. REG Develop and Implement an ESMS</b>					
1.1	Develop E&S Policy for REG	REG management	During first year of RBF Implementation	Quarterly monitoring and Verification Report	US\$ 30,000
1.2	Set objectives and targets consistent with E&S Policy.				US\$ 30,000
1.3	Define roles and responsibilities for persons responsible for implementation of the EMS and provide the necessary awareness training to develop and build capacity.				US\$ 50,000
1.4	Develop document control procedures and templates to ensure quality of data entry for the EMS system.		During second year of RBF Implementation		US\$ 50,000
1.5	Develop operational control procedures for operations that are associated with the identified environmental and social aspects of REG's daily operations and those of their approved contractors and suppliers.				US\$ 50,000
1.6	Develop a monitoring programme and system which will allow performance evaluation and review of the EMS for continuous improvement.				US\$ 50,000
1.7	Define performance monitoring indicators and how to measure them to assess performance of the EMS.				US\$ 40,000
1.8	Carry out environment awareness trainings on EMS for both Senior and operational staff of EDCL/EARP and EUCL and other relevant staff of approved contractors and suppliers.		During 3 <sup>rd</sup> Year of RBF Implementation		US\$ 50,000
<b>2. Road Traffic Impact Management</b>					
2.1	Develop and implement a road traffic and community safety management plan as part of each work package contract prior to commencement of the works under Areas 1, 2 and 3.	EDCL and EARP safeguard teams assisted by Contractor	Prior to commencement of installation of the distribution units on site	Quarterly monitoring and Verification Report	US\$ 40,000

Item	Mitigation measures	Responsible entity	Deadline	Monitoring Frequency	Budget
<b>3. Waste Management</b>					
3.1	Develop and Implement waste management plan as part of each work package contract. Special attention will be taken to minimize and reduce the quantities of solid waste produced during site preparation and construction. Restriction of burning any vegetation and combustible waste at the site. Reusable inorganic waste (e.g. excavated sand/soils) will be stockpiled away from drainage features and used for in filling where necessary and/or possible. Unusable construction waste, such as damaged pipes, formwork and	EDCL and EARP safeguard teams assisted by Contractor.	Prior to commencement of the works under Areas 1, 2 and 3.	Quarterly monitoring and Verification Report	US\$ 40,000
	hours or more should use earmuffs whereas those experiencing prolonged noise levels of 70 - 80 dBA should wear earplugs. Limit pickup trucks and other small equipment to an idling time of five minutes, observe a common-sense approach to vehicle use and encourage workers to shut off vehicle engines whenever possible. All construction equipment should be regularly inspected and serviced.				
<b>7. Vegetation Clearance</b>					
Item	Mitigation measures	Responsible entity	Deadline	Monitoring Frequency	Budget
7.1	Minimize vegetation clearance especially within peri-urban and rural areas through selection of sites for the poles of the last mile distribution line works.	EDCL and EARP safeguard teams assisted by Contractor	Prior to commencement of the works under Areas 1, 2 and 3.	Quarterly monitoring and Verification Report	US\$ 40,000
<b>8. Water Pollution</b>					

8.1	Deposition of excavated materials away from all watercourses and rivers. Storage of bulk fuel, drums and other chemicals in secured storage areas to prevent oil pollution. Provision of drip pans for catching oil to vehicles being fueled or repaired, and stationery machinery. New and waste oil and fuel to be stored carefully and safely on-site until used, or removed from site to an appropriate facility for its safe disposal, or re-used in an environmentally safe and sound procedure. Except in an emergency, no vehicle will be fueled, lubricated or repaired except within the bounds of a project camp or depot. Similar precautions will be applied to paint or other chemicals or potentially toxic materials of any sort. Prohibition of washing vehicles in any watercourses. Prohibition of disposal of any waste material in an uncontrolled manner and especially into the rivers. Providing adequate sanitary facilities for workers located in carefully selected areas to avoid underground water contamination	EDCL and EARP safeguard teams assisted by Contractor	Prior to commencement of the works under Areas 1, 2 and 3.	Quarterly monitoring and Verification Report	US\$ 40,000
<b>9. Worker occupational and Community health and Safety</b>					
9.1	Engage only those workers that are trained to operate specific machines and equipment. Proper signs on site to warn workers of safety requirements as regards machines with moving parts and other equipment at site. Provide a First Aid box and have a trained person to handle site emergencies and	EDCL and EARP safeguard teams assisted by Contractor	During implementation but prior to commencement of the works under Areas 1, 2 and 3.	Quarterly monitoring and Verification Report	US\$ 40,000

	incidences. Provide safe scaffoldings and railings for workers working at heights. Proper specialized training should also be provided for such workers. Provide washing (enclosed bathroom) and toilet facilities at substations and store sites site with both drinking and washing water. The number of workers engaged determines the number of the toilets and bathrooms provided. Providing personal protective equipment (PPE) such safety helmets, safety masks, safety boots, uniforms and hand gloves to the workers. Using well-maintained equipment by qualified personnel. Train workers on work site safety issues Monitor and control illegal connection of electricity. The substation site shall be fenced and provided with safety signs. Emergency assembly points will be appointed at the substations site prior to commencement of construction work. Educate local populations to safe behavior in the presence of high voltage power lines. Ensure the developments of local and regional emergency plans and local major outbreaks in case of infrastructure breakdowns, especially near roads or residential areas.				
9.2	Conduct Training on construction health and safety, first aid, firefighting, emergency response drills, use of PPE including HIV (estimated to cover 1749 persons over 3yr @ US\$400 per head)				US\$ 699,600
<b>10. Recruit Dedicated safeguard staff to improve on capacity for SEAP II Implementation</b>					
10.1	Recruit one (1) FTE Environmental safeguard specialist for the EDCL/EARP team	REG Management	Before end of first Quarter following Programme approval by the Bank	Verification Report	US\$ 300,000
10.2	Recruit one (1) FTE Social safeguard specialist for the EDCL/EARP team				US\$ 300,000
<b>11. Develop Gender Policy</b>					
11.1	Develop Gender Policy to mainstream gender outcomes into the SEAP II Programme (including VAC – Violence Against Children)	REG Management	By November 2019	Study Report approved by the Board	US\$ 20,000
<b>Grand Total (US\$) 2,059,600</b>					

## Annex 2: ESMP implementation: Lessons learnt from RBF1

Item	Mitigation measures	Budget (RBF1)	Status of implementation in 2024	Observations and lessons learnt to apply in RBF2
<b>1. REG Develop and Implement an ESMS (with a total budget of 350,000 USD)</b>				
1.1	Develop E&S Policy for REG	US\$ 30,000	ESMS of REG was not developed.  However, there is an E&S policy for the energy sector in the Ministry of Infrastructure	<p>Based on the E&amp;S policy for REG, develop and implement ESMS for REG through following actions:</p> <ul style="list-style-type: none"> <li>✓ Preliminary training of the E&amp;S team of REG on ESMS (Benefits of ESMS, Understanding ESMS, key components of ESMS, implementation and evaluation of an ESMS...). This will allow the E&amp;S team to effectively and actively draft the ToRs Review and evaluate the ESMS that would be developed by the independent consultant.</li> <li>✓ Recruit Consultant to develop ESMS (points 1.2. to 1.8 are the among the tasks of the Consultants)</li> <li>✓ Implement the ESMS of REG</li> <li>✓ Develop an ESMS implementation plan.</li> <li>✓ Reinforce the capacity building of REG in implementing the ESMS through trainings of EHS staff, training of REG's management and awareness of REG staff and customers</li> <li>✓ Apply for international accreditation (part of ESMS implementation).</li> </ul>
1.2	Set objectives and targets consistent with E&S Policy.	US\$ 30,000		
1.3	<b>Define roles and responsibilities for persons responsible for implementation of the EMS</b> and provide the necessary awareness training to develop and build capacity.	US\$ 50,000		
1.4	<b>Develop document control procedures and templates</b> to ensure quality of data entry for the EMS system.	US\$ 50,000		
1.5	<b>Develop operational control procedures</b> for operations that are associated with the identified environmental and social aspects of REG's daily operations and those of their approved contractors and suppliers.	US\$ 50,000		

Item	Mitigation measures	Budget (RBF1)	Status of implementation in 2024	Observations and lessons learnt to apply in RBF2
1.6	Develop a monitoring programme and system which will allow performance evaluation and review of the EMS for continuous improvement.	US\$ 50,000		
1.7	Define performance monitoring indicators and how to measure them to assess performance of the EMS.	US\$ 40,000		
1.8	Carry out environmental awareness trainings on EMS for both Senior and operational staff of EDCL/EARP and EUCL and other relevant staff of approved contractors and suppliers.	US\$ 50,000		
<b>2. Road Traffic Impact Management</b>				
2.1	Develop and implement a road traffic and community safety management plan as part of each work package contract prior to commencement of the works under each result area	US\$ 40,000	This is done by Contractors/ Construction team	<b>Areas of improvements</b> Reinforce monitoring the implementation of the plans by REG's E&S team by: <ol style="list-style-type: none"> <li>1) Incorporate the "Development of road traffic and community safety management plan" in the TORs for recruitment of the Contractor. In case of inhouse team, REG should prepare among other Management Strategies Implementation Plans a Traffic and Community Safety Management Plan.</li> <li>2) REG to facilitate the EHS team in carrying out regular monitoring of the implementation.</li> <li>3) Reinforce public awareness through social officers. Communities and customers to be affected by an activity should be informed about planned activities and the duration and associated impacts and risks. The social</li> </ol>

Item	Mitigation measures	Budget (RBF1)	Status of implementation in 2024	Observations and lessons learnt to apply in RBF2
				<p>experts should engage local authorities, security organs (if needed) and eventually organize meetings with all project stakeholders to raise awareness on what is planned.</p> <p>4) <i>The budget should consider field missions of social staff</i></p> <p>Ensure that permits to work are secured well before the construction begins.</p>
<b>3. Waste Management</b>				
3.1	<p><b>Develop and Implement waste management plan</b> as part of each work package contract. Special attention will be taken to minimize and reduce the quantities of solid waste produced during site preparation and construction. Restriction of burning any vegetation and combustible waste at the site. Reusable inorganic waste (e.g. excavated sand/soils) will be stockpiled away from drainage features and used for filling where necessary and/or possible. Unusable construction waste, such as damaged pipes, formwork and hours or more should use earmuffs whereas those experiencing prolonged noise levels of 70 - 80 dBA should wear earplugs.</p>	US\$ 40,000	Done by Contractors and REG on regular basis	<p><b>REG has following waste management:</b></p> <ul style="list-style-type: none"> <li>✓ Replaced transformers are stored in Kanzenze store, they are reinstalled to serve in places/sites with less customers</li> <li>✓ Replaced cables are reused, when possible, otherwise, they are sold to companies recycling old metals.</li> <li>✓ Disposal of solar system batteries and electronics are done through Enviroserve, a company in charge of e-waste management engaged by the Ministry of Trade and Industry of Rwanda (MINICOM) to dismantle or recycle e-wastes or return it to the manufacturer.</li> </ul> <p><b>Areas of improvement:</b></p> <ul style="list-style-type: none"> <li>✓ The requirement to develop “Waste management plan” for each activity, should be incorporated in the ToRs for recruitment of the Contractor.</li> <li>✓ REG to facilitate the EHS team in carrying out regular monitoring of the implementation</li> </ul> <p><i>The budget should consider field missions of E&amp;S staff</i></p>

Item	Mitigation measures	Budget (RBF1)	Status of implementation in 2024	Observations and lessons learnt to apply in RBF2
	Limit pickup trucks and other small equipment to an idling time of five minutes, observe a common-sense approach to vehicle use and encourage workers to shut off vehicle engines whenever possible. All construction equipment should be regularly inspected and serviced.			
<b>7. Vegetation Clearance</b>				
7.1	Minimize vegetation clearance especially within peri-urban and rural areas through selection of sites for the poles of the last mile distribution line works.	US\$ 40,000	Done by contractors	<b>Areas of improvement:</b> Increase public awareness on cutting trees (close to electrical aerial cables) and vegetation clearance for installation of ground tables to concerned communities and customers. Explain them what is going on, how long it would take and the risks and impacts to be mitigated.
<b>8. Water Pollution</b>				
8.1	<p><b>8.1.1.</b> Deposition of excavated materials away from all watercourses and rivers. Storage of bulk fuel, drums and other chemicals in secured storage areas to prevent oil pollution.</p> <p><b>8.1.2.</b> Provision of drip pans for catching oil for vehicles being fueled or repaired, and stationery machinery.</p> <p><b>8.1.3.</b> New and waste oil and fuel to be stored carefully and safely on-site until used or removed from site to an</p>	US\$ 40,000	Actions from 8.1.1. to 8.1.5. are fully implemented by REG and Contractors	<b>Areas of improvements:</b> <ul style="list-style-type: none"> <li>✓ REG should develop a human waste management plan on sites (standards for all contractors and for all construction activities including construction of Transmission and distribution lines)</li> <li>✓ Provision of sanitary facilities to workers is critical, not only to avoid contamination of water, but also for their own health. The sanitary facilities should have hand washing facilities with soap to reduce contamination of water borne diseases.</li> </ul> <p><i>Budget to consider cost of latrines, and their regular maintenance</i></p>

Item	Mitigation measures	Budget (RBF1)	Status of implementation in 2024	Observations and lessons learnt to apply in RBF2
	<p>appropriate facility for its safe disposal or re-used in an environmentally safe and sound procedure.</p> <p><b>8.1.4.</b> Except in an emergency, no vehicle will be fueled, lubricated or repaired except within the bounds of a project camp or depot. Similar precautions will be applied to paint or other chemicals or potentially toxic materials of any sort.</p> <p><b>8.1.5.</b> Prohibition of washing vehicles in any watercourses. Prohibition of disposal of any waste material in an uncontrolled manner and especially into the rivers.</p> <p><b>8.1.6.</b> Providing adequate sanitary facilities for workers located in carefully selected areas to avoid underground water contamination.</p>			
<b>9. Worker occupational and Community health and Safety</b>				
9.1	<p><b>9.1.1.</b> Engage only those workers that are trained to operate specific machines and equipment.</p> <p><b>9.1.2.</b> Proper <b>signs on site</b> to warn workers of safety requirements as regards machines with moving parts and other equipment at site.</p> <p><b>9.1.3.</b> Provide a <b>First Aid box</b> and have a</p>	US\$ 40,000	Partially implemented	<p><b>Areas of improvement:</b></p> <ul style="list-style-type: none"> <li>✓ For each infrastructure requiring health and safety precautions, REG's EHS should estimate the cost of tools and equipment indicated in 9.1.2, 9.1.3, 9.1.4, 9.1.5 and 9.1.6. and include the budget in the budget of associated activity</li> <li>✓ Facilitate EHS team to carry out regular sites monitoring to check compliance with 9.1.7, 9.1.8, 9.1.9</li> <li>✓ EHS team, in cooperation with electrical engineers should develop and implement local and regional</li> </ul>

Item	Mitigation measures	Budget (RBF1)	Status of implementation in 2024	Observations and lessons learnt to apply in RBF2
	<p>trained person to handle site emergencies and incidences.</p> <p><b>9.1.4. Provide safe scaffoldings and railings</b> for workers working at heights. Proper specialized training should also be provided for such workers.</p> <p><b>9.1.5. Provide washing</b> (enclosed bathroom) and <b>toilet facilities</b> at substations and store sites with both drinking and washing water. The number of workers engaged determines the number of toilets and bathrooms provided.</p> <p><b>9.1.6. Providing personal protective equipment (PPE)</b> such safety helmets, safety masks, safety boots, uniforms and hand gloves to the workers.</p> <p><b>9.1.7. Using well-maintained equipment</b> by qualified personnel. Train workers on work site safety issues Monitor and control illegal connection of electricity.</p> <p><b>9.1.8. The substation site shall be fenced and provided with safety signs.</b></p> <p><b>9.1.9. Emergency assembly points</b> will be appointed at the substations site prior to commencement of construction work.</p>			<p>emergency plans and local major outbreaks in case of infrastructure breakdowns, especially near roads or residential areas.</p> <p>✓ Educate local populations about the safety of electricity installation in their homes and other electricity infrastructures and the need to use experienced and trained staff in electricity for installation in their houses. This should be part of REG’s Stakeholders Engagement Plan (SEP).</p> <p><i>The budget will cover costs of required tools and equipment and the budget for monitoring and inspections by the E&amp;S team.</i></p>

Item	Mitigation measures	Budget (RBF1)	Status of implementation in 2024	Observations and lessons learnt to apply in RBF2
	<p>9.1.10. Educate local populations to safe behavior in the presence of high voltage power lines.</p> <p><b>9.1.11. Ensure the developments of local and regional emergency plan</b> and local major outbreaks in case of infrastructure breakdowns, especially near roads or residential areas.</p>			
9.2	<p>Conduct Training on construction health and safety, first aid, firefighting, emergency response drills, use of PPE including HIV (estimated to cover 1749 persons over 3yr @ US\$400 per head)</p>	US\$ 699, 600	It is not clear if this budget has been used or not.	In case the budget allocated to these trainings is still available, it can be used for capacity building in RBF2.
<b>10. Recruit Dedicated safeguard staff to improve on capacity for SEAP II Implementation</b>				
10.1	Recruit one (1) FTE Environmental safeguard specialist for the EDCL/EARP team.	US\$ 300,000	The Social Safeguard specialist was appointed but no environmental specialist was affected to the RBF1	RBF2 requires to have Health and Safety staff from EUCL and Environmentalist and Social Safeguards staff from both EUCL and EDCL and be coordinated by Senior E&S staff.

**Complementary E&S mitigation actions for RBF2 program (see table below)**

<b>Material Actions to Manage the Program's E&amp;S Risks and Impacts</b>		<b>Key Performance Indicator</b>	<b>Indicative Timing/Deadline</b>
Quarter E&S implementation report submitted to the Bank		Reports submitted in time, in good standard	Two weeks after the end of each Quarter
<b>1.</b>	<p><b>During planning phase of rehabilitation of power stations/cabins:</b></p> <ul style="list-style-type: none"> <li>✓ ESH team should be involved from the planning phase of the rehabilitation of each power station/cabin and contribute to designing stations which comply with standards.</li> <li>✓ Where the contractor will be hired, the E&amp;S team should be involved in the tender document preparation so that their inputs are not overlooked.</li> <li>✓ The ESH team will carry out environmental, social and safety risk assessment of each station/cabin and develop a specific overall HSE plan.</li> <li>✓ The HSE plan will be integrated in the tender documents.</li> <li>✓ Carry out Induction trainings to workers</li> <li>✓ The E&amp;S team to organize awareness campaign of communities around the facility, engage key stakeholders (local authorities, security organs, Kigali city, ...)</li> </ul>	<ul style="list-style-type: none"> <li>✓ HSE plan of the cabin/station,</li> <li>✓ HSE plan of cabin/substations integrated in the tender document of contractor</li> <li>✓ Reports of induction trainings</li> <li>✓ Reports of awareness campaigns and stakeholders' engagement</li> </ul>	Planning phase of each power station/cabin
<b>2.</b>	Establishment of the Project Grievance Redress Mechanism (GRM) and disclosure to Public	Letter on appointment of GRM Committee	One month after commencement of the Project
<b>3.</b>	<p><b>3.1.</b> Referring to smart stations rehabilitated during RBF1, ESH team defined specifications of - <b>Smart stations</b> to be developed during RBF2 program as follows:</p> <ul style="list-style-type: none"> <li>✓ Fenced, covered, with rest rooms, safety signs, security room, water drainage, graveling, paved or/and green, safety equipment (including fire extinguisher, handling kits and other PPE, ...)</li> <li>✓ Air insulated switch gears (prohibit PCB)</li> <li>✓ Regular trainings of workers</li> <li>✓ Operating manuals...</li> </ul> <p><b>3.2.</b> Specifications of smart stations to be integrated in the tender documents for recruitment of contractor</p>	<ul style="list-style-type: none"> <li>• Specifications of smart stations incorporated in the tender documents for recruitment of Contractor</li> <li>• Presence of all specification of the smart cabin at the newly constructed/Rehabilitated/Upgraded cabin.</li> </ul>	<ul style="list-style-type: none"> <li>• Prior to construction/rehabilitation of each station/cabin</li> </ul>
<b>4.</b>	<p><b>Increase safety of power/cabin stations during operations</b> by:</p> <ul style="list-style-type: none"> <li>✓ hiring guards or security agents (when needed)</li> <li>✓ appointing safety manager/officer for each station to ensure regular inspections and maintenance,</li> <li>✓ providing resources (financial resources (petty cash), spare parts....) to safety manager and/or branch managers to facilitate quick reparation and small maintenance,</li> <li>✓ providing training to branch managers, engineers, quality managers and safety officers on safe management of the stations.</li> <li>✓ Organize toolbox meetings of staff</li> <li>✓ <b>Reporting:</b> keep record of incidents/accidents, develop an incident/accidents root cause analysis procedure</li> </ul>	<ul style="list-style-type: none"> <li>✓ Guards appointed to some stations (as needed).</li> <li>✓ Safety manager/officer appointed to each station</li> <li>✓ Report of inspections done by the safety manager</li> <li>✓ Resources for maintenance available</li> <li>✓ Reports of staff training</li> <li>✓ Reports of toolbox trainings</li> </ul>	During operations of station/cabin

## Annex 3: List of people met during the ESSA and minutes of meetings

### 4.1. Sites visit on 12/09/2024

#### 4.1.1. List of people met during the site visit

1. Ingabire Ernest – Branch Manager – Kinyinya - EUCL
2. Jean Baptiste Rwigimba – Quality Manager - EUCL
3. Jean Paul Tuyisenge – Safety Manager (Operations Planning Department) – EUCL
4. Numviyigoma Theophile – Chief Engineer Maintenance Operations Unit (Distribution Department) - EUCL
5. Pascal Tuyishime – E&S specialist – EDCL

#### 4.1.2. Minute of the sites visits

During the site visit, the team visited 3 substations which were proposed to be rehabilitated before the final list of activities be released: 2 located in Gaculiro (a residential area in Kigali city) and another one located in the Kigali City Centre (La Galette). The team brainstormed on the high need of rehabilitating the 3 stations and on the associated risks and impacts during construction and during operation. Preliminary recommendations were done on how to minimize the risks and impacts for RBF2 projects as follows:

- ✓ during the planning for rehabilitation of each station, E&S staff should be involved to assess risks (including safety) and impacts and propose mitigations measures,
- ✓ all substations should be fenced and covered (to avoid frequent electricity cut off when it rains and the risks of robbery or other intrusions on the substations...)
- ✓ There should be warning signs in substations and on other dangerous electrical facilities (such as non-isolated electrical cables) to prevent electrocutions hazards...
- ✓ E&S staff should be given financial capacity to repair/maintain the sub stations during operation phase...
- ✓ Awareness on electrical risks should be given to people and to customers, during construction phase and during operational phase.

These recommendations will be considered in the RBF2 program, they will be enriched the ESIA's and SEAs of similar projects/program implemented by REG and by contributions of other stakeholders in the subsequent consultation meetings.

### 4.2. Meeting at REG on 17/09/2024

#### 4.2.1. List of people met on 17/09/2024

1. Esdras Rugira – Director Planning - EDCL
2. Pascal Tuyishime – E&S specialist – EDCL
3. Jean Paul Tuyisenge – Safety Manager – EUCL
4. Nyinawamwiza Petronille – Social safeguard Specialist – RBF1 – EDCL

#### 4.2.2. Meeting with E&S team on 17/09/2024

*Participants to that meeting were:* the E&S specialist of EDCL who is coordinating the support of the mission, the safety manager of EUCL and the social safeguard specialist who is supervising the RBF1 program.

During the meeting, participants brainstormed on the status of implementation of the ESMP of RBF1, the challenges encountered, and they proposed on areas of improvement to ensure better performance of RBF2. The main areas of improvements were based on the recommendations from the site visit, and they were complemented by the overall experience of the 3 E&S staff in the enforcement of E&S measures by REG, in general. The common challenge encountered by E&S staff of REG is that they are often called to react when there are issues although they should be involved in all phases of the project/program, from identification to closure. Details on the outcomes of that meeting is in **Annex 3**.

### **4.3. Virtual meeting with MININFRA and REG on 24/09/2024**

#### **4.3.1. List of people met on 24/09/2024**

1. Marion Nirere – Energy SWAP Coordinator – MININFRA
2. Peace Kalisa – Donors Coordination – MININFRA
3. Esdras Rugira – Director Planning - EDCL
4. Willy Uwizeye – E&S specialist – RUEAP – EDCL
5. Frederic Habineza -
6. Denise Umulisa – Planning Department – EDCL
7. Frank Bahizi – Coordinator – RBF1 – EDCL
8. Arkins Mwila KABUNGO – Task Manager – RBF2 – AFDB
9. Uche Duru -

#### **4.3.2. Meeting with MININFRA and REG on 24/09/2024**

During the meeting, a presentation on the key areas of improvement learnt from the implementation of RBF1 was discussed about. It was confirmed that the budget allocated to ESMP of the SEA of RBF1 was not availed and consequently some proposed activities (of the ESMP) were not implemented, such as the capacity building, the development and implementation of the ESMS of REG ...The last was not well perceived and judged unnecessary by MININFRA. It was agreed that the final ESSA document of RBF2 will be shared one week after, reviewed by the E&S team of REG (including RUEAP), to ensure that experience from other projects/programs will be well captured in the RBF2's ESSA. At the end the ESSA will be discussed about with MININFRA, REG and other stakeholders to produce the final documents that will be published on the websites.

**Annex 4: Photos from site visits**

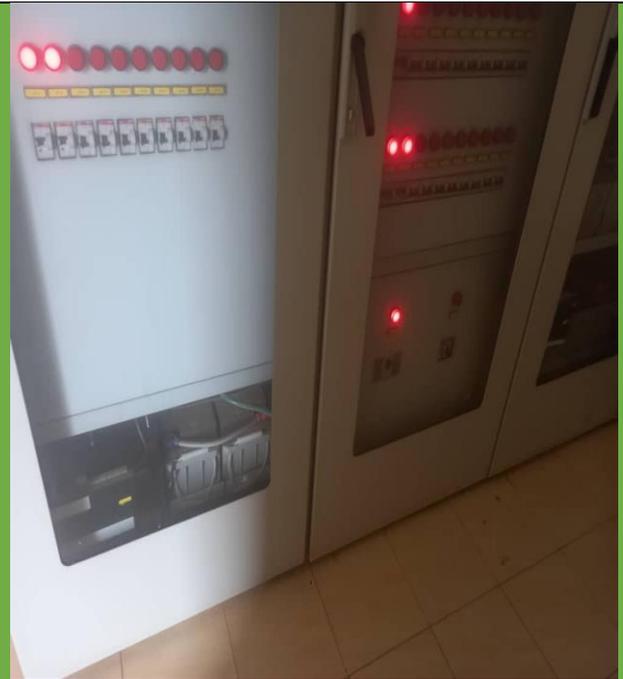
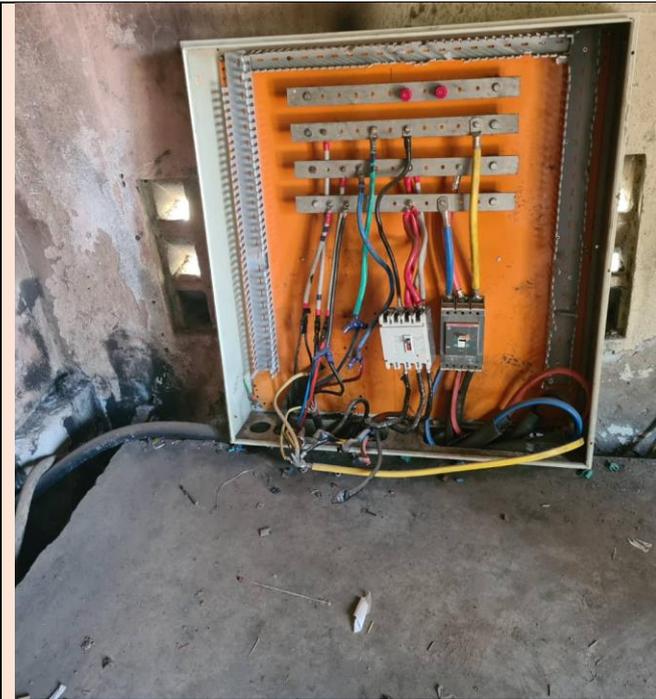
**Sites/ Cabins visited in Kigali  
(on the left)**



*La Galette substation*

**Smart substations  
(newly rehabilitated)**





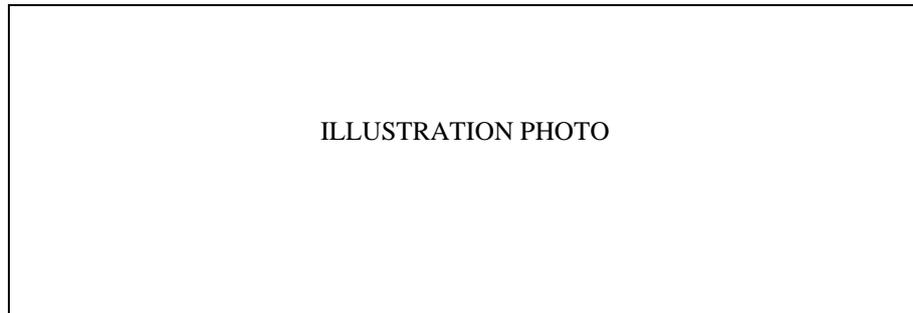
*Gaculiro substation*

## **Annex 5: Template of Periodic E&S Implementation reports**

**REPUBLIC OF XXXXXX**

Project Name

### **PERIODIC ENVIRONMENTAL AND SOCIAL IMPLEMENTATION REPORT<sup>1</sup>**



**Reporting period**

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<sup>1</sup> The Resettlement Action Plan (RAP) implementation report is submitted separately.

## 0. Summary

- Brief overview of the project (summary of key physical works, source of financing, E&S category);
- Nature of safeguards instruments and date of approvals by the Borrower;
- Progress of the project and the works;
- Update on the implementation of all recommendations made during the previous reporting period;
- Main reporting points in line with the E&S KPIs of the ESMP during the reporting period in the form of a table [administrative and contractual documentation, E&S capacity at all levels (contractor, PIU, etc.), incident/accidents, complain management, etc.].
- Overall progress in complying with the E&S obligations as set in the financing agreement.

## 1. Introduction

- Brief description of the project;(context, objectives, components, location with a map if possible, sources of financing, works contracts if applicable, contractor, owners and owners engineer, etc.);
- Main activities planned/undertaken during the reporting period, and especially those with E&S implications;
- Updated works planning;
- Objectives of the report;
- Pending/delays actions as of the precedent report.

## 2. Status of implementation of risks & impacts management measures to date [from the project start to the end the reporting period]

### 2.1 Organization for the monitoring/implementation of the ESMP: This section shall answer the following question:

- Is the Project Implementation Unit (PIU) adequately staffed with skilled and permanent E&S specialists? Do they have resources (finance and equipment) to carry out optimal field visits and supervisions?
- Are the Contractor and Owner/supervising engineer adequately staff with skilled and permanent E&S staff and well equipped (vehicles for EHS, computers, in-situ water, air and noise sampling kits, etc.)? Are they preparing their periodic E&S reports to the Owner? What is the status of the employees (male, female, nature and duration of contracts) over the period covered by the report?
- What are the constraints to the achievement of the above matters?

*If this is not the first report, please just indicate any changes as compared to the previous reporting period.*

### 2.2 Implementation of the ESMP during the reporting period <sup>2</sup>

#### 2.2.1. Environmental and Social Assessment. This section addresses the following concerns:

- Were all the additional risks and impacts assessments carried out, processed as required by the financing agreement, and then the measures included in bidding documents and contracts prior to commencement of works? (Ex. E&S assessment of camp sites, borrow pits, quarries, changes of alignment/new sites, associated/related infrastructures, etc. including related consultation).
- Report on activities implemented during the reporting period related to annual environmental and social performance audit and where applicable to RAP completion audits (preparation and validation of ToRs, recruitment of independent consultant, submission of related report)<sup>3</sup>
- Were all the required national permits/licenses/certificates and required insurances [EPA, factories office, Municipalities/local authorities, Fire service, all-natural resources related authorizations (water, materials, etc.), occupational health and safety/labor if applicable, etc.] gotten before commencement of any subject work? If not, why and what are the risk, consequence and remedy?

For measures that were planned or due but that have not been implemented, please provide a justification and the actions to be taken with timelines.

- 2.2.2. Status of the mitigation measures.** This section will inform/update on the status of the mitigation measures using a matrix approach. Please use the ESMP classic matrix (of the country's template if any) with the following columns in sequence: (i) code/number, (ii) Due E&S measure, (iii) Targeted E&S risk/impact, (iv) Linked investment activity, (v) Indicator of completion of the E&S<sup>4</sup>, (vi) Verifier. *Apart from column (v) and (vi) the contents of the other columns must come from the disclosed ESMP and be in the same formulation as in the original document (if reformulated, please justify why).*

<sup>2</sup> The periodic report covers the relevant issues in the concerned reporting period and the annual report covers the reporting period for the year.

<sup>3</sup> The status of implementation of recommendations of E&SRAP completion audits is to be documented under status on implementation of ESMP activities.

<sup>4</sup> The description must be as quantitative as possible, including metrics whenever possible and the completion date.

Code	Due E&S measure	Targeted E&S risk/impact	Linked investment activity	Indicator of completion of the E&S measure	Verifier

Comment of specific issues, if any, may follow here. (Ex. Justification of delays or shortcomings, and then actions underway/to be taken including realistic timelines to minimize overall project implementation delay and cost overrun).

**2.3. Other specific issues.** This section shall elaborate on unplanned measures including the identification/treatment of residual impact. Example would cover the following questions:

- Is there any unanticipated biodiversity, renewable resources and ecosystem services issue which appeared to be relevant for consideration? How was it handled? Why, if not treated.
- Is there any unanticipated pollution, hazardous materials or resource efficiency issue which appeared to be relevant for consideration? How was it handled? Why, if not treated.
- Is there any unanticipated labor and working conditions issue which appeared to be relevant for consideration? How was it handled? Why, if not treated.
- Have there been any EHS incidents? how were they managed? what additional measures have been identified and implemented?
- To what extent the stakeholders are being engaged during the implementation of E&S risks and impacts management measures? Do they participate in monitoring the implementation of E&S risk and impact management measures?
- What are the status of the complaints filed by stakeholders? Is the MGP communication component being implemented permanently? Is the complaint and resolution log up to date, including physical and electronic archiving of the records?
- How was the national authority in charge of ESA engaged in the oversight of the project’s E&S compliance? The report must mention the number of field visits carried out by said national authority, the corrective actions proposed, the implementation status as well as a summary of all the reports submitted by the PIU to the authority.
- What is the level of expenditure of the amounts detailed in the ESMP? Please include a summary table with the different expense lines, including those incurred by the contractor.

### 3. Administrative and applicable requirements

- Any change in terms of applicable requirements both national and international, E&S related personnel, location/siting (corridor/alignment), design, etc.

### 4. Capacity building;

- Report on any capacity building activity (type, period, concerned stakeholders, issues, etc.) at all levels (PIU and other institutional stakeholders, community, contractor and sub-contractor, etc.)<sup>5</sup>; please attach reports/minutes to this periodic report.
- Provide a summary table indicating planned versus achieved during the reporting period.

### 5. Conclusion and recommendations

- Overall self-rating of the E&S performance to date;
- Summary in the form of a table of key measures/activities that were planned or due but that have not been implemented during the reporting period, including the justification, the actions underway/to be taken, and the related timelines;
- Any other issue and recommendation.

### 6. Annexes

- Photo log;
- All relevant document/evidence in line with the reporting period.

<sup>5</sup> This includes all trainings and capacity building activities undertaken or planned during the reporting period