

**THE REPUBLIC OF RWANDA**



**MINISTRY OF INFRASTRUCTURE  
P.O.BOX 24 KIGALI**

**Accelerating Sustainable and Clean Energy Access Transformation in RWANDA (P180575)**

**RWANDA ENERGY GROUP (REG)**

**ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK (ESMF)**

**Kigali, April 2024**

**Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)**

**Document information**

Name of the Project	Accelerating Sustainable and Clean Energy Access Transformation (ASCENT)
Project Identification as of WB	P180575
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Type of document	Environmental and Social Management Framework
Document volume	I
Version	I

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**LIST OF ACRONYMS**

<b>ASCENT</b>	:Accelerating Sustainable and Clean energy Access Transformation
<b>AIIB</b>	: Asian Infrastructure Investment Bank
<b>EA</b>	: Environmental Assessment
<b>AFD</b>	: Agence Francaise de Développement
<b>CFL</b>	: Compact Fluorescent Lamp
<b>DP</b>	: Development Partner
<b>DAD</b>	: Directorate of Access and Distribution
<b>EAQIP</b>	: Energy Access and Quality Improvement Project
<b>EARP</b>	: Electricity Access Roll out Program
<b>EASSDP</b>	:Electricity Access Scale-Up and Sector Wide Approach Development Program
<b>EDCL</b>	: Energy Development Corporation Limited
<b>EUCL</b>	: Energy Utility Corporation Limited
<b>EICV</b>	: Integrated Household Living Conditions Survey
<b>ESCP</b>	: Environmental and Social Commitment Plan
<b>ESF</b>	: Environmental and Social Framework
<b>ESIA</b>	: Environmental Impact Assessment
<b>ESIA</b>	: Environmental and Social Impact Assessment
<b>ESMF</b>	: Environmental and Social Management Framework
<b>ESMP</b>	: Environmental and Social Management Plan
<b>ESSs</b>	: Environmental and Social Standards
<b>EU</b>	: European Union
<b>GIIP</b>	: Good International Industry Practice
<b>GoR</b>	: Government of Rwanda
<b>GRMC</b>	: Grievance redress mechanism committee
<b>IDA</b>	: International Development Association
<b>LV</b>	: Low Voltage
<b>MINECOFIN</b>	: Ministry of Finance and Economic Planning
<b>MININFRA</b>	: Ministry of Infrastructure
<b>MoE</b>	: Ministry of Environment
<b>MV</b>	: Medium Voltage
<b>NST1</b>	: National Strategy for Transformation one
<b>OFID</b>	: OPEC Fund for International Development
<b>PAP</b>	: Project Affected People
<b>PCB</b>	: Polychlorinated Biphenyls
<b>PIU</b>	: Project Implementation Unit
<b>PPE</b>	: Personal Protective Equipment
<b>RAP</b>	: Resettlement Action Plan
<b>RAPEP</b>	: Rwanda Association of Professional environmental Practitioners
<b>REMA</b>	: Rwanda Environmental Management Authority
<b>RoW</b>	: Right of Way
<b>RPF</b>	: Resettlement Policy Framework

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<b>RURA</b>	: Rwanda Utility Regulatory Authority
<b>Rwf</b>	: Rwandan Franc
<b>SMART</b>	: Specific, measurable, achievable, realistic and timebound
<b>ToR</b>	: Terms of Reference
<b>WB</b>	: World Bank

## EXECUTIVE SUMMARY

### Project context

The Government of Rwanda (GoR), through the Ministry of Infrastructure (MININFRA), with the funding from the World Bank/International Development Association (IDA) and Asian Infrastructure Investment Bank (AIIB) and other Development Partners (DP), is developing a project titled “Accelerating Sustainable and Clean Energy Access Transformation (ASCENT)”. This multi-donor energy sector investment financing project will support the Government of Rwanda’s energy access objectives toward country universal energy access. The ASCENT Project would have a total volume of an estimated US\$ 400 million. The total IDA investment would be US\$300 million, spread across four components of i) Increasing Access to Grid Electricity, ii) Enhancing the Efficiency of Electricity Services, iii) Increasing Access to Off-Grid Electricity and Clean Cooking, and iv) Institutional Capacity Building, Technical Assistance and Implementation Support for Energy Access Acceleration. The project will also receive the funds from AIIB of US\$ 100 million investment financing.

**The Project Development Objective** is to increase access to modern energy for households, enterprises, and public institutions; and enhance the efficiency of electricity services in Rwanda.

The project has four main components:

Component 1: **Increasing access to grid electricity** (US\$ 225 million IDA; US\$ 69.25 million AIIB) which will increase access to households within 27 administrative districts located in four provinces of Rwanda namely Western, Southern, Eastern and Northern Province of Rwanda.

Component 2: **Enhancing the efficiency of electricity service** (US\$ 54.75 million IDA; US\$ 18.25 million AIIB) which will support investments towards improving grid stability and reliability to enable Rwanda to accelerate the access program with reliability and efficiency.

Component 3: **Increasing Access to Off-Grid Electricity, Clean Cooking Solutions, and Productive Uses of Energy (PUE)**(US\$ 22.5 million IDA; US\$ 7.5 million AIIB): This component will support: (i) Off-grid electrification and clean cooking access through results-based financing (RBF) facilities established under the BRD (Subcomponent 3a and 3b); (ii) Increasing access to PUE technologies that are designed to be used by households and small and micro businesses enterprises via RBF (Subcomponent 3c); (iii) Credit support facility for off-grid systems, clean cooking solutions and PUE technologies (Subcomponent 3d); and (iv) Scaling up clean cooking in public institutions such as schools (Subcomponent 3e). Funding under subcomponents 3a, 3b, and 3e will complement the funding resources under the ongoing EAQIP and REF projects and will be deployed once the funding under ongoing projects is depleted.

Component 4: **Institutional Capacity Building, Technical Assistance and Implementation Support for energy access acceleration** (US\$15 million IDA; US\$5 million AIIB). The component will provide the necessary funding for technical assistance, feasibility studies, implementation support, and institutional capacity building.

### **Rationale for ESMF and other Project ESF documents that supplement it.**

The ESMF sets out clear procedures and mechanisms as well as practical approaches to ensure the compliance of the subprojects/project activities with the requirements of National laws and the World Bank (WB). This project entails a greater range of investments; hence, the ESMF was prepared as a framework compatible with WB Environmental and Social framework. The ESMF is also in line with requirements of the Environmental Law (No. 48/2018 of 13/08/2018) determining the modalities for protecting, conserving and promoting the environment in Rwanda, and the Ministerial Order No 001/2019 of 15/04/2019 establishing the list of projects that must undergo environmental impact

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assessment, instructions, requirements and procedures to conduct environmental impact assessment. The WB Environmental and Social Standards (ESSs) applicable to the project are; ESS1 (Assessment and Management of Environmental and Social Risks and Impacts), ESS2 (Labour and Working Conditions), ESS3 (Resource Efficiency and Pollution Prevention and Management), ESS4 (Community Health and Safety), ESS5 (Land Acquisition, Restrictions on Land Use and Involuntary Resettlement), ESS6 (Biodiversity Conservation and Sustainable Management of Living Natural Resources), ESS8 (Cultural Heritage), and ESS9 (Financial Intermediaries), ESS10 (Stakeholder Engagement and Information Disclosure).

**Other Project environmental and social documents that supplement this ESMF** include WB EHSG (World Bank Environmental Health and Safety Guidelines), RPF (Resettlement Policy Framework), project specific ESIA (Environmental and Social Impact Assessment), RAP (Resettlement Action Plan), ESMP (Environmental and Social Management Plan), and EHSP (Environmental Health and Safety Plan), Labour Management Procedure (LMP), Stakeholder Engagement Plan (SEP), the Environmental and Social Commitment Plan and the BRD's ESMS that will be used to guide the implementation of sub-components 3a, 3b, 3c and 3d.

**Potential Environmental and Social Impacts and Mitigation Measures**

According to the WB ESF (Environmental and Social Framework), the project's environmental and social risk rating is substantial, considering the anticipated risks and impacts associated with construction of (medium voltage) power distributions lines (component 1), enhancing the efficiency of electricity services (component 2), and Increasing Access to Off-Grid Electricity, Clean Cooking Solutions, and Productive Uses of Energy (PUE) (component 3). It also considers technical assistance that involves sector performance improvements and forward-looking options for sector development; capacity building in planning, skills development, audit and compliance; and policy and regulatory improvement and entrepreneurship development, including targeted training for women entrepreneurs under clean cooking solutions (part of component 4), among others. According to the law regulating Environmental Impacts Assessment in Rwanda the project involving the construction of HV (High Voltage) lines and MV (Medium Voltage) lines is subject to full Environmental Impact Assessment. The project activities will involve construction of MV and LV (Low Voltage) lines. The World Bank and AfDB funds will be used to connect about 420,000 households (including 79,000 fill-in connections). The districts to be covered under the project are Gisagara, Huye, Muhanga, Nyamagabe, Nyanza, Nyaruguru, Ruhango, Bugesera, Gatsibo, Kayanza, Kirehe, Ngoma, Nyagatare, and Rwamagana. Other districts can be considered during project implementation. The financing will help these districts to reach 75 percent electrification, as well as support fill-in connections in areas with existing grid connectivity. Fill-in connections will be done in the Musanze, Rubavu, Nyagatare, Rwamagana, Gatsibo, Ruhango, Bugesera, Kamonyi, Muhanga, and Nyanza districts, and potentially other districts identified during implementation. Project implementation will commence in areas with no ongoing electrification projects and will be commence in a phase-wise manner in areas with ongoing electrification projects. However, these and more others are to be confirmed at a later stage.

It is anticipated that the construction of HV and MV lines will be subject to Environmental and Social Impact Assessment according to Ministerial Order No 001/2019 of 15/04/2019 establishing the list of projects that must undergo environmental impact assessment, instructions, requirements, and procedures to conduct environmental impact assessment which stipulates that all projects involving the construction of MV and HV lines must undergo a full Environmental and Social Impact Assessment. For each of these project components, the assessment will be done to analyze the project impacts on natural environment (air, water, soil, fauna, flora) and socioeconomic and cultural environment. For all project

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components the mitigation measures will be developed in site specific Environmental and Social Management Plan (ESMP) in compliance with World Bank Environmental and Social Framework (ESF), Environmental Health and Safety (EHS) Guidelines, Good International Industry Practice (GIIP) and National Environmental law 48/2018 of 13/08/2018. As of now, no associated facility has been identified. However, once any associated facility is identified, it will apply the World Bank ESF requirements for E&S compliance as well as ensuring compliance with the E&S guidelines.

As the substations to be rehabilitated under ASCENT have no EIA Certificate, they will undergo the Environmental and Social Audit before the construction works begin to comply with National regulations on Environmental Audit (Ministerial Order No 001/2021 of 08/02/2021 establishing the list of projects that must undergo environmental audit, instructions and procedures for conducting environmental audit) which establishes that all existing facilities based on their description and background information generated during the scoping process, they may undergo the Environmental Audit.

**Positive Impacts**

In the construction phase there will be temporary employment opportunities for local contractors and those who will be employed or supply services and provisions for workers and to contractors. Within the respective project areas there will be opportunities for petty trading and small business service provision along the construction of power electrical line in component 1, rehabilitation and upgrade of lines and different substations in the component 2 including different substations, transmission lines and distribution lines to be determined at later stage of the project. Furthermore, the component 3 of increasing access to off-grid electricity and clean cooking solutions will create many employment opportunities for private sector companies, local people who will be hired and especially targeted women entrepreneurs who will receive the capacity building to be motivated to take part in the business of clean cooking solutions. Some of social benefits includes the enhancement of electricity supply services in the trading centres and small industries like sawmills and joineries, grain mills and other agricultural processing businesses which need electricity for efficient production. The long-term direct positive impact is therefore the access to reliable electricity supplies, which will lead to better provision and easier management of goods and services and enable new facilities for processing and storage.

Social and environmental costs, not least in noise and air pollution, associated with existing generator usage and kerosene lamps will be reduced and there will be a more limited requirement for firewood cutting and collection which will reduce indoor air pollution and contribute to the long-term environmental pollution control through the reduction of CO<sub>2</sub> emissions and fossil fuel use.

**Adverse impacts**

The project is expected to have some adverse environmental impacts, but all of them will be mitigated to the extent possible to avoid any harm that this may cause to the environment. The component 1 is expected to have different environmental impacts on vegetation resulting from bush clearing, soil and water contamination resulting from the use of machinery fuel and lubricants, contamination due to the unsafe waste disposal, landscape deformation and land degradation due to different excavation works, noise pollution caused by the use of heavy vehicles and machines, and air pollution from the burning of fossil fuel, electromagnetic field from energized electrical lines, labor influx as some of the project workers may be sourced from different areas due to the needed expertise and other labour related issues, aesthetics and visual related impacts, loss of properties (crops and trees) within the right of way, temporal restriction to land use which will happen during construction phase before the line is handed over among others. The component 2 of Enhancing the efficiency of electricity service will involve the Construction of different substations, transmission lines and distribution lines to be determined at later

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stage of the project, which will have negative environmental impacts such as noise pollution, Soil erosion, changes to the natural landscape, and generation of hazardous and non-hazardous wastes, electromagnetic field from energized electrical lines, labor influx as some of the project workers may be sourced from different areas due to the needed expertise and other labour related issues, aesthetics and visual related impacts, loss of properties (crops and trees) within the right of way, temporal restriction to land use which will happen during construction phase before the line is handed over among others. Environmental and social Impacts Assessment, if required, will be prepared for the transmission line component to make sure that all negative impacts to the project are mitigated and the positive ones maximized. The components 3 and 4 will have environmental impacts related to waste generation from used solar panel, batteries and accessories; and TA which will develop policy and regulatory including the review of tax tariff that may increase CO<sub>2</sub> emissions due to the promoted fuel type, increasing the pressure on the forest through increasing population depending on the firewood due to the increased and unaffordable prices, loss of employment for people who were working previously in the charcoal sector caused by the increment in taxation on the charcoal, unemployment from the tax increase on charcoal and decrease on the clean cooking stove due to the promotion of environmental protection through energy efficiency. All of these will be mitigated efficiently.

The project is also expected to have social and cultural impacts resulting from the temporary loss of access to land or property due to the construction works within the right of way, crop destruction in the Right of Way, aesthetics and visual related impacts, damage and loss of physical cultural properties, workers health and safety related impacts due to potential construction, operations and maintenance and camp installation. The impacts are limited to the specific project areas, minimal and minor in scale and in terms of magnitude and should be adequately mitigated through the preparation of appropriate ESMPs, EHSPs and RAPs, LMP, SEP and GAP whenever required.

The following laws, policies and frameworks were reviewed and discussed in the details for their relevancy to the project:

- The constitution of the Republic of Rwanda of 2003 revised in 2023;
- National Strategy for Transformation one (2017-2024) \_NST1;
- N° 27/2021 of 10/06/2021 Law governing land;
- Law n° 027/2023 of 18/05/2023 amending the Law n° 66/2018 of 30/08/2018 regulating labour in Rwanda;
- The Law (No. 48/2018 of 13/08/2018) on Environment determining the modalities for protecting, conserving, and promoting the environment;
- Ministerial Order N° 001/ 2019 of 15/04/2019 establishing the list of projects that must undergo environmental impact assessment, instructions, requirements, and procedures to conduct environmental impact assessment.
- Law No 32/2015 of the 11/06/2015 relating to Expropriation in the public interest
- World Bank Environmental and Social Standards (ESSs);
- Law no 32/2015 of 11/06/2015 relating to expropriation in the public interests;
- Ministerial order No2 of 17/05/2012 determining conditions for occupational and health safety;



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- Regulations No 002 of 26/04/2018 governing e-waste management in Rwanda;
- Guidelines on the management of waste disposal site/dumpsites (landfill) ;
- National wetland conservation program;
- RURA Guidelines for Right of Way in Rwanda;
- MININFRA, Biomass energy Strategy, A sustainable path to clean cooking solution 2019-2030

**Project Coordination, Implementation Arrangement and Budget**

The REG is responsible, inter alia, for monitoring the status of the projects activities and taking action needed for safe implementation. REG has established a Project Implementation Unit (PIU) in its subsidiary, EDCL, to provide the leadership that will run the project in coordination with the departments within EDCL. The PIU is responsible for ESMF development and approval and control over its implementation and advice to EDCL and the Contractor on compliance with WB Environmental and Social Standards, and national laws in the field of environmental and social protection during all project activities. The PIU will carefully analyze the project scope, their availability to the project activities and their capacity for the successful implementation of the project and its ESMF. If need be, they can suggest additional supporting staff for the project and ESMF implementation.

The project will utilize the implementation arrangements of the on-going EAQIP (P172594) and Renewable Energy Fund (REF; P160699) and will be jointly implemented by EDCL and BRD. As under EAQIP, EDCL will cover all grid-related components (components 1 and 2), the institutional clean cooking program (subcomponent 3e), and the overall program coordination, while BRD will implement the off-grid and clean cooking programs and will develop a new PUE RBF along similar lines (subcomponents 3a, 3b, 3c, and 3d). Further, EDCL will implement Component 4a and BRD will implement Component 4b. EDCL's implementation of Component 2 will draw on EUCL's technical expertise, as needed. This will be done by seconding relevant EUCL staff to EDCL for the duration of the assignment. If required, a service level agreement could be signed between EDCL and EUCL. Using the same implementation arrangements that are efficiently working under EAQIP will eliminate duplication of effort and transaction costs for the GoR, enhance the efficiency of implementation, strengthen the capacity of the Government institutions, and help streamline development partner coordination of the program. The project will utilize the existing PCU, that was created for the implementation of the RUEAP program, under which the EAQIP project is being implemented. The PCU will be resourced and strengthened appropriately to take into account the increasing workload.

The total budget for the implementation of this ESMF is estimated at 705,000 USD. The key indicative aspects include (1) Training and capacity building for the project PIU; (2) Training and capacity building for District Environment Officers and project liaison officers, contractor staff and supervisor staff training, including the supporting staff; (3) Meetings and consultation with PAPs and local communities; (4) Preparation of ESIA for grid extension; (5) Preparation of site specific ESMPs; (6) Implementation of Environmental and Social Management Plan (ESMPs); (7) Monitoring and evaluation of ESMPs; and (8) grievance redress mechanism and the (9) preparation of the Environmental Audits . More about the budget may be found in the table 27 of this ESMF.

**Monitoring and Evaluation Framework**

The arrangements for monitoring the ESMF and site specific ESIA/ESMPs will fall under the overall responsibility of the EDCL PIU and Districts. Monthly monitoring and annual evaluations will be

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conducted to determine whether the monitoring and mitigation measures proposed in the ESIA/ESMPs for the subproject components will be implemented effectively by the project implementing agencies.

**Capacity Building**

Effective implementation of the ESMF will require capacity building of the dedicated E&S Specialists of ASCENT and Energy Project liaison Officers working at the district REG branches. EAQIP currently has an Environmental Safeguards Specialist and a Social Safeguards Specialist dedicated to World Bank projects. They have received online ESF training organised by World Bank., but the refresher training is needed. However, the new E&S Risk Management staff to be recruited, will receive the same training to enhance their capacity in implementing World Bank funded projects. While they are expected to be able to handle the workload of Bank projects in terms of supervision, they will need to be supported by Energy Project liaison Officers in the field. The hiring of Energy Project liaison Officers in each of the REG district branches will provide daily support and supervision of Supervising staff and Contractor E&S compliance. The recruited Energy Project liaison Officers should receive training on the ESF as well as on Occupational Health and Safety (OHS) so that they are familiar with Bank policies and requirements.

At present, EDCL has one OHS Specialist that looks at OHS compliance for all EDCL implemented projects in Rwanda. A dedicated OHS Specialist will be hired in ASCENT who would be responsible to ensure OHS compliance and follow up with Supervising Engineers and Contractors, supported by the district Energy Project liaison Officers. This person would be responsible for ensuring that the commitments in the Labor Management Plan (LMP) and the OHS Plans are upheld.

One key bottleneck involves the processing of compensation files by EDCL Expropriation Clerks. Compensation files are prepared by the Contractors' independent valuers, in collaboration with district valuers, who verify compensation amounts. The files are then transferred to EDCL (under REG), which further verifies and clears the files and sends them to MINECOFIN for payment directly to the project affected persons (PAPs) bank accounts. EDCL currently has 15 Expropriation Clerks who review all files received for all EDCL-implemented projects in Rwanda. While EDCL Expropriation Clerks have strong experience with compensation, the large workload envisaged under this project could result in compensation delays based on current implementing project, at this point, the EDCL shall dedicate Expropriation Clerks assigned to only World Bank-financed projects to facilitate the process and avoid the aforementioned delay.

The ASCENT will fund the training of E&S Risk Management staff and the main objective of the training is to support the EDCL and contractors staff especially their E&S Risk Management team to develop capacity and in the medium term to have in-house capacity to mainstream safeguard activities with specific skills in integrating environmental and social considerations early in the design concepts such as the design of distribution and transmission lines and transformers and during surveys and project supervision.

For effective implementation of the project, district/local level environmental officers will be trained and called for their full involvement in project implementation whereby supervision and monitoring of environmental risk management requirements in subproject construction and operations are among the duties. BRD has E&S Safeguards staff with experience in implementing World Bank Projects and will be supporting this project to comply with their existing Environmental and Social Management System. However, the refresher training is needed to further enhance their capacity in dealing with similar WB projects.

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It is also expected that environmental and social considerations will be considered in the contracts between ASCENT and contractors. The contract should include a clause on training requirements and other necessary support services to implement the mitigation measures.

**ESMF Preparation, Approach and Methodology**

The safeguard team has reviewed the relevant guidelines, policy, regulatory and institutional framework related to ESMF in the context of ASCENT. These include the WB EHS guidelines and environmental and social standards; international treaties and conventions on environment; and national regulatory and institutional framework that can influence or be influenced by the implementation of ASCENT. This helps to elucidate problems that will need special attention during the implementation of this project.

This ESMF establishes procedures and tools/Instruments (ESIA, ESMP, EHSP, LMP, SEP, GAP) for individual subprojects at the stage of their implementation. Whereas REG will play the overall coordination of implementation of this ESMF, Contractors, Subcontractors, Stakeholders in different sectors will play a big role in its implementation. The stakeholder engagement plan was developed and part of it is incorporated in this ESMF to show the results of Public consultation done and what they have committed to help the project.

**Disclosure and Public Consultation of ESMF and ESIA/ESMPs**

Before the implementation of the subprojects/project activities, the ESIA or ESMP for each sub-project shall be prepared to guide the subproject design, construction and operation. As required by WB ESSs under ESS 1, 5 and 10, the ESMF, RPF, ESIA and ESMP are to be disclosed to public stakeholders. If new information arises out of public hearings (may occur in parallel) for the ESMP to be updated, such update shall be made for contracted companies on a mandatory basis. The ESMP may be adjusted/updated by the successful contractor with due account of the contractor's equipment, technology, status of the facility, baseline conditions, etc. These updates shall be communicated to the PIU and be subject to approval from the PIU and the WB prior to the implementation. The PIU/the WB would decide whether these updates are substantial enough to require additional public hearings. The draft Environmental and Social Management Framework will be disseminated to different key stakeholders (Ministries, Districts and surrounding communities) for the purpose of disclosure and holding of public hearings. The public consultation for this ESMF was carried out in 27 administrative districts (all 27 districts to be funded by ASCENT within the four provinces of Rwanda and different relevant institutions from 14<sup>th</sup> August 2023 to 28<sup>th</sup> August 2023 and the result of public consultation showed that this project is urgently needed by the population but also some issues were raised concerning the delay in compensation payment. All stakeholders consulted promised to support the project as indicated in the Annex 5 for Itinerary of Stakeholder Consultations and outcome .

## **I. INTRODUCTION**

### **1.1. Background**

Energy is the backbone of the development. The energy sector plays a pivotal role in supporting socio-economic transformation and has an inherently systemic link to the growth of other sectors of the economy and contribute to the abatement of environmental pollution through the reduction of firewood, generator fossil fuel and kerosene lamp usage. The energy sector act as a boost to the development of other sectors. To this effect, one of the objectives of the National Transformation Strategy One(NST1) is to scale up electricity generation and improve quality, affordability and reliability. Generation plans will be informed by medium and long-term projections and analysis of supply and demand. Long-term generation plans will include identification of least cost sources of energy generation with the objective of ensuring a cost-reflective and competitive tariff. A pro-active strategy will be developed to attract industries for economic growth and to ensure that they are supplied with available, reliable and affordable electricity. Key sectors of focus to increase demand include mining, manufacturing, ICT and commercial premises. Quality of electricity will be improved by continuing investments in network upgrading and strengthening as well as investing in loss reduction projects. Priority will be given to productive use connections such as trading centres, industrial zones, and other socio-economic facilities such as schools and health facilities.

The aim of establishing the ESMF is to set up a mechanism in the determination and assessment of future potential environmental and social impacts of the ASCENT, and thus set out mitigation, monitoring and institutional measures to be taken during implementation and operations of the proposed investments/activities and to eliminate their adverse environmental and social impacts, offset them, or reduce them to acceptable levels.

The GoR is also further required to disclose the ESMF in-country as a separate and standalone document so that it is accessible by the general public, local communities, potential project affected people, local Joint Action Development Forum (JADF) and other stakeholders.

The Rwanda Development Board is responsible for the screening, review and clearance of planned investment subprojects prior to implementation. The use of this ESMF by REG will be the instrument through which the subprojects' environmental and social impacts are identified, assessed, evaluated and have appropriate mitigation, management and monitoring measures, designed and incorporated within the specific (site-specific, activity-specific) E&S instruments" for the subprojects. The World Bank assesses if the latter have been complied with its Environmental and Social Standards (ESSs) requirements.

Over the period of 2012 to 2018, the electricity generation increased by 72% and the access to electricity has improved but it is still substantially lower than target, the rural households with access to electricity increased from 5% to 27% over the same period.

In view of above, the Government of Rwanda is designing the ASCENT to enhance the electricity supply, improving grid reliability and operational efficiency, advancing off-grid energy and clean cooking solutions, among others.

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To address environmental and social issues of ASCENT, this ESMF has been prepared based on the GoR's policy and legal frameworks, WB ESF and ESSs applicable to the project. In addition, social instruments (such as Resettlement Policy Framework (RPF)) have been prepared to address key social issues of the project.

ASCENT Rwanda will aim at assisting Rwanda in achieving universal electricity access ahead of 2030 and significantly scale up access to clean cooking technologies and fuels. Rwanda has been one of the fastest electrifying countries in the world, raising its electrification rate from single digits to 61 percent (as of 2021) in twelve years. Rwanda has established a comprehensive framework for electricity access, which supports both grid and off-grid electrification, as well as clean cooking, leverages public and private resources, and has well-designed pro-poor financing mechanisms in place. Rwanda's current electrification pace would allow it to achieve universal electricity access before 2030, but this outcome is conditioned on its ability to mobilize sufficient financing, especially as the last mile electrification will require reaching the most remote and the poorest households. It is estimated that about \$1 billion are needed to achieve universal electricity access in Rwanda, following least-cost electrification plan. ASCENT Rwanda would aim to mobilize at least a third of this amount under the proposed ASCENT MPA Phase and help the Governments of Rwanda to mobilize additional funding from development partners, the private sector and climate funding over the coming years.

### **1.2.ESMF objectives**

The main objective of this ESMF is to develop an environmental and social management framework (ESMF), including the collection of all required data, information and materials to provide an overview of the anticipated negative and positive environmental and social impacts and their recommended tangible enhancement and mitigation measures for the identified impacts. The ESMF also aims at ensuring that environment and social considerations are integrated into the project cycle to promote sustainable development by recommending appropriate strategies and actions for mitigating and monitoring of identified impacts. The ESMF assessment provides opportunity for stakeholder participation in identification of environment and social impacts, as well as mitigation of the identified negative impacts of the project. This shall provide clear, comprehensive, and practical guidance to REG through its subsidiary of EDCL to integrate environmental and social considerations into the project.

The specific objectives of the ESMF are to:

- (i) Establish clear procedures and methodologies for Environmental and Social planning, review, approval and implementation of the project.
- (ii) Identify significant environment and social impacts associated with reconstruction and operation of transmission and distribution network infrastructure.
- (iii) Prescribe measures to minimise, mitigate, and manage the identified impacts.
- (iv) Identify all relevant potential environmental risks and social concerns that may arise as a result of the project and the subprojects that it will support;
- (v) Specify appropriate roles and responsibilities of involved stakeholders in the implementation of the ESMF;
- (vi) Develop subproject review procedures as well as forms, guidance and checklists to apply technical input for the subprojects;

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- (vii) Develop a screening procedure to identify the environmental and social issues associated with the subprojects;
- (viii) Prepare a generic ESMP that can be applied to manage the identified environmental and social risks and set out the monitoring plan that will be undertaken to confirm correct ESMP delivery;
- (ix) Develop the Term of Reference (ToR) for appropriate E&S risk management instruments (such as ESIA) as appropriate and required;
- (x) Review and make an assessment of the capacity of the national project implementation entities, to screen subprojects and monitor the implementation of the project ESMP; and make proposals for capacity enhancement as appropriate;
- (xi) Develop a public consultation and stakeholder engagement strategy;
- (xii) Define appropriate environmental and social standards performance indicators; and
- (xiii) Provide practical information resources for implementing the ESMF.

### **1.3.Scope of work**

Task 1: Preparation of an ESMF for Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT) that ensures that enough guidance is provided to MININFRA, REG through EDCL and contractors in the selection, preparation and implementation of project activities in order to avoid or minimize environmental and social risks and negative impacts and enhance the environmental and social performance in compliance with the World Bank’s Environmental and Social Framework and the World Bank’s Environmental, Health and Safety (EHS) Guidelines and the national legislations.

This will be accomplished through the development and application of proper selection criteria for specific investment projects, planning that considers environmental and social criteria, sound, implementation and monitoring, disclosure, consultation, and feedback. To achieve this objective, the environmental and social risks and impacts management will carry out the following tasks through research, interviews, and fieldwork:

- (i) Based on a detailed description of the project, its components, and the design of specific activities as set-out in approved project documentation, assess the likely environmental and social risks and impacts associated with each component and potential subproject;
- (ii) Conduct field visits to different districts and commercial centres to assess social and environmental site conditions, practices (including level of compliance with existing social and environmental risk management legislation and regulations) and verify potential risks and impacts;
- (iii) Develop and provide guidance on environmental and social criteria to be used during the identification and selection of sites or any other area of project operations where social and/or environmental risks are apparent. Also develop an exclusion list of activities and potential subprojects not recommendable for support, due to their associated environmental or social risks;
- (iv) Compile a summary of key domestic legislative, regulatory, and administrative regimes, within which the project will operate, with a focus on requirements that will apply to the planning, approval and implementation of subprojects. Provide an overview of the above legislation in relation to the World Bank environmental and social standards, and make recommendations to address the gaps with respect to the project;

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- (v) Establish a clear understanding of the institutional requirements, roles and responsibilities for adopting and implementing the ESMF. Importantly, this should include a thorough review of the authority and capacity of implementation entities to manage and monitor ESMF implementation. The ESMF should also consider relevant implications for management procedures, training, staffing, and budgeting;
- (vi) Develop a screening and assessment methodology for potential subprojects, that will include environmental and social performance criteria, allow an environmental/social risk classification and the identification of appropriate E&S instruments;
- (vii) Develop a stakeholders' consultation and engagement strategy that ensures the involvement of all identified stakeholders and potentially affected persons. The process should put in place mechanisms and plans for information dissemination and disclosure of project related information, as required by the World Bank, such as project environmental and social standards instruments prior and during project implementation;
- (viii) Develop a generic Environmental and Social Management Plan (ESMP) for the project as a whole, to be differentiated from the subproject specific plans that may be required during project implementation. Also identify all relevant potential environmental risks and social concerns that may arise as a result of the proposed project and specific subprojects. The ESMP should recommend mitigation measures for the potential negative impacts and give associated costs; and clearly indicate the institutional responsibilities for implementation and monitoring of the mitigation measures;
- (ix) Identify and describe the required instruments and procedures for managing and monitoring environmental risks and social concerns related to the priority subprojects, such as assessments (e.g., ESIA), management plans (e.g., ESMP, RAPs) and respective monitoring instruments. Also identify indicators (by subproject type) to measure safeguard implementation that can be used in the overall assessment of the project;
- (x) Outline a training and capacity building programme for the institutions responsible for implementing the ESMF.
- (xi) Propose realistic and effective arrangements for REG-EDCL PIU and other project implementation entities to develop the capacity to manage environmental and social due diligence processes and activities in the project portfolio. Propose reporting lines, review and approval functions; identify the required resources and technical assistance to maintain the Client's capacity for the Project duration and beyond; and
- (xii) Estimate a realistic budget to be allocated for timely implementation of the ESMF in the Project execution phase.

Task 2: Development of specific guidelines for REG-EDCL PIU and other project implementation entities to support implementation of the ESMF. This to include:

- (i) Generic terms of reference for safeguarding instruments to be applied during project implementation (as set out in the ESMF). Potential environmental and social due diligence instruments required include: ESIA (including ESMP).
- (ii) Simple user manual and training materials for ESMP and GRM to support implementation of the ESMF, the prepared ToRs for ESIA, ESMP are annexed to this ESMF.

## **1.4. Methodology and Approach**

### **1.4.1. Review of National Policy institutional and Regulatory Framework related to ESMF**

At the national level, the safeguard team has reviewed relevant existing laws, policies, regulations frameworks and guidelines about environmental and social risk management, and policy, programs and projects associated with the Energy sector. This helped to prepare a summary of domestic legislative and regulatory and administrative regimes within which the project will be implemented. Following documents were reviewed:

- National Strategy for Transformation One (2017-2024) NST1;
- Ordinary Law N° 43/2013 of 16/06/2013 Governing Land in Rwanda, Repealing Organic Law N° 08/2005 of 14/07/2005 Determining the Use and Management of Land in Rwanda;
- Law N° 66/2018 du 30/08/2018 Regulating Labour in Rwanda;
- The Law (No. 48/2018 of 13/08/2018) on Environment determining the modalities for protecting, conserving and promoting the environment;
- Ministerial Order N° 001/ 2019 of 15/04/2019 establishing the list of projects that must undergo environmental impact assessment, instructions, requirements and procedures to conduct environmental impact assessment.
- Law No 32/2015 of the 11/06/2015 relating to Expropriation in the public interest

### **1.4.2. Review of World Bank Environmental and Social Framework (ESF)**

The safeguard team has reviewed the World Bank Environmental and Social Framework's ESSs applicable to the ESMF for ASCENT and demonstrated how these standards will be complied with consideration of the local context. Ten (10) ESSs represent the framework of safeguard mechanisms applied by the WB for the sake of interests of beneficiaries, clients, stakeholders and that of the Bank. Applying these standards allows avoiding adverse impacts on the environment and people's lives, minimizing and mitigating potential unfavorable environmental and social risks and impacts. These WB standards are:

- Environmental and Social Standard 1: Assessment and Management of Environmental and Social Risks and Impacts;
- Environmental and Social Standard 2: Labour and Working Condition
- Environmental and Social Standard 3: Resource Efficiency and Pollution Prevention and Management
- Environmental and Social Standard 4: Community Health and Safety
- Environmental and Social Standard 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement
- Environmental and Social Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources;



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- Environmental and Social Standard 7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities;
- Environmental and Social Standard 8: Cultural Heritage
- Environmental and Social Standard 9: Financial Intermediaries
- Environmental and Social Standard 10: Stakeholder Engagement and Information Disclosure.

There are 9 ESSs (ESS1, ESS2, ESS3, ESS4, ESS5, ESS6, ESS8, ESS9 and ESS10) that apply to the project. The ESS7 on Indigenous people/Sub-Saharan African Historically Underserved Traditional Local Communities does not apply here in Rwanda as there is no such group recognised as indigenous people.

#### **1.4.3. Field surveys**

The safeguard team conducted field visits (from 14<sup>th</sup> August to 27<sup>th</sup> August 2023) to 27 administrative Districts, relevant government and non-government institutions including different REG Branches, different known sites to be covered by this project and people within centres that do not have electricity in these districts. A total of 1,265 people were consulted, 812 males and 453 females. The list of those people and institutions consulted is shown in Annex 7.

#### **1.4.4. Approach to field data collection**

The safeguard team visited above said sites to collect information on location, status of infrastructure, and views and concerns of local people. Special attention was paid to key stakeholders (administrative district officials) and local people that may be involved or affected by the project. This exercise through an established interview guide helped identifying criteria that will need special attention in the implementation of this project. The exercise also helped in identifying the capacity gaps and needs for the implementation of, and ensuring compliance with, environmental and social aspects of the project. During the field data collection, the team also carried out the investigation within the project site and surrounding areas on biophysical aspects to describe the vegetation, fauna and biodiversity within and around project intervention area.

#### **1.4.5. Content of consultations**

Consultations were conducted with stakeholders who were directly or indirectly related to the project to better understand the environmental and social systems in the country and the environmental and social concerns of stakeholders from 14<sup>th</sup> August to 28<sup>th</sup> August 2023. During consultation, stakeholders were asked their views and concerns about the project. This helped to identify salient issues and concerns that affect different stakeholders and reach agreement on the understanding of these issues and grievances. The E&S team ensured a favourable environment free of coercion and intimidation, gender inclusive and inclusive to vulnerable and disadvantaged groups. Local level consultations were held with district officials (Mayor or Vice-Mayor in charge of economic development, Director of one stop centre or Land administration/valuation officer, District Environmental Officer, District Electricity Maintenance Engineer, Executive secretaries of the sectors, sector land managers and local people). The consultations at Central level conducted with the public, academic or researchers and private institutions. The consultation outcome highlighted trade-offs, impacts/risks and social issues and bottlenecks associated with the implementation

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of this project, as well as the proposed mitigation measures. Moreover, the ESMF outcomes will be disclosed after approval of the competent officials at Nation and World Bank level.

**1.4.6. Link between the World Bank ESF and National Regulation on Environmental and Social Management Guidelines and data collected during field visit.**

This project is in line within the framework of NST1 that aims to achieve universal electrification, among others. The ESMF analyses the World Bank Environmental and Social Framework and National Regulation on Environmental and Social Management Guidelines to have idea on which the environmental and social assessment is needed to categorise project related environmental and social risks and impacts (high, substantial, moderate or low). This project environment and social risk rating is substantial.

## II. PROJECT DESCRIPTION

The proposed Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT) is a large energy sector investment financing project to support the Government of Rwanda’s energy access objectives to achieve energy sector targets. Project would have a total volume of an estimated US\$ 400 million. The total IDA investment would be US\$300 million and US\$ 100 million investment from AIIB, spread across four components of i) increasing access to grid electricity, ii) enhancing the efficiency of electricity service, iii) increasing access to off-grid electricity and clean cooking solutions, and iv) Institutional Capacity Building, Technical Assistance and Implementation Support for energy access acceleration. The grid-related and technical assistance components will be implemented by the Accelerating Sustainable and Clean Energy Access Transformation (ASCENT) Project implementation Unit (PIU). It will use EAQIP (Energy Access and Quality Improvement Project) staff, a project in Energy Development Corporation Limited (EDCL), which is the continuity of Energy Access Roll out Program (EARP) that has demonstrated its effectiveness under the Electricity Access Scale-up and Sector Wide Approach (SWAp) Development Project (EASSDP) project (IDA16). The Component 3 “Increasing Access to Off-Grid Electricity, Clean Cooking Solutions, and Productive Uses of Energy (PUE)” - more specifically sub-components 3a, 3b, 3c and 3d - will be implemented by the Development Bank of Rwanda (BRD) which will administer and disburse the funds while EDCL will be the technical counterpart focusing on the implementation of sub-component 3e which is about Increasing access to clean cooking for public Institutions.

The World Bank and AIIB funds will be used to connect about 420,000 households (including 79,000 fill-in connections). The districts to be covered under the project are Gisagara, Huye, Muhanga, Nyamagabe, Nyanza, Nyaruguru, Ruhango, Bugesera, Gatsibo, Kayonza, Kirehe, Ngoma, Nyagatare, and Rwamagana. Other districts can be considered during project implementation. The financing will help these districts to reach 75 percent electrification, as well as support fill-in connections in areas with existing grid connectivity. Fill-in connections will be done in the Musanze, Rubavu, Nyagatare, Rwamagana, Gatsibo, Ruhango, Bugesera, Kamonyi, Muhanga, and Nyanza districts, and potentially other districts identified during implementation. Project implementation will commence in areas with no ongoing electrification projects and will be commence in a phase-wise manner in areas with ongoing electrification projects.

### 2.1. Development Objective

To increase access to modern energy for households, enterprises, and public institutions and enhance the efficiency of electricity service in the Republic of Rwanda. This will contribute to the MPA objective of accelerating access to sustainable, reliable, and affordable energy in Eastern and Southern Africa. The project will be developed as an Investment Project Financing (IPF). The allocation of financing is indicated in Table below, which also shows the link to the MPA Program pillars. The total estimated cost of the Project is US\$400 million to be funded from IDA (US\$300 million) and the Asian Infrastructure Investment Bank (AIIB) (US\$100 million).

*Table 1 : Project cost allocation (US\$ million)*

Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)

Project Components		Link to MPA Program Pillars	IDA US\$m	AIB US\$m	Total US\$m
1	Increasing Access to Grid Electricity	Pillar 2: Expanding Grid Electrification through investments in grid network expansion and reinforcement	207.75	69.25	277
2	Enhancing the Efficiency of Electricity Services		54.75	18.25	73
3	Increasing Access to Off-Grid Electricity and Clean Cooking	Pillar 3: Scaling Distributed Renewables and Clean Cooking through financing of off-grid solar and clean cooking solutions, including through private sector mobilization	22.5	7.5	30
4	Institutional Capacity Building, Technical Assistance and Implementation Support for Energy Access Acceleration	Pillar 1: Platform to accelerate energy access through development of institutional capacity and mobilization of funding, including scaling up climate funding	15	5	20
Total financing			300	100	400

## 2.1. Theory of Change and Project Scope

By improving access to modern energy access and efficiency of electricity service, the project aims to improve household livelihoods and economic productivity. The theory of change is visualized in Figure below

Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)

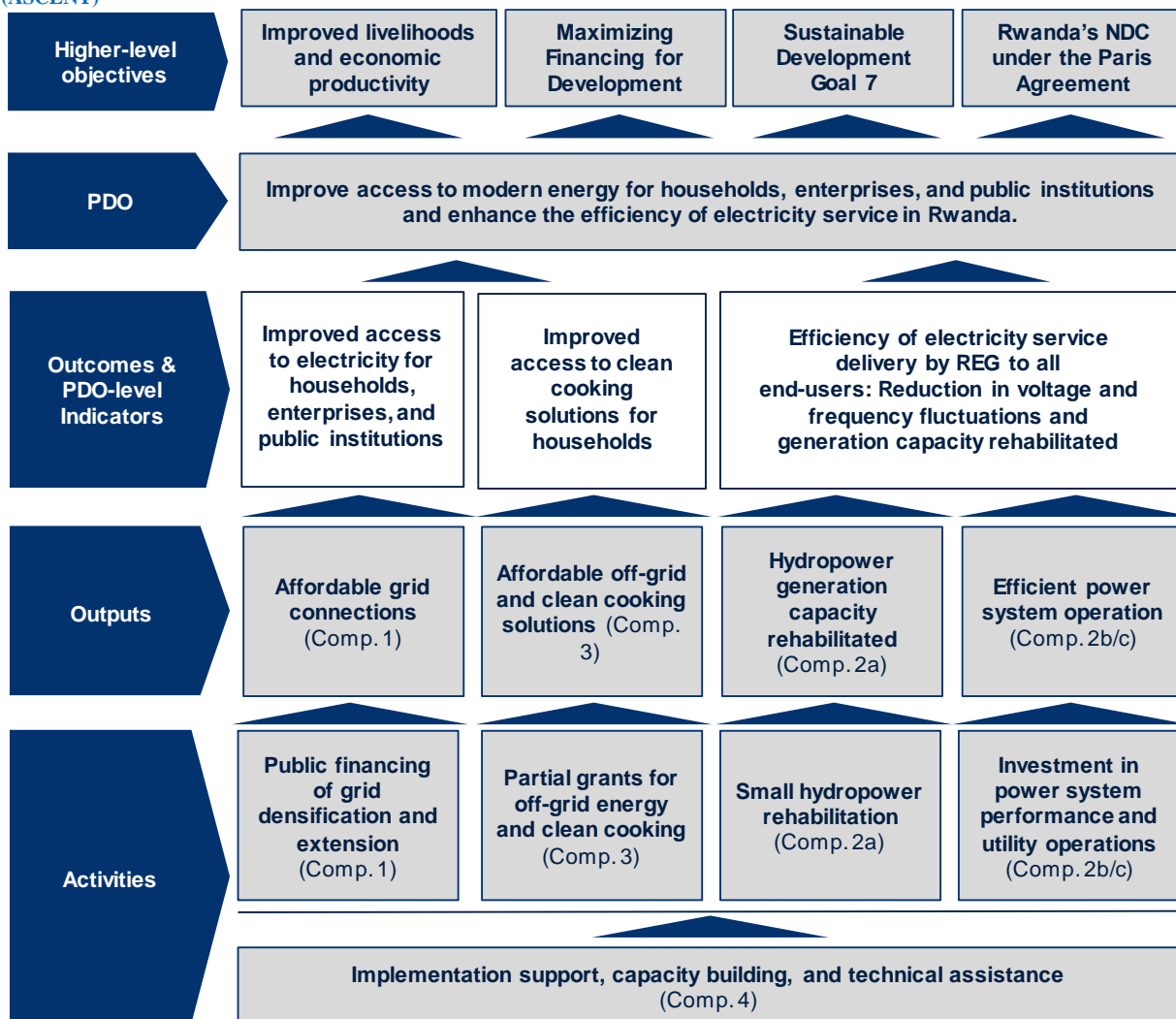


Figure 1 : Theory of Change

**2.2.Result Indicators:**

Progress towards the attainment of the Project Development Objective will be assessed through the following outcome indicators:

- a) People provided with new or improved electricity service;
- b) Enterprises provided with new or improved electricity service;
- c) Public institutions (clinics, schools, and administrative centers) provided with new or improved electricity service;
- d) People provided with new or improved clean cooking solutions;
- e) Reduced voltage and frequency fluctuations in Rwanda’s backbone transmission lines;

**2.3.ASCENT context**

### 2.3.1. Country Context

The Rwandan economy continued to achieve strong growth in 2022, as GDP increased by 8.2 percent in 2022, despite global headwinds and restrictive monetary policies required to control inflation. Rising food prices, as the result of poor agricultural harvest due to unfavourable weather conditions, are affecting the poor disproportionately. Economic growth is expected to decline somewhat to 6.2 percent in 2023 and then to recover above the pre-Covid 10-year average of 7.2 percent from 2024, fuelled by the extension of the Government’s Manufacture and Build to Recover Program (MBRP) and a continued recovery in tourism activities. Tourism continues to be a major source of Rwanda’s foreign exchange earnings and tends to generate a higher proportion of formal sector jobs than other sectors and could make a substantial contribution to growth.

Rwanda’s development strategy is laid out in its latest seven-year plan and access to reliable and affordable electricity is considered a critical factor in achieving its development goals. The National Strategy for Transformation (NST1) for 2017–2024 aims to lay the foundation for achieving upper-middle income country status by 2035 and high-income status by 2050. It is guided by the Sustainable Development Goals (SDGs), the Africa Union Agenda 2063 and its first 10-year Implementation Plan 2014– 2023, and the East African Community Vision 2050. Electricity is a cross-cutting area of focus under both the economic transformation pillar and the social transformation pillar, where targets in generation, electricity quality and reliability, and access are outlined.

While Rwanda has made significant strides in improving energy service delivery, substantial efforts are still needed to achieve the UN Sustainable Development Goal (SDG7) of ensuring access to affordable, reliable, sustainable and modern energy for all, as well as in ensuring that the electricity services are delivered in a financially sustainable and operationally efficient manner.

### 2.3.2. Sector and Institutional Context

Rwanda has electrified its population at one of the fastest rates in the world over the past decade, with access to electricity rising from 6 percent in 2009 to an estimated 61 percent in 2022 (47% grid and 14% off-grid), as per the household census of 2022. Electricity access, however, is unevenly distributed. The Bank’s Multi-Tier Framework for Energy Access (MTF) survey conducted in 2022 showed that while electricity access in urban areas was about 91.6 percent, only 17.5 percent of rural households had access to electricity. Similarly, only 24 percent of households in Ubudehe category, the group at the bottom of Rwanda’s social protection hierarchy,<sup>1</sup> had electricity access. Electricity access is also lower among female-headed households, at a rate of 56.1 percent compared to 66.7 percent among male headed households. Grid access of public institutions however is remarkably high, reaching, as of March 2019, 100 percent of hospitals, 93 percent of health centres (compared to only a third on average in Sub-Saharan Africa), and 80 percent of primary and secondary schools (compared to a quarter for Sub-Saharan Africa on average), thanks to Rwanda’s prioritization of electrification of critical public facilities, such as schools and health clinics, in electrification planning. Access to clean cooking lags behind electricity with over 93 percent of the population still relying on traditional cooking fuels, such as wood and charcoal.

Rwanda’s electrification progress has been achieved through a strong political commitment to the universal access goal, embracing geospatial least-cost electrification planning, which leverages both grid and

**Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)**

distributed renewable energy (DRE) technologies and mobilization of private sector, and coordinated approach across all donors and financiers. As per the household census of 2022, 47 percent Rwandan households are connected to the national grid and 14 percent households through off-grid solar solutions, delivered through the private sector, which have scaled up in the past five years. Rwanda has established a pro-poor financing mechanisms for both grid and off-grid users, which has helped overcome affordability constraints of low-income households and maintain the fast pace of electrification even as efforts are now reaching rural and low-income households.

Based on the updated National Electrification Plan, Rwanda aims at achieving universal electricity access by targeting 70 percent of households with grid connections and 30 percent households with off-grid solar solutions. In addition to household electrification, Rwanda electrification efforts also emphasize access for productive uses, and collaboration between energy and agriculture sectors is in place to expand clean energy access for farmers.

## **2.4. Project components**

The following are the key components of the project proposed to be financed by ASCENT. However, the WB financing is spread within all four components while other supporting development partner is AIIB.

### **Component 1: Increasing Access to Grid Electricity (US\$ 207.75 million IDA; US\$ 69.25 million AIIB)**

Rwanda is still substantially short of its universal electricity access target. The census of 2022 established a grid electrification rate of 47 percent and off-grid electrification rate of 14 percent, both substantially behind the revised National Electrification Plan (NEP update; 2023) targets of 65 percent and 35 percent. This component, complementing ongoing implementation under the EAQIP will support increase of access rates in the target districts to at least 75 percent, with priority given to satellite and secondary cities, which are targeted to be electrified at a rate of between 80 percent and 97 percent.

This component will support the GoR to further expand grid access towards achieving universal electrification in the country. The World Bank and AIIB funds will be used to connect about 420,000 households (including 79,000 fill-in connections). The districts to be covered under the project are Gisagara, Huye, Muhanga, Nyamagabe, Nyanza, Nyaruguru, Ruhango, Bugesera, Gatsibo, Kayonza, Kirehe, Ngoma, Nyagatare, and Rwamagana. Other districts can be considered during project implementation. The financing will help these districts to reach 75 percent electrification, as well as support fill-in connections in areas with existing grid connectivity. Fill-in connections will be done in the Musanze, Rubavu, Nyagatare, Rwamagana, Gatsibo, Ruhango, Bugesera, Kamonyi, Muhanga, and Nyanza districts, and potentially other districts identified during implementation. Project implementation will commence in areas with no ongoing electrification projects and will be commence in a phase-wise manner in areas with ongoing electrification projects.

The project will use a combination of engineering, procurement, and construction (EPC) contractors; goods contracts implemented by in-house/local labor contracts by EDCL to speed up the connection rate. Although goods packages for line construction materials for installation of connections will also be procured internationally, the project will explore opportunities for quality local value products. Similarly, labor

Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)

contracts will be locally procured to implement the last-mile connections. Implementation will be supported by supervision consultants, also procured internationally. This component will be implemented by EDCL.

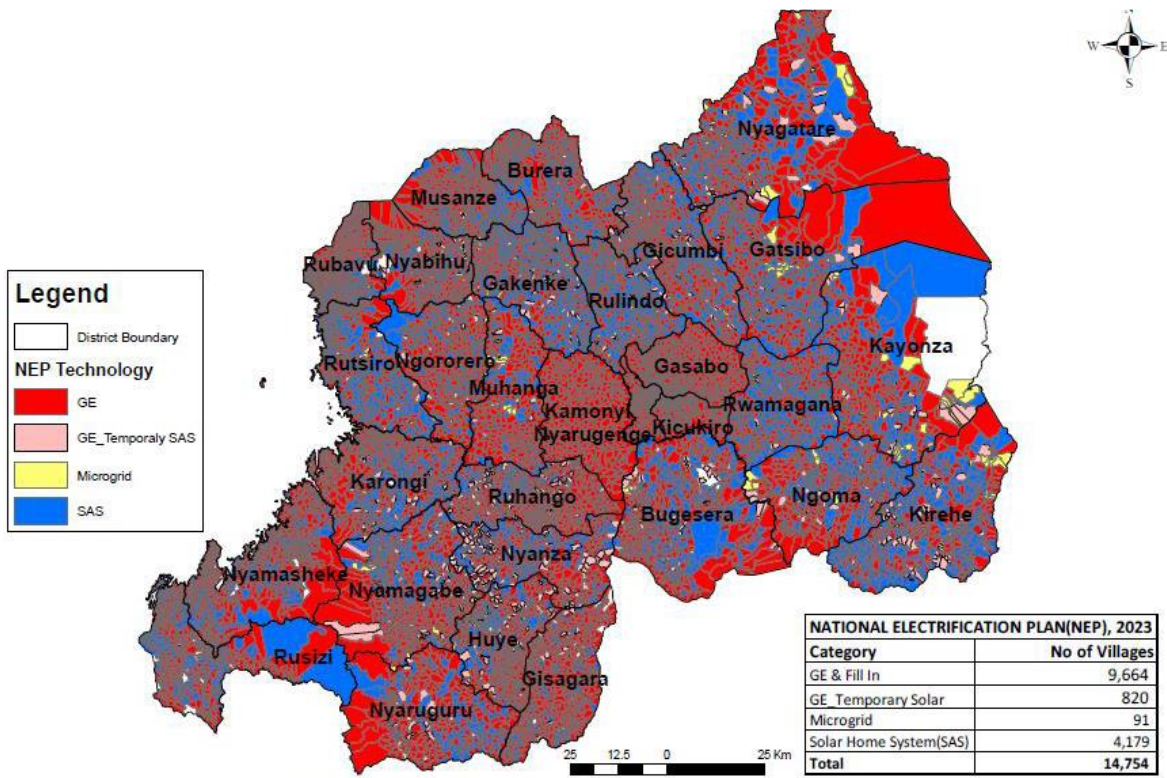


Figure 2: Rwanda NEP 2023 output



## Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)

Table 2 : Access component Baseline and Expected ASCENT contribution

	Districts(27)	Total HHs (5th GPHC)	Baseline (Mid-August 2022)			Progress (End June-23)			% Progress			ASCENT CONTRIBUTION		
			Grid	Off-grid	Total	Grid	Off-grid	Total	Grid	Off-grid	Total	connect ed at end of 2027 BY ASCENT	TOTAL ACCE SS IN 2027	ACC ESS RAT E IN 2027
		– August 2023 Baseline												
SOUTH	Gisagara	101,145	39,143	13,958	53,101	40,572	16,601	57,173	40.1%	16.4%	56.5%	27,243	93,580	79%
SOUTH	Huye	96,037	39,663	14,502	54,165	41,967	19,211	61,178	43.7%	20.0%	63.7%	10,772	95,412	85%
SOUTH	Kamonyi	116,378	40,383	22,461	62,844	42,739	27,334	70,073	36.7%	23.5%	60.2%	1,484	125,127	92%
SOUTH	Muhanga	93,241	32,261	21,072	53,334	33,608	23,252	56,861	36.0%	24.9%	61.0%	22,000	91,702	84%
SOUTH	Nyamagabe	92,052	19,147	23,749	42,896	20,765	33,891	54,656	22.6%	36.8%	59.4%	6,518	86,481	81%
SOUTH	Nyanza	93,007	32,831	15,160	47,992	33,849	23,818	57,668	36.4%	25.6%	62.0%	22,430	89,643	83%

## Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)

SOUTH	Nyaruguru	73,805	23,765	24,798	48,564	24,287	27,275	51,563	32.9%	37.0%	69.9%	9,235	68,489	80%
SOUTH	Ruhango	94,508	40,071	15,310	55,382	41,903	19,562	61,466	44.3%	20.7%	65.0%	16,053	84,334	76%
EAST	Bugesera	137,777	69,026	14,742	83,768	71,118	27,889	99,007	51.6%	20.2%	71.9%	19,038	137,911	86%
EAST	Gatsibo	136,208	37,321	29,149	66,470	39,633	38,032	77,665	29.1%	27.9%	57.0%	19,172	118,858	75%
EAST	Kayonza	114,186	45,446	20,668	66,114	47,341	30,233	77,574	41.5%	26.5%	67.9%	11,270	109,100	82%
EAST	Kirehe	113,886	46,579	18,450	65,029	48,421	24,516	72,937	42.5%	21.5%	64.0%	19,763	109,075	82%
EAST	Ngoma	102,589	37,035	22,672	59,707	38,964	29,855	68,819	38.0%	29.1%	67.1%	15,471	98,024	82%
EAST	Nyagatare	160,435	59,521	27,916	87,437	65,041	35,504	100,545	40.5%	22.1%	62.7%	36,581	151,880	81%
EAST	Rwamagana	121,051	64,399	17,552	81,952	67,246	22,692	89,939	55.6%	18.7%	74.3%	23,703	125,847	89%
WEST	Karongi	91,444	28,073	18,014	46,088	29,805	26,886	56,692	32.6%	29.4%	62.0%	30,361	87,053	82%

## Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)

WEST	Ngororero	92,623	25,471	12,041	37,512	25,944	24,279	50,223	28.0%	26.2%	54.2%	10,987	85,289	79%
WEST	Nyabihu	76,391	28,570	7,410	35,980	28,896	13,142	42,038	37.8%	17.2%	55.0%	4,763	70,880	80%
WEST	Nyamasheke	95,229	42,186	16,475	58,661	43,841	22,903	66,744	46.0%	24.1%	70.1%	3,774	99,485	90%
WEST	Rubavu	124,080	84,250	4,467	88,717	88,571	5,922	94,493	71.4%	4.8%	76.2%	26,832	139,305	96%
WEST	Rusizi	104,937	61,178	9,339	70,518	65,687	10,081	75,769	62.6%	9.6%	72.2%	9,739	111,180	91%
WEST	Rutsiro	86,802	36,630	6,944	43,575	37,205	14,409	51,615	42.9%	16.6%	59.5%	8,500	77,862	77%
NORTH	Burera	91,786	41,946	6,333	48,279	42,794	8,348	51,142	46.6%	9.1%	55.7%	11,000	80,834	75%
NORTH	Gakenke	93,609	24,994	21,530	46,524	27,027	27,301	54,328	28.9%	29.2%	58.0%	7,000	82,275	75%
NORTH	Gicumbi	109,373	32,921	20,781	53,702	33,377	25,687	59,064	30.5%	23.5%	54.0%	21,000	99,037	78%
NORTH	Musanze	119,387	70,080	5,014	75,094	74,872	5,915	80,787	62.7%	5.0%	67.7%	21,316	131,929	95%

## Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)

NORTH	Rulindo	91,909	27,848	22,334	50,182	30,594	25,965	56,559	33.3%	28.3%	61.5%	4,969	93,961	88%
	<b>Grand Total</b>	<b>2,823,875</b>	<b>1,130,744</b>	<b>452,842</b>	<b>1,583,586</b>	<b>1,186,073</b>	<b>610,504</b>	<b>1,796,577</b>	<b>42.0%</b>	<b>21.6%</b>	<b>63.6%</b>	420,974	2,744,552	83%
													2,815,341	85%

In Total 491,763 Households will be connected by ASCENT including 70,789 connected off grid and 420,974 to be connected on grid. The total LV extension required for fill in connection is 1,196.5km whereas for EPC contractors 1,876.65km of MV line and 6,482.96 km of LV lines will be constructed. This is a rough estimation as the final LV and MV lines length will be determined after the detailed survey has been carried out.

## Component 2: Enhancing the Efficiency of Electricity Service

This project will improve the performance of REG's distribution network by:

- Contributing to loss reduction efforts, reducing overloading, voltage drop and related interruptions.
- Improving switching operations and hence reduce downtime and corresponding losses,
- Improving the voltage level at the end user's level and hence guarantee quality of supply,
- Improving the operational efficiency of the electricity distribution system by proving supply alternatives,
- Limiting extension of 15 kV system to new suburbs outside Kigali and other areas;

### 1. List of sub-components under this network strengthening consist of the following:

- Upgrading of six (6) power transformers almost being overloaded in five(5 ) high voltage substations.
- Construction of Muhanga SS 2x20MVA 110/30kV transformers with a cut-in cut-out (double circuit) 110kV transmission line Kigoma SS- Mt Kigali SS (21km)
- Construction of 220kV double circuit transmission line connecting Bwishyura Substation to Kigoma substation (56km)
- Construction of four (4) switching substations (30/15kV, 5MVA) at Nyagatovu (Rwamagana District), Karumuna (Bugesera District), Shyorongi (Rulindo District) and Poids Lourd (Rubavu District);
- Construction of new three (3) MV Switching Cabins in Rubavu (1) and Kigali (2)
- Construction of 29.8 km of medium voltage network (30kV&15kV) to link the above substations to existing distribution network;
- Reinforcement of MV & LV distribution network in Kigali City, Southern Province, and Western Province to solve the issue of voltage drop.

The specified Transmission lines to be constructed will not be located in any Environmental Protected Area or area with significant natural habitats.

#### 1.1. Upgrade of five (4) 110/30kV and two (2) 110/15 kV power transformers for the existing five (5) HV substations

The upgrade of those power transformers is initiated based on their current loading status and anticipated loads to be connected on concerned substations in near future. With this upgrade efficiency and reliability of power system will be increased.

##### 1.1.1. Upgrade of power transformer at Rukarara substation

30/110kV Rukarara Substation is in Southern Province, Nyamagabe District. Currently, this substation has two step-up power transformers 30/110kV, 10 MVA each, which are evacuating power generated from the hydroelectric plants built in cascade on the Rukarara river: Rukarara#1 (3x3MW), Rukarara#2 (2x1.1MW), Rukarara#5 [(1x2MW) & 2x1.5MW], NtarukaA (1x2MW) to the grid. Two micro hydropower plants of Mazimeru (2x0.5MW) and Gatobwe (1x0.4 MW) are also injecting power into the same substation, bringing the installed capacity to 20 MW. On the other hand, Rukarara #6 is under construction and will soon be commissioned and power will also be evacuated to the grid through the same Rukarara substation

raising generation capacity to 30MW. The upgrade of this substation is needed to facilitate the evacuation of 30 MW to the grid, while meeting grid security, stability, and reliability criteria. The scope of work shall include the supply and installation of 2x20MVA transformers to replace the existing 2x10MVA as well as related bay hardware and protection equipment.

### **1.1.2. Upgrade of power transformer at Kigoma substation**

110/30kV Kigoma Substation is in Southern Province, Ruhango District. This substation has 1x10 MVA power transformer serving mainly Ruhango, Nyanza and Muhanga districts and some parts of Bugesera, Ngororero, Huye districts, via the Gatumba, Ntongwe, Butare 30kV feeders. This 10 MVA transformer is currently loaded with 7.2 MW after load transfer to the newly completed substation of Gisagara that was funded by KfW. At the moment alternative supply is not guaranteed because Kigoma cannot serve as backup for both Gisagara or Mont Kigali substations. But also demand for Kigoma S/S is increasing especially due to Muhanga industrial park and the fact that same substation also supplies areas in Bugesera areas.

### **1.1.3. Upgrade of power transformer at Birembo Substation**

110/15kV Birembo Substation is in Kigali City, Gasabo District. Currently, it is equipped with a 20 MVA power transformer which supplies the main areas and is with the Kigali ring that provides redundancy for 110kV, 15kV and a bridge between 220kV and 110kV. Previously this substation had 2x20MVA power transformers, but one of them was urgently taken to Musha substation to supply Rwamagana Industrial Park. Currently, the 20MVA transformer demand is 13.8MW in normal configuration with 17.3MW as the highest recorded peak, but when a nearby substation becomes unavailable for any reason, Birembo picks up the load accordingly. On the other hand, the project developer who is Green City Kigali will start the implementation of the project by January 2024 and has requested the power utility to have 8 MW as their expected demand and will be served from two different sources. The AMAHORO Stadium project also will require 5MW and connected from 2 different sources. With these new loads, the 20 MW transformer which is almost operating at full capacity is expected to be overloaded. The upgrade of this substation has been initiated in response to the upcoming demand and to keep the role of the substation of it being in the ring for 110/15kV. The scope of work will include the supply and installation of an additional transformer (1x20MVA) and some associated protective equipment to have two transformers in Birembo substations.

### **1.1.4. Upgrade of power transformer at Kibuye Substation**

Kibuye Substation is in Western Province, Karongi District. This substation located in Karongi town and is being used to evacuate power generated by KivuWatt to the national grid via a step-up power transformer 11/110kV and the 3.15MVA step up transformer 11/30kV which was installed is defected, while Karongi town is supplied solely from Karongi substation which is a bit far from the town. If Karongi becomes unavailable for any reason, it will not be easy to provide power supply to Karongi town and some surrounding areas. In addition, the company "Gazmeth Energy Limited" is developing a gas extract plant that will require approximately 5MW to extract methane gas from Lake Kivu for domestic and industrial use as a cooking fuel. Therefore, the upgrade proposed here is to install a 110/30/20 MW transformer to serve as an alternate power source for Karongi town and allow the power supply to

Gasmeth, existing Hotels and other Hotels that are being built in Karongi District. The scope of work will be the design, supply and installation of power transformer, Transformer Bay equipment, protection and control equipment and civil works (transformer and equipment foundation, cables trenches, etc.)

### **1.1.5. Upgrade of power transformer at Rwinkwavu substation**

110/15kV Rwinkwavu substation is in Eastern Province, Kayanza District. The substation has a 1x 6 MVA power transformer. Currently the registered demand for this transformer is 1.8 MW but there is a large irrigation scheme in and around Rwinkwavu area which is also developing very rapidly. The rationale to upgrade this transformer is the project for construction of 4MW Solar PV plant in the land near Rwinkwavu substation, and this solar plant will be linked to Rwinkwavu via 30kV line and evacuate to the 110kV grid via power transformer, it was found that existing power transformer of 6 MVA will not be sufficient to evacuate power generated from solar plant, 10MVA will be required. The scope of work will include replacement of the 6MVA transformer by supply and installation of a 10MVA transformer and associated bay hardware and protection equipment.

### **1.2. Construction of Muhanga SS 110/30kV, 2x20MVA transformers with a cut-in cut-out (double circuit) 110kV transmission line Kigoma SS- Mt Kigali SS (21km)**

The Muhanga Industrial Park is significantly increasing the demand. The closest possible substations to supply the area are located quite far from it. Kigoma S/S is located 17.5 km away and Nyabarongo #1 S/S under construction is located 19 km away. A distribution line from one of those substations can't supply this industrial park. Currently two big factories are ready to consume power; Anjia Cement factory (7MW) and Mountain Ceramics Co.Ltd (3MW) and other small factories. With the above load increment Currently, the medium-term solution chosen is to upgrade the Kigoma transformer from 10 MVA to 20 MVA, but the long-term sustainable solution is to construct Muhanga Substation with 2x20MVA, 110/30kV, the construction of this substation will also require the construction of HV transmission line by cut-in-cut -out the 110kV line Mt Kigali S/S– Kigoma S/S. This solution will provide sufficient and reliable power supply to this industrial park and surroundings. Production of these factories will be improved, and new investors will also be attracted.

### **1.3. Construction of 220kV double circuit transmission line connecting Bwishyura Substation to Kigoma substation (56km)**

The rationale for this project is listed below:

- This line is crucial to provide N-1 solution to the existing Rwanda-DRC Regional Interconnection Transmission Line that is connecting Bwishyura, Rubavu and Shango Substations
- This transmission line once constructed, it will help complete the 220kV transmission network ring when connecting the grid from Bwishyura to Kigoma substations, the link which is left without financing while all other planned lines have secured financing. (See attached map).
- Once this transmission line is available, the transmission system will be able to evacuate the planned generation of more than 100MW to be added on Rwanda's electricity network from RUZIZI III (206MW) and RUZIZI IV (287MW) which will reach Bwishyura Substation through Kamanyola-

Bwishyura Transmission Line of 92.5km. These hydropower plants will increase the percentage of renewable energy under the generation mix.

#### **1.4. Construction of four (4) 5MVA, 30/15kV substations and associated MV feeders (lines) connections**

This project is initiated to increase efficiency and reliability in the area supplied through creation of redundancy supply between the 30kV and 15kV network and to limit extension of 15kV network.

##### **1.4.1. Construction of a 5MVA, 30/15kV substation and upgrade of associated MV lines at Karumuna in Bugesera District**

Karumuna region is a fast-growing area of Bugesera district close to Kigali city. The area shares borders with the central districts of Kigali, namely Kicukiro and Nyarugenge, hence its dynamic urbanization and average industrial development. The area is mainly supplied by a long 30 kV line from the Mount Kigali substation and a 15 kV feeder line from the Gahanga substation which supplies the neighboring areas of Kigali City. In some place, the 15 kV and 30 kV of the two different substations are much closer, however one cannot be an N-1 solution to another as the voltage levels is different. To improve the efficiency, stability, and reliability of power system and to limit the extension of 15kV feeders to reduce losses, installation of 15/30kV substation is a sustainable solution. Bugesera district (Southern province) by installing a 15/30kV switching substation at Karumuna on the Bugesera side. Installation of the 15/30kV substation at this location, as shown on the map above, will facilitate load transfer and thus create a means of redundant power supply.

The scope of work consists of:

- ✓ Construction of a powerhouse,
- ✓ Supply and installation of 5MVA power transformer 15/30kv,
- ✓ Supply and installation of power, control, and command cables,
- ✓ Supply and installation of 30 kV & 15kV gas insulated switchgear,
- ✓ Supply and installation of a 160kVA auxiliary transformer.
- ✓ Supply and installation of the DC power supply system (Batteries, battery charger, DC panel, etc.),
- ✓ Supply and installation of necessary protection relays,
- ✓ Supply and installation of protection, control, and communication system (hardware and software),
- ✓ Connections of the Substation with MV lines ( 30&15kV) and/or upgrade of some portion of the lines.
- ✓ Testing and commissioning,



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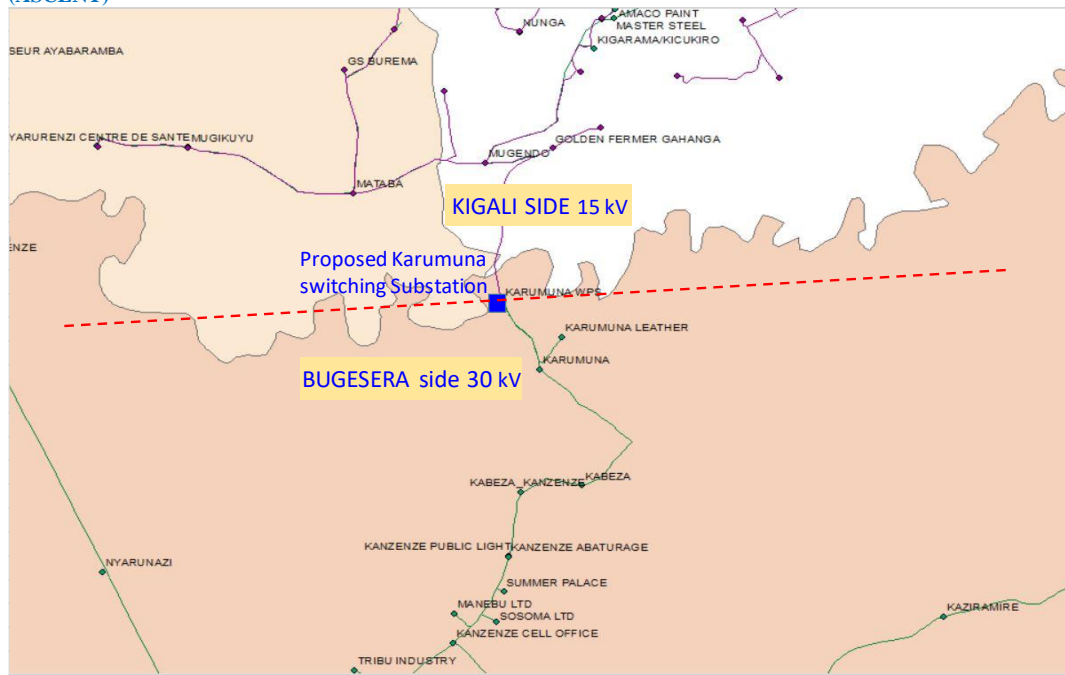


Figure 3: Proposed Karumuna Switching substation.

**1.4.2. Construction of a 5MVA, 30/15kV substation and associated medium voltage line to link Musha and Kabarondo S/S**

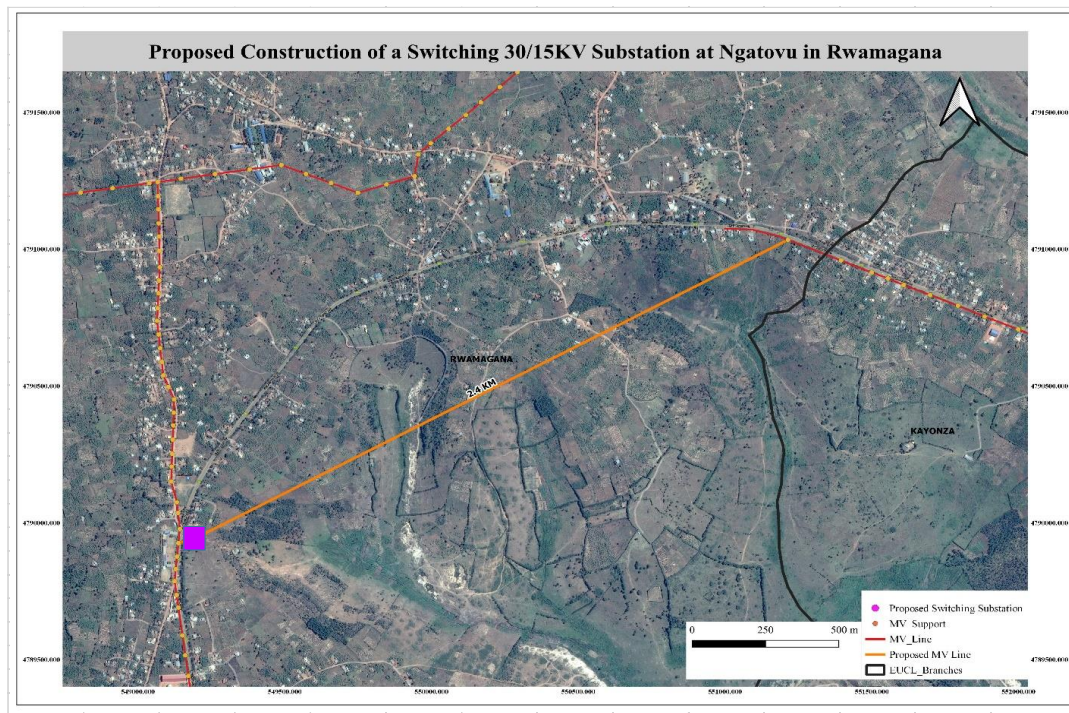


Figure 4; Proposed construction of a switching 30/15KV Substation at Ngatovu in Rwamagana

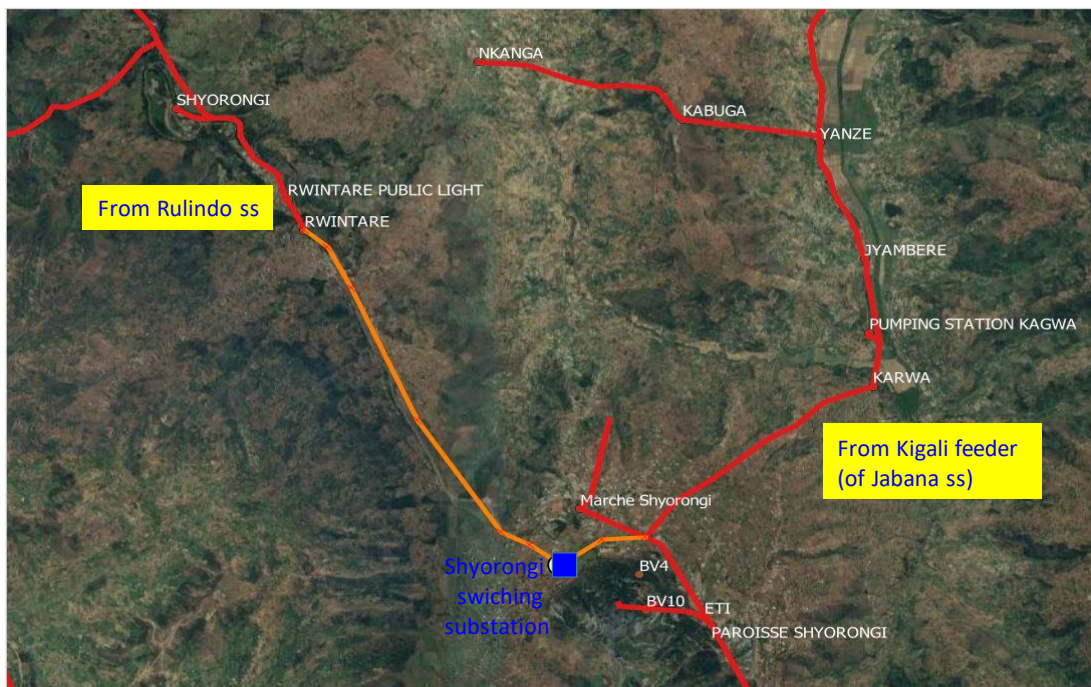
The MV feeders from the Musha substation in the Eastern Province are designed at 15 kV while the other feeders supplying the rest of the province are designed at 30 kV. In some places, the 15 kV and 30 kV of

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the different substations almost overlap. For a better voltage profile and reduced transfer losses, EDCL prefers to limit the extension of 15kV existing feeders in the Eastern Province by installing a 15/30kV switching station in Nyagatovu which seems to be at the limit. In addition, the installation of the 15/30kV substation at the mentioned point, as shown on the map above, will facilitate load transfer and thus create means of redundant power supply from the interconnected network. The scope of work will include the following:

- ✓ Securing of plots,
- ✓ Construction of a powerhouse,
- ✓ Supply and installation of 5MVA power transformer 15/30kv,
- ✓ Supply and installation of power, control, and command cables,
- ✓ Supply and installation of 30 kV & 15kV gas insulated switchgear,
- ✓ Supply and installation of a 160kVA auxiliary transformer.
- ✓ Supply and installation of the DC power supply system (Batteries, battery charger, DC panel, etc.),
- ✓ Supply and installation of necessary protection relays,
- ✓ Supply and installation of protection, control, and communication system (hardware and software),
- ✓ Connections of the Substation with MV lines (30&15kV) and/or upgrade of some portion of the lines.
- ✓ Testing and commissioning,

**1.4.3. Construction of a 5MVA, 30/15kV switching substation at Shyorongi and associated power connections to link Rulindo S/S and Kigali feeder (from Jabana)**



The MV feeders from Rulindo substation in Northern Province have been designed at 30 kV while the voltage from Kigali feeder (from Jabana ss) that supplies power up to Shyorongi is 15 kV. At Shyorongi location, the two feeders are very close each other. For a better voltage profile and reduced transfer losses, EDCL prefers to limit the 15kV extension to the places already supplied and install a 15/30kV switching station at Shyorongi which will interconnect the two sources. In addition, the installation of

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the 15/30kV substation at Shyorongi, as shown in the map above, will facilitate load transfer and thus create means of redundant power supply from the interconnected network.

The scope of work will include the following:

- ✓ Securing of plots,
- ✓ Construction of a powerhouse,
- ✓ Supply and installation of 5MVA power transformer 15/30kv,
- ✓ Supply and installation of power, control, and command cables,
- ✓ Supply and installation of 30 kV & 15kV gas insulated switchgear,
- ✓ Supply and installation of a 160kVA auxiliary transformer.
- ✓ Supply and installation of the DC power supply system (Batteries, battery charger, DC panel, etc.),
- ✓ Supply and installation of necessary protection relays,
- ✓ Supply and installation of protection, control, and communication system (hardware and software),
- ✓ Connections of the Substation with MV lines (30 &15kV) and/or upgrade of some portion of the lines.
- ✓ Testing and commissioning,

**1.4.4. Construction of a 5MVA, 30/15kV switching substation “Poids lourd” with associated MV line connections**



*Figure 5: Poids Lourd Switching substation.*

The 30/15 kV "Poids lourd" substation has been used to export power to Goma areas in DRC and it is still needed to facilitate such power export. The voltage profile at our side (Rwanda side) is operated at 30 kV while the voltage on the DRC side is 15 kV. The status is that the 5MVA transformer and

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associated MV switchgears are very old, the new 15/30kV substation is required. The scope of work will include but not limited to:

- ✓ Refurbish the existing powerhouse,
- ✓ Supply and installation of 5MVA power transformer 15/30kv,
- ✓ Supply and installation of power, control, and command cables,
- ✓ Supply and installation of 30 kV & 15kV gas insulated switchgear,
- ✓ Supply and installation of a 160kVA auxiliary transformer.
- ✓ Supply and installation of the DC power supply system (Batteries, battery charger, DC panel, etc.),
- ✓ Supply and installation of necessary protection relays,
- ✓ Supply and installation of protection, control, and communication system (hardware and software),
- ✓ Connections of the Substation with MV lines (30 & 15kV)
- ✓ Testing and commissioning,

**1.5. Construction of new three (3) MV Switching Cabins in Rubavu (1) and Kigali (2)**

**1.5.1. Construction of 30/0.4kV switching substation at Gihira in Rubavu district and associated connects of MV lines.**

This switching substation will be in Rubavu district closer to Gihira MHPP to replace the 30kV pylons on which switching is always done. At these 30kV pylons, there is the main source of configurations to supply Rubavu town with either power from Kibuye, the embedded micro power plants, Rubavu substation and the newly commissioned Nyabihu substation. The plot for the switching substation shall be provided adjacent to the existing 30kV pylons.

**1.5.2. Construction of 30/0.4kV switching substation at PEZ in Gasabo district and associated connections of MV line from Gasogi and Ndera substations.**

This is a new MV switching substation that will be constructed near Kigali Prime Economic Zone (PEZ), it will facilitate to create more than N-1 solution to this PEZ by connecting it to the Gasogi SS recently upgraded. The new MV substation will also help to provide the second power source to Kigali Innovation City being developed in the same location (with estimated demand of 8MW). Therefore, not only the factories that are in PEZ will benefit from reliable and stable power supply but also the two universities (ALU and CMU) and as well as the Kigali Innovation city.

**1.5.3. Construction of 30/0.4kV switching substation at Centenary (near Simba supermarket) in Nyarugenge district and associated connections with other substations.**

The MV cabin (named Simba) is an existing cabin that served clients in Kigali commercial centers (centre ville) via LV and MV connections. This cabin is now saturated and no longer facilitates the new connections, both LV and MV. The commercial center being served by this cabin is being upgraded with big commercial buildings and a few hotels that required new connections including MV connection. Therefore, the rationale of construction of new MV/LV switching Substation is to facilitate those connections and as well as keeping this substation connected to other cabins to create a loop.

**1.6. Strengthening of MV & LV Distribution network in Kigali City, Southern Province, and Western Province**

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Over the past two decades, Rwanda has mobilized enormous resources to support the electric power sector with a view to achieving universal access to electricity by 2024. Several access projects involving both medium voltage and low voltage line extensions have been implemented. Urbanization and economic growth activity in many regions has resulted in high demand for electricity. The capacity of some conductors and the size of the transformers have been exceeded and cannot meet the load transfer requirements, some LV lines have been extended beyond to their design standards and the supplied customers are facing a serious issue of voltage drop and some cannot even their electrical/ electronic apparatus/appliances. Thus, EDCL observe critical voltage drops at the end-user level. Areas with this issue have been identified countrywide and the remedy to this problem is the installation of new transformer on or by the extension of existing MV lines and rehabilitation/upgrade of LV lines. The upgrade of existing distribution transformers (like replacing small capacity transformer by bigger capacity transformer) will also be a sustainable solution to some locations. The scope of work under this project will be:

- ✓ Supply of materials for power lines (MV &LV) such as poles, transformers, conductors, LV distribution boxes, disconnector switches, cut-outs fuse, surge arrestors, insulators, cables, and all required line hardware and accessories.
- ✓ Extension and upgrade of MV lines, installation of new transformers and rehabilitation of LV lines
- ✓ Reconnection of customers to new/upgrade LV lines

Item	UoM	Kigali City	Southern	Western	Total
Medium Voltage lines	km	40	42.6	47.4	<b>130</b>
Distribution transformer	pc	85	55	58	<b>198</b>
Low Voltage lines	km	230	295	142.6	<b>667.6</b>

**1.7. Construction of 29.8km of MV lines linking of new HV/MV Substations to the distribution network**

The construction of these line will facilitate to link HV/MV substations (new constructed and ongoing) to the distribution network via existing Mv lines to maximize the utilization of those substations as well as to create more than N-1 solution in the network. This will require design, supply, and installation of MV overhead lines and underground cables and accessories for their connections to the substations.

**1.8. Summary of required budget for Network strengthening.**

	Component	Budget (in USD)
<b>1</b>	Upgrade of four (4) 110/30kV and two (2) 110/15 kV power transformers in the existing five (5) HV substations (Kigoma, Birembo, Rukarara, Kibuye and Rwinkwavu)	11,400,000

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<b>2</b>	Construction of Muhanga SS 110/30kV, 2x20MVA transformers with a cut-in cut-out (double circuit) 110kV transmission line Kigoma SS- Mt Kigali SS (21km)	13,500,000
<b>3</b>	Construction of 220kV double circuit transmission line connecting Bwishyura Substation to Kigoma substation (56km)	10,000,000
<b>4</b>	Construction of four (4) 5MVA, 30/15kV substations and associated MV feeders (lines) connections at Karumuna (Bugesera), Poid Lourd (Rubavu), Shyorongi (Rulindo) and Nyagatovu (Rwamagana)	8,000,000
<b>5</b>	Construction of new three (3) MV Switching Cabins in Rubavu (1) and Kigali (2)	6,500,000
<b>6</b>	Strengthening of MV & LV Distribution network in Kigali City, Southern Province, and Western Province (	20,950,000
<b>7</b>	Construction of 29.8km of MV lines linking of new HV/MV Substations to the distribution network	2,650,000
<b>TOTAL (USD)</b>		<b>73,000,000</b>

**Component 3: Increasing Access to Off-Grid Electricity, Clean Cooking Solutions, and Productive Uses of Energy (PUE)(US\$ 22.5 million IDA; US\$ 7.5 million AIIB).**

This component will support: (i) Off-grid electrification and clean cooking access through results-based financing (RBF) facilities established under the BRD (Subcomponent 3a and 3b); (ii) Increasing access to PUE technologies that are designed to be used by households and small and micro businesses enterprises via RBF (Subcomponent 3c); (iii) Credit support facility for off-grid systems, clean cooking solutions and PUE technologies (Subcomponent 3d); and (iv) Scaling up clean cooking in public institutions such as schools (Subcomponent 3e). Funding under subcomponents 3a, 3b, and 3e will complement the funding resources under the ongoing EAQIP and REF projects and will be deployed once the funding under ongoing projects is depleted.

***Subcomponent 3a – Increasing access to off-grid electricity (US\$ 7.5 million IDA; US\$ 2.5 million AIIB).***

In line with the approved RBF mechanism for REF and EAQIP, the project will provide US\$ 10 million to make access to off-grid electricity affordable and connect at least 50,000 households including female headed households. This will be provided through an already-existing RBF window of the REF and EAQIP administered by the BRD. The off-grid RBF window was launched in October 2020 to address affordability constraints for low-income households in purchasing solar home systems. Since its launch, the RBF has enabled over 360,000 households to get access to solar home systems (SHS) and has been making over 13,500 monthly connections in 2023. Topping-up the RBF under EAQIP will enable the Government to continue leveraging the private sector towards expanding electricity access in Rwanda. The subsidy levels are determined by tiers based on the SHS capacity. This subcomponent will be implemented by BRD. The financing allocation to this subcomponent could be reviewed upon completion of the ongoing update of the NEP.

***Subcomponent 3b – Increasing access to clean cooking solutions (US\$ 3.75 million IDA; US\$ 1.25 million AIIB).***

This subcomponent will give continuity to the clean cooking RBF window set up under EAQIP to subsidize purchases of clean and efficient cooking solutions by eligible households. The subcomponent aims to provide clean cooking solutions to 80,000 households. This component will support cooking technologies that are tier 3 or higher, with a focus on tiers 4 and 5 (including LPG and e-cookstove).

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The component will build on related activities from EAQIP and increase efforts on promoting tier 5 solutions. The design and implementation structure of the clean cooking RBF window will follow the arrangements established under EAQIP and will be aligned with Subcomponent 3a. This subcomponent will be implemented by BRD.

**Subcomponent 3c – Increasing access to technologies for PUE (US\$ 3.75 million IDA; US\$ 1.25 million AIIB).** In line with the approved RBF mechanisms, this subcomponent will support adoption of PUE technologies (using grid, off-grid, or thermal energy) by providing RBF incentives to increase consumer affordability. This subcomponent, to be implemented by BRD, is a first step towards initiating World Bank investment in PUE technologies and will likely be scaled-up in the future. The final implementation design of this subcomponent will be based on the results of the ongoing World Bank TA on PUE under the Programmatic Advisory Services and Analytics (PASA).

**Subcomponent 3d – Increasing access via Credit support facility for off-grid electrification, clean cooking technology, and piloting PUE technologies (US\$ 3.75 million IDA; US\$ 1.25 million AIIB).** This subcomponent will provide lines of credit through eligible local financial institutions for working capital to eligible private companies engaged in off-grid, clean cooking, and/or PUE sectors, as well as direct working capital loans from BRD to such companies. The subcomponent will build on existing credit line windows under the REF, employ existing country systems to facilitate access to finance, maximize geographic coverage, and enhance affordability of solar home systems, clean cooking solutions and PUE technologies. This subcomponent will explore complementarity with the ASCENT regional financing facility. This subcomponent will be implemented by BRD.

**Subcomponent 3e – Increasing access to clean cooking for public Institutions (US\$ 3.75 million IDA; US\$ 1.25 million AIIB).** This subcomponent will help public institutions to switch to modern cooking technologies such as LPG, electric and solar cooking solutions. It will primarily target public schools but will also open to other public institutions as appropriate. As school Feeding has been an integral part of the Government’s strategy to address children’s hunger during the school day, to support Rwanda’s human capital creation, and to expand access to educational opportunities to disadvantaged children, particularly learners from low-income families, this subcomponent is in line with the government’s policy to phase out biomass-based cooking solutions in public institutions. To implement school feeding policy, the GoR has scaled up the School Feeding Program from pre-primary up to secondary schools, equipped schools with kitchens and cooking stoves, and provided a subsidy for each student’s meal to complement parents’ contributions. Rwanda has a total of 8,147 Pre-primary to Secondary schools distributed among five provinces and divided into 30 districts. The vast majority of schools rely on firewood for cooking and the annual firewood expenditure per student per year for firewood is estimated to be RWF 9,951, paid directly or indirectly through school fees by the parents and serving three meals a day. A pre-feasibility study funded by the EU estimated that 482 institutional public boarding schools would need about 71,000 ton of firewood burnt for cooking per year, assuming an average per capita consumption of firewood per day of 1.33 kilogram, and students living at school’s facilities for 10 months/year. The EU study suggested that this could lead to about 114,000 tons of CO<sub>2</sub> emissions per year, considering 1.6 kilograms of CO<sub>2</sub> emissions per 1 kilogram of firewood burnt. Burning firewood for cooking also exacerbates deforestation in Rwanda. Therefore, it is critical to promote efficient and clean cooking solutions for schools to reduce the adverse impacts of relying on firewood in terms of carbon emissions, health related impacts and deforestation. Although EAQIP and its additional financing had provided finance for clean cooking initiatives, there still

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remains a significant financing gap on this front. This project will help narrow this gap and contribute to mitigating carbon emissions and deforestation. This subcomponent will be implemented by EDCL.

**Component 4: Technical Assistance, Institutional Capacity Building, and Implementation Support (US\$15 million IDA; US\$5 million AIIB).**

**Subcomponent 4a: Technical assistance, Institutional Capacity Building, and Implementation Support implemented by EDCL (US\$13.125 million IDA; US\$ 4.375 million AIIB).** This subcomponent will include activities implemented by EDCL encompassing (i) Technical assistance - studies on energy efficiency and PUE to operationalize interventions identified in the recently completed and ongoing assessments, and other sector studies towards advancement of the project development objective and support sector objectives; (ii) Institutional capacity building – to ensure that the sector continues to develop appropriate capacity for designing and implementing energy sector programs and efficiently utilizes energy sector investments (sample areas of intervention: energy sector planning, technical skills development, audit, compliance, and gender); and (iii) Implementation support – to pay for project implementation, including payment of salaries of staff at the PCU and EDCL staff fully dedicated to the project, payment of supervision consultants to help EDCL in project oversight, payment of the verification costs for the RBF operation under component 3, payments to the SWG secretariat to support project implementation and sector management and coordination, and other incremental operating costs.

**Subcomponent 4b: Technical assistance, Institutional Capacity Building, and Implementation Support implemented by BRD (US\$1.875 million IDA; US\$ 0.625 million AIIB).** This subcomponent will include activities implemented by BRD encompassing (i) Technical assistance – awareness raising and market facilitation for off-grid solar, clean cooking, and PUE technologies adoption, assessments to improve program implementation, and any other relevant studies to improve implementation of BRD-led activities; (ii) Institutional capacity building – adequate training and capacity building of PIU staff on ASCENT, cross-country exposure, support to grievance redress committees, and any other identified capacity building needs agreed with the World Bank; and (iii) Implementation support – to pay for specific project implementation costs agreed upon with the World Bank.



### III. ENVIRONMENTAL AND SOCIAL BASELINE OF THE PROJECT

This section describes the overall baseline conditions of Rwanda in terms of social and biophysical environment because the project will be implemented in different districts composing four provinces of Rwanda, namely East, West, North, East and Kigali City. The focus will be on construction of distribution network, transmission line and upgrade and rehabilitation of different substations.

#### 3.1. Location and Size

Rwanda is a small mountainous landlocked country, located in Central Africa, at latitude 2. 00 S and longitude 30. 00 E, bordered to its South by Burundi, Tanzania to its East, Uganda to its North and the Democratic Republic of Congo (DRC) to its West. Rwanda has a total surface area of 26,338 km<sup>2</sup> of which the total land area is 24,948 km<sup>2</sup> and 1,390 sq. km is surface water.

Rwanda is often referred to as the country of a “thousand hills” (mille collines), because of its numerous highly dissected hills, often with flat peaks and convex slopes mainly in Northern and Western part, separated by relatively narrow valleys, with the lowest altitude of around 900 m at Bugarama and the highest altitude at Mount Karisimbi 4,507 m. The average altitude is 1,250m above sea level.

Rwanda can be divided into six topographical regions which are:

- From North-West to South -West are the narrow Congo Nile Ridge, which slopes sharply to Lake Kivu.
- The Volcanic Virunga Mountains, whose highest peak, Mount Karisimbi, towers over the high North-Western lava plains.
- The steep North-South rise of the Congo – Nile Basins divide, whose width averages 25 km.
- The ridge of the Congo – Nile Basins divide, with an average elevation of 2750 m above sea level.
- The central plateau East of the mountains, which are covered by rolling hills.
- The savannas and swamps of the Eastern and South Eastern border areas which cover one tenth of the nation’s land area and include the Akagera National Park.
- Most of Rwanda is at least 900m above sea level; the central plains have an average elevation of 1932m, while South-Eastern Rwanda has a desert like terrain.

#### 3.2. Physical Environment

##### 3.2.1. Climate

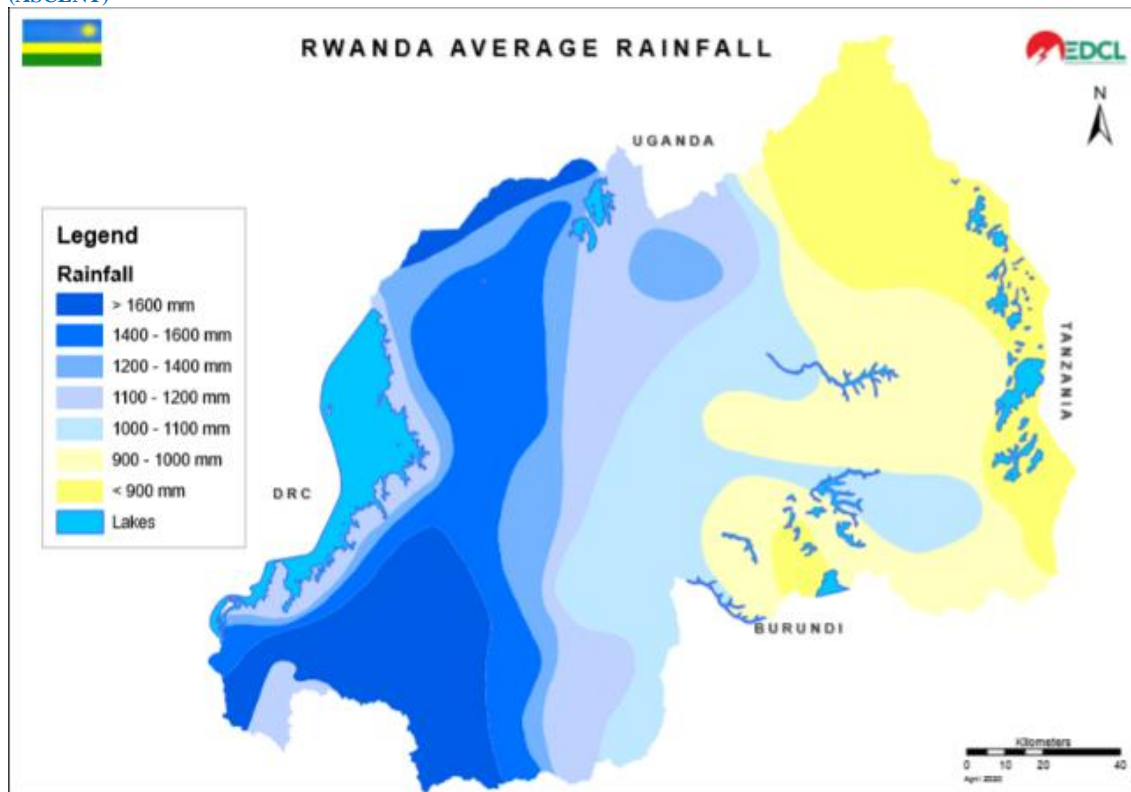
Rwanda enjoys a tropical temperate climate due to its high altitude. The average annual temperature ranges between 16°C and 20°C, without significant variations. Rainfall is abundant although it has some irregularities. Winds are generally around 1-3 m/s. In the high regions of the Congo-Nile ridge,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

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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 rainfalls (over the average isohyets 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 6 Annual average rainfall distribution



### 3.2.2. Relief

The Rwandan relief is hilly and mountainous with an altitude varying between 900 m and 4507 m. The components of that relief are:

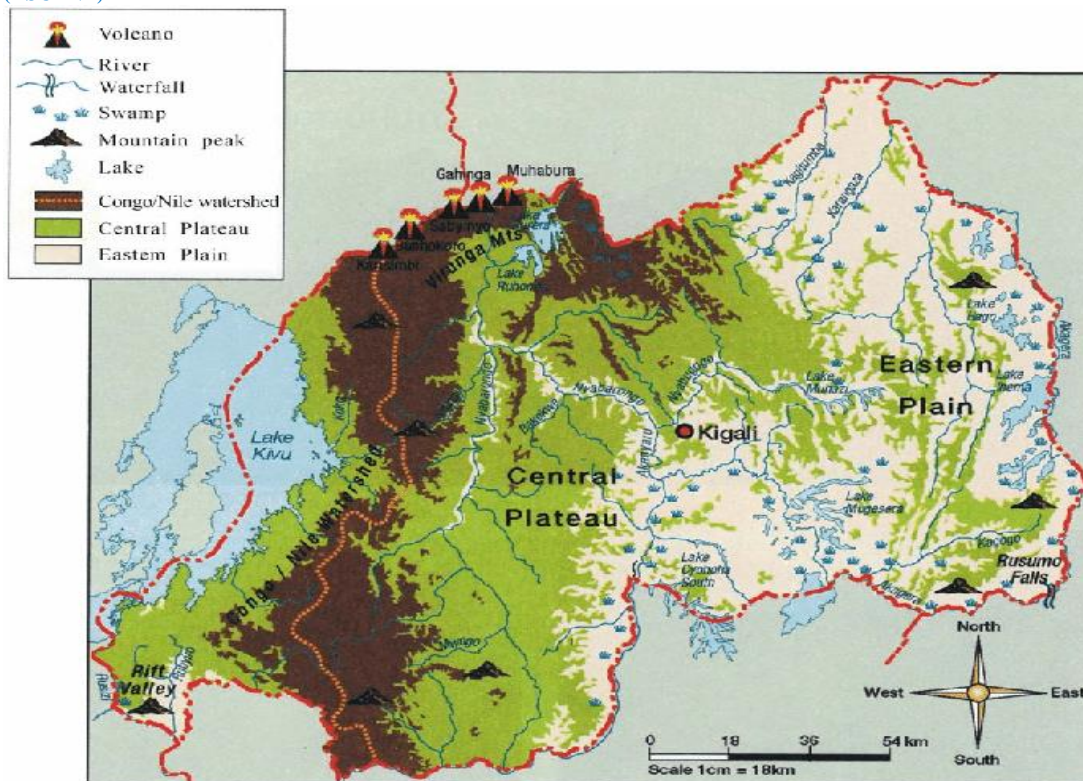
Congo-Nil Ridge overlaying Lake Kivu with an altitude between 2500 m and 3000 m. It is dominated in the North-West by the volcanic ranges consisting of five volcanic massifs of which the highest is Karisimbi at 4507 m. The central plateau presents a relief of hills with an altitude ranging between 1500 m and 2000 m. The lowlands of the East are dominated by a depression characterized by hills with more or less round tops and 1000 to 1500 m in altitude. The lowlands of the South-West in Bugarama plain with an altitude of 900 m are part of the tectonic depression of the African Rift Valley.

### 3.2.3. Catchment and Hydrology

Rwanda has a relatively large quantity of water: rivers, lakes and marshes and occupy a surface area of 212,260 ha or about 8% of the national territory (lakes: 128,000 ha, rivers: 7,260 ha and marshes: 77,000 ha).

Figure 7: Rwanda Relief and climate

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### 3.2.4. Surface water

Rwanda has a dense hydrographical network of  $\pm 2 \text{ km/km}^2$  (length of the superficial flow network by  $\text{km}^2$  of surface). The country is divided into two hydrographical basins with a separating line called Congo-Nile Ridge, moving from the North to the South and  $\pm$  perpendicular to the volcanic chain, making natural obstacles exchange between the catchment's basins of the Northern Kivu and the Southwest of Uganda and those of Rwanda.

In the West of that line there is the Congolese basin (33% of the surface of the national territory) that drains 10% of water resources of the country. It comprises rivers Sebeya, Koko, Rusizi, Rubyiro, as affluent of Lake Kivu (around 1000  $\text{Km}^2$  on the Rwandan side, 490 m of maximum depth), Ruhwa and many other small rivers (around 127 rivers).

In the East of the Congo Nile Ridge there is the Nile basin which covers 67% of the National territory and drains 90% of Rwandan waters by two main rivers namely Nyabarongo and Akagera. The latter is the main affluent of Lake Victoria with an average outflow of  $256 \text{ m}^3/\text{s}$  at Rusumo station and thus considered as the source of the Nile. The basin of the Nile in Rwanda comprises a lot of small lakes (Burera, Ruhondo, Cyohoha South, Mugesera, Muhazi, Rwampanga, Mihindi, Mirayi and many others). Those lakes are not very deep (5 to 7 m of depth) except for Lake Burera and Ruhondo which are 65 to 173 m deep.

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Akagera River (Bugesera District-Juru Sector-Kabukuba Cell) Akanyaru, Nyaruguru, Munich Sector



Nyabarongo River in Muhanga District

### 3.2.5. Groundwater

The outflow of the ground renewable water resource is estimated at 66 m<sup>3</sup>/s. Out of this, the 22,000 known sources contribute an output of 9 m<sup>3</sup>/s. In general, little information is available on ground water resources.

### 3.2.6. Lakes

Rwanda has some 28 lakes of significant size. Six among the largest are entirely within the national territory: Ruhondo, Muhazi, Mugesera, Ihema, Rwanyakizinga and Burera. Three others, Rweru, Cyohoha and Kivu, are shared with neighboring countries. The largest and most spectacular is Lake Kivu, so large as to seem almost like a sea to the landlocked inhabitants.

Lake Kivu lies at 1,460m above sea level and is 90 km long (north-south) and 49 km wide (east-west). With an average depth of 240 m, it plunges to a maximum depth of 490 m. Lake Kivu has a rough, jagged

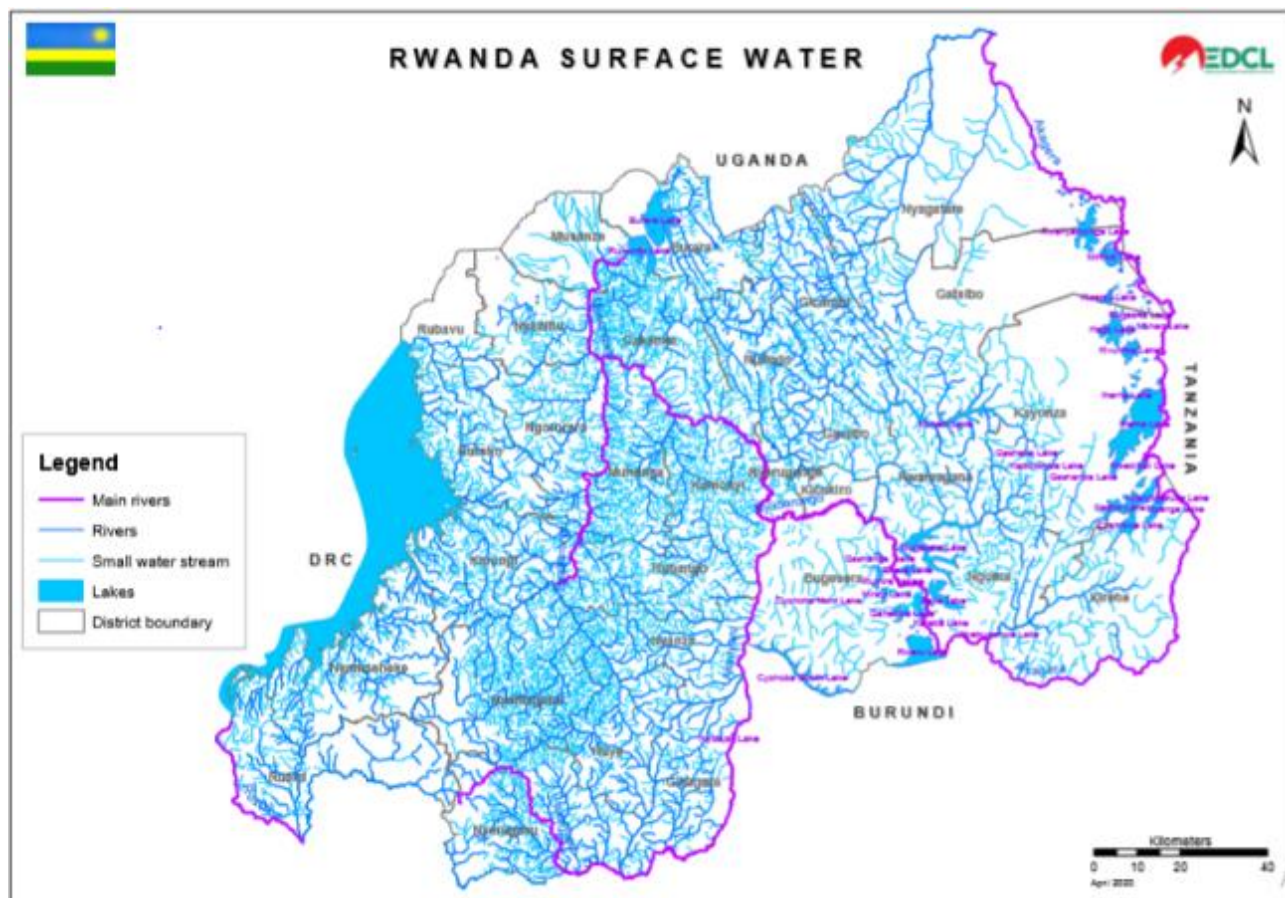
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coast and contains numerous islands, including Nkombo and Iwawa. Lake Kivu lies on the border with Congo in Western Rwanda at the foot of the Virunga Volcanoes. Kivu’s shores are densely populated and the principal town on the Rwandan side is Rubavu. Although it is supplied with fish, the lake is poor in fauna but rich in volcanic substance. Great volumes of dissolved methane gases ((~60 km<sup>3</sup> STP) that may be developed as energy sources exist in its deep waters. Lake Kivu drains to the south into Lake Tanganyika by the swiftly descending Ruzizi River.

**3.2.7. Quality of water**

In Rwanda the quality of water is generally good with a pH ranging between 6 and 7.5. Surface water often carries sediments and in mining and volcanic regions, the water can contain arsenic, lead, mercury, fluoride, iodide and other toxic metalloids and heavy metals. The physio-chemical pollution of water is not frequent due to the small level of industrialization and use of agricultural chemical inputs. The microbiological pollution is often observed, and it comes from various domestic wastes and debris carried by rainwater towards the natural environment. The pollution of water courses and lakes by the water hyacinth and other harmful aquatic plants is a phenomenon that is very recent and alarming in Rwanda.

Figure 8: Surface water



**3.2.8. Wetlands**

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Wetlands cover a total area of 164,000 ha or about 6% of the territory. The wetlands include a variety of ecosystems, ranging from large, permanently flooded swampy peatlands to smaller, seasonally flooded wetlands with a more mineral soil. The main swamps are Akanyaru (30,000 ha) on the border with Burundi, Mugesera Rugwero in the southeast, Kagera swamps along the Tanzania border in the east, Nyabarongo (10,000 ha) and the Rugezi wetlands (5,000 ha) in the north.

The wetlands serve as troughs for sediment particles and play an important role in the national water balances by acting as a buffer, thus reducing the maximal flow rates during the rainy season and maintaining a relatively high flow rate during the dry season.

Currently, an estimated 94,000 ha have been brought under agriculture, the large majority of this being spontaneous agriculture with maize, sweet potatoes and beans. In addition, the wetlands are used for a variety of traditional activities including the collection of leaves to make handicrafts, extensive grazing and making of bricks. Wetlands also provide a spawning habitat for fish and are of great significance for biodiversity conservation. The wetlands are composed of marshes, lakes, rivers and brooks representing around 14.9% of the national territory of which 6.3% consist of marshes and 8.6% of lakes, water courses and pools of permanent or seasonal fresh water.

In the highlands of the North-West, there are: lakes Burera and Ruhondo as well as the marshes of Rugezi. In the Central and the East of the country, wide marshes are those of Nyabarongo, Akanyaru and Akagera rivers. Many cuvette lakes connect with rivers and most of them are located in the Akagera National Park. From the Southeast to the North-West, there are lakes like Cyohoha in the South, Mugesera, Rweru, Sake, Cyambwe, Ihema, Milindi, Rwanyakizinga, Kivumba, etc.

Given the importance that the Government of Rwanda attaches to wetlands, in 2003 Rwanda ratified the Ramsar Convention or convention on wetlands and has already registered on the Ramsar list the site of Rugezi and identified other potential sites that will be registered in the future, like the complex of Mugesera-Rweru, Kamiranzuvu marshes and the wet zones of the Akagera National Park. In addition, an action plan for the implementation of the Ramsar Convention was developed in June 2004. The wetlands ensure several functions and provide numerous services to people. For instance, they ensure control of floods and the recharge of underground waters. They play the role of alleviating the erosive force of water and thus facilitate the deposit of sediments in suspension that could block water courses downstream.



*Figure 9: Rugezi wetland in Burera District, a wetland protected by the RAMSAR convention on wetlands.*

### **3.3. Geology and soils**

#### **3.3.1. Soils**

According to the Geological Map of Rwanda, the regional geology consists of pelitic rocks and Quartz Phyllites (Cyurugeyu Superformation), Granites to Granite-Gneisses, Quartzites and Mica-Schists, Amphibolites and Mylonites (Huye Complex) as well as Quartz-Phyllites and Meta-Volcanics (Nyungwe Formation). The greater part of the geological structure is occupied by such lithological varieties of Rocks. Rwanda shows well developed drainage pattern that belongs to dendritic and trellis types. Metamorphic rocks form the major part of the rock mass and some magmatic rocks are also present. Major rock types observed in the area are granitic gneiss, quartzite, schists and amphibolites. The dominant soils are the result of alteration of the granite and the gneiss. Disruption of drainage due to tectonic movements of the Pleistocene caused the formation of alluvial valleys. They consist of alluvium and colluvium in the basin as result of the erosion. They are generally colluvial and alluvial in the valleys around the rivers. The soils of the top of the mountains are products of granite and gneiss and have resisted erosion.

Soils derived from schistose, sandstone and quartzite formations found in the Congo-Nile Ridge and Soils derived from old volcanic materials found in the plateau of the south west of the country. Over the ASCENT subproject area, most of the valley slopes extending from riverbanks to the top of the ridges are cleared for cultivation of various crops of a seasonal nature. As a result, soil cover is well exposed for



potential erosion. A few patches of new forest plantations of eucalyptus and pines can also be seen on the valley slopes.

### **3.3.2. Use of soils**

The exploitation of land employs around 70% of the active population. Land resources are thus limited and coveted resulting in overexploitation and inappropriate use of lands with disastrous consequences on land resources and on environment in general. In mountainous area, steep slope lands are deforested and used for staple crops under high rainfall precipitation, with often accelerated land degradation through water erosion, poorer soil fertility, increased floods and landslides, and overall, food insecurity and poverty. Appropriate land uses combined with soil and water conservation measures then become a must; in some sites, active erosion mainly caused landslide hazards which increase sediments in rivers. Other than that, erosion has also formed gully bodies through the slopes of mountainous area.

Land use activities including infrastructure development may increase the potential of occurrence of landslides and erosion in various ways, which include destabilization of rock masses by cuts in slopes, improper stockpiling of materials, destruction of vegetative cover during site clearing and uncontrolled surface run-off during storms may increase the erosion rate. Riverbanks are composed of alluvial and proluvial loose-fragmental soils. Thus, the activities may increase erosion and landslides rates at various points along the banks of rivers and in some lateral ravines.

Intensive cultivation occurs along the steep slopes predominant in the area without proper soil conservation techniques hence accelerating soil erosion. However, it is worth mentioning that terracing as a measure for soil erosion control is practiced in some parts of the project area. Extensive deforestation to meet energy demands has further reduced the soils 'ability to withstand the scouring effects of rain in the upland watersheds has had serious downstream implications. When viewed against that background, therefore, it is easy to appreciate that the project would have negligible incremental impact on the rates and overall patterns of erosion. Nevertheless, erosion is of relevance to slope stability, which is in turn relevant to the design of the project and the conduct of operations such as excavation and borrowing. The specific measures will be taken to address these considerations.

### **3.3.3. Highland soils**

The highland soils are particularly prone to erosion and landslides especially regions of the Congo-Nile ridge, valleys and lowlands (peat lands) as well as highland meadows. Soils of foothills of the Congo-Nile Ridge and of other transition regions between the central plateau and highlands are fertile but, due to deforestation and inappropriate agricultural practices, they are vulnerable to erosion.

### **3.3.4. Soils of the central plateau**

The central plateau covers the regions of South and South-East. The soil types are hill Ferro soils and valley histosols. The slopes of hills are exposed to erosion notably in the case of clay-sandy or gravelly soils.

### **3.3.5. Soils of the lowlands**

They cover the Eastern and South-eastern regions and are Ferro soils with savannah vegetation. Similar to the region of Bugesera, the river-lake complex along Nyabarongo and Akanyaru rivers underwent serious leaching. In addition, the geological structure of soils in those regions allows rain waters to infiltrate deeply into soils, and that can partly explain the lack of runoff waters and shallow brooks.

### **3.3.6. Soils of valleys**

These are soils of histosol and peat soil types that constitute potential agricultural and energy wealth (case of intermountain basins of Kamiranzovu and Rugezi). In the wide water surfaces of eastern regions like Umutara and Bugesera, as well as the Rusizi region (Bugarama), the valleys are of vertisol, and alluvial types are fertile. The slope slight as they may be, are threatened by erosion due to the weak permeability of soils. The exploitation of peat for fuel production purposes would require a preliminary development plan for swampy areas. In fact, any extraction of peat is associated with drainage and exudation, two factors likely to impact negatively on the crucial role of wet ecosystems and swamps in regulating the hydrology. Moreover, the exploitation of mines and quarries spoils the landscape and more often constitutes a source of soil erosion, water pollution and pose a danger to human health. A good number of queries are not rehabilitated and always left open.

### **3.3.7. Biological Environment**

Rwanda is covered with diverse ecosystems that include mountains, ombrophile forests, gallery forests, savannahs, wet and aquatic zones, wood and agro ecosystems. All these ecosystems have a rich flora and fauna.

### **3.3.8. Protected areas.**

The fauna and the flora can be better preserved and protected thanks to the establishment of a system made of protected areas like national parks and forest reserves to which the best management is applied. However, through time and due to human activities, these conservation areas have been reduced considerably.

## **3.4. Forests**

Rwanda's remaining natural forests, the Nyungwe Forest, the Gishwati Forest and the Mukara Forest, are highland forests around the volcanoes, have a high degree of biological diversity and rare animal species, such as mountain gorillas, Ruwenzori colobus monkeys and golden chimpanzees. It is estimated that there are 2150 plant species to be found in Rwanda, with around 700 species of these acknowledged to have medicinal value. Towards the east of the country lies the Akagera National Park, the Mutara game reserve forests galleries and wooded savannahs. Population pressures have already drastically reduced the land area of the natural forests of Rwanda from about 30% to presently fewer than 10% in less than a century. The deforestation of Rwanda's remaining forests is also the result of high fuel wood consumption. Heavily

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populated and cultivated areas adjacent to the natural forest, as well as the recent wars, have resulted in massive deforestation and loss of genetic diversity within Rwanda's natural forest.

Clearance for farming and pastureland has also contributed to the reduction in forest cover, as well as harvesting for fuel wood and timber for housing and small-scale mining. Production of export crops is also a factor in forest destruction: half the forests around the volcanoes in the North were cleared for pyrethrum plantations in the 1960's, and areas around the Nyungwe in southern and western province were cleared for tea plantations. Preliminary estimates indicate that the protected areas and forest reserves were seriously damaged as a result of recent wars. From an estimated pre-1994 total surface area of 417,000 ha, it is thought that they have been reduced to approximately 226,000 ha. Specifically, the Akagera National Park was reduced to less than one-third of its original size when the Umutara prefecture was created in 1996 for the resettlement of returning refugees. The Gishwati Forest has all but disappeared (from a pre-war estimate of 37,000 ha, only about 2,000 ha now remain).

### **3.4.1. National Parks/Forest Reserves at a Glance**

Rwanda has four national parks. They are all protected wildlife reserves and ecosystems and include the Akagera National Park, Nyungwe National Park, Gishwati-Mukura National Park and the Volcanoes National Park. Gishwati-Mukura was created in 2015 and is hence the youngest national park created. The Rwanda Development Board (RDB) is responsible for the overall management of all the national parks, related infrastructure and promoting tourism. The RDB is assisted by other government agencies and ministries. In some cases, like that of the Akagera and Gishwati-Mukura National Park, the government entered into long term agreements with private partners to help run some park activities.

These areas are exclusively reserved for the protection of flora and fauna, eco-tourism, biodiversity conservation, and for geological formations of scientific and aesthetic value. The geographical distribution of those parks on the national territory is a guarantee of the conservation of biological diversity representative of the fauna and flora of the country.

### **3.4.2. Volcanoes National Park**

Spanning a 160 Km<sup>2</sup> area in the Northern part of Rwanda, Volcanoes National Park is the oldest national park in Africa, created in 1925. It was initially a small area around Karisimbi, Mikeno and Visoke volcanoes which was gazetted to protect the Mountain gorillas which were facing the threat of extinction as a result of poaching. In 1929, the park was extended into Rwanda and the then Belgian Congo and was named Albert National Park managed and run by the Belgian Colonial Authorities. During the early 1960s, the park was divided as Rwanda and Congo gained their independence and by the end of that decade, the park was almost half of its original size (340 Km<sup>2</sup> to 160 Km<sup>2</sup>). Volcanoes National Park is home to Mountain Gorillas (*Gorilla beringei beringei*); golden monkeys (*Cercopithecus mitis kandti*), Spotted Hyena (*Crocuta crocuta*), buffaloes (*Syncerus caffer*), elephants, black-fronted duiker (*Cephalophus niger*), and bushbuck (*Tragelaphus scriptus*). The park also harbors 178 bird species including at least 29 endemics to Rwenzori mountains and the Virungas. The Volcano National Park-VNP also host 245 species of plants of which 17 are predominant, including 13 internationally protected orchids, 115 species of

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mammals, 27 species of reptiles and amphibians and 33 species of arthropods. Some of these species are endemic while others are internationally protected.

Nyungwe National Park, located in the South West corner of Rwanda, is an untouched natural rainforest that is filled with exciting biodiversity. Nyungwe National Park was established in 2004 and covers an area of approximately 1000 km<sup>2</sup> of rainforest, bamboo, grassland, swamps, and bogs. The nearest town is Rusizi, 54 km to the west. Mount Bigugu is located within the park borders. Nyungwe is surely one of the world's most beautiful and pristine mountain rainforests. It's believed to be one of Africa's oldest forests, staying green even through the Ice Age, which explains its diversity. The Nyungwe forest has a wide diversity of animal species, making it a priority for conservation in Africa. The forest is situated in a region in which several large-scale biogeographical zones meet, and the variety of terrestrial biomes provides a great span of microhabitats for many different species of plants and animals. The park contains 13 different primate species (25% of Africa's total) with habituated chimpanzees and 12 other primates species (including a 400-strong troop of habituated Ruwenzori Black & White Colobus), 85 mammal species, 275 species of birds of which 26 are endemic in the Albertin Rift and 3 are on the red list of the IUCN (*Bradypterus graueri*, *Crypto spiza shelleyi* and *Apdis argentea*), 32 amphibian and 38 reptile species and 1068 plant species of which 140 species of orchids, 260 species of ligneous and herbaceous plants, 24 species of trees. Many of these animals are restricted-range species that are only found in the Albertine Rift montane forests ecoregion in Africa. In fact, the number of endemic species found here is greater than in any other forest in the Albertine Rift Mountains that has been surveyed. The forest, which reaches its maximum altitude of 3000 metres above sea level, is of particular interest for the presence of colonies of chimpanzees (*Pantroglydytes* - Blumenbach, 1775) and Angola colobus (*Colobus angolensis* - Sclater 1860).



*Figure 10: Volcanoes National Park Rwanda*

### **3.4.3. Akagera National Park**

The savannah in the North Eastern Rwanda is used as the Akagera National Park; it covers 900km<sup>2</sup> situated between 1300-1825 m of altitude. This park was created in 1934 to protect animals in three ecoregions: savannah, mountain and swamp. Conserving biodiversity in this ecosystem has been challenging due to increasing pressures, potential loss of habitat and species or lack of up-to-date data, etc.

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This park has a set of compounds that define its high importance, the Akagera major components are: Forest fringed lakes, papyrus swamps, savannah plains and rolling highlands. Akagera has exceptional levels of biodiversity, partly due to its position at the confluence of different vegetation zones. The extensive systems of freshwater lakes and associated papyrus swamps form the largest protected wetland in central Africa. Its biodiversity has a double origin; both native and introduced species make the Akagera fauna and flora diversity. The wildlife in the Akagera National Park comprises 90 species of mammals of which 47 species of big mammals, 530 bird species, 35 fish species, 9 species of amphibians and 23 species of reptiles. Four animal species are protected by the CITES (Convention on International Trade of Endangered Species) namely *Loxodonta Africana*, *Sincerus caffer*, *Panthera leo* and *Tragelaphus oryx*. The flora of the Akagera National Park is diverse, and 6 species of orchids are recorded. The ANP is dominated by the grass savannah and different species of acacia trees; the most found in the forest savannah.

Introduced 'Masai' giraffe, black rhino, elephant, buffalo, zebra and duikers are major herbivorous of the Akagera National Park. Whereas for the large predators only leopard (*Panthera pardus*) and hyaena (*Crocuta crocuta*) can still be found in the park. Although lion once occurred throughout Akagera, the population has been wiped out mostly through poisonings by cattle herders seeking to protect their livestock. A reduction in the prey-base due to heavy poaching would also have contributed to their demise. Smaller predators are still well represented with healthy populations of several mongoose species, viverrid species, serval (*Leptailurus serval*) and side-striped jackal (*Canis adustus*).



Akagera National Park in Western Province

#### **3.4.4. Gishwati-Mukura National Park**

Presently, Gishwati-Mukura forest reserve is known for a wide range of fauna, including four species of primates: the eastern chimpanzee, the golden monkey, the blue monkey, and the l'hoest's monkey (also known as mountain monkey); more than a dozen species of East African chimpanzees; mammals such as red river hog, the black-fronted duiker, the southern tree hyrax, among others. Conservationists have also reported seeing the black and white colobus, another species of primates. The forest reserve also boasts about 60 species of trees, including indigenous hardwoods and bamboo. Gishwati and Mukura natural forests were originally earmarked as forest conservation zones in 1933. According to the draft law of

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October 15, 2014, the Gishwati-Mukura National Park will cover a total surface area of 3,427.46 hectares with Gishwati forest (1,439.72 hectares) and Mukura forest (1,987.74 hectares). The government has also dedicated an area covering 992.48 hectares to a subsequent buffer zone to deter human encroachment. Over the past decades, the Gishwati-Mukura area was nearly depleted largely due to resettlement, livestock farming and smallholder farms in the aftermath of the 1994 Genocide against the Tutsi.

**Relic forests and gallery forests** The Gishwati forest that covered 21.000 ha before 1981, consisted of only 600 ha in 2002. The natural forest of Mukura that stretches on 3.000 ha in 1960 covered only 800 ha in 2002. Regarding tree species and altitude, it is similar to that of Gishwati (2000~3000 m). Relict forests and savannahs in the East are located around the Akagera Park and have a variety of endemic and rare species whose majority is used in traditional medicine. Gallery forests accommodate an important biodiversity with endemic and rare species. That is for instance the case of the *Blighia unijugata*, *Grewia forbese*, *Rhus vulgaris*, *Pterygota mildbraedii* and *Ficus* sp.

In general, for a period of about 40 years, the surface area of the natural forests of Rwanda underwent a decrease of about 65% between 1960 and 2002. The search for arable lands, extensive farming, illegal felling of forests for firewood, production of wood for charcoal and poles for building in urban areas, as well as a land mismanagement have drastically contributed to the reduction of the surface area of forests.

Figure 11 : Forests in the project area





*Figure 12: Gishwati Mukura National Park*

### 3.5. Biodiversity

#### 3.5.1. Biodiversity of wetlands

The ecosystems of the Rwandan wetlands inhabit a rich biological diversity in terms of vegetation and animal species (more than 104 plant species have been identified), except for Lake Kivu, Bulera and Ruhondo that have some limnologic problems. The Lake Kivu contains a very poor aquatic flora, and the density of the phytoplankton is relatively low due to the lack of mixture of layers with a biozone limited at 60 m to 70 m (the nutrients are found at the bottom of the lake). The ichthyologic fauna is also poor with 31 fish species due the volcanic origin of the lake. Most lakes of the Akagera National Park are very rich in biodiversity with phytoplankton, fish species and ornithological fauna. The flora is dominated by the *Cyperus*, *Phragmites*, *Phinix*, etc. The Water Hyacinth (*Eichornia crassipes*) is present and has started spreading covering more important surfaces of the lakes, thus posing a threat to their biological diversity. Some lakes like Cyambwe, Rwampanga and Rweru are particularly rich in hippopotamuses and crocodiles. One can also find many other lakes such as Nasho, lakes of Gisaka and Bugesera that contains phytoplankton that is very rich in biodiversity and flora that is mainly dominated by papyrus with *Cyperus papyrus* mixed with *Miscandium violaceum* and *Nymphaea nouchallii*. All these lakes are associated with gallery forests onshore or on small islands. Concerning the Northern lakes (Bulera and Ruhondo), the aquatic flora and fauna are poor due to the physico-chemical situation unfavourable to their development and the isolation of the two lakes. The concentration of the plankton is less important in Lake Bulera than in Ruhondo. They have 48 species grouped in 4 families (chlorophyceous, Cyanophyceous, pyrophytes and bacillariophyceous). Lake Muhazi is land locked, isolated, and its ichthyologic fauna is very limited. One can find three endemic species and other nine introduced from outside. The lake is very rich in phytoplankton.

The macroflora of the marshes is mostly composed of wide spaces of papyrus with some zones of *Miscanthidium*. The low layer is covered with *Cyclosorus stratus*. The fauna of big rivers and associated marshes comprises ungulates, carnivores, primates, rodents, lagomorphous, insectivorous and birds.

#### 3.5.2. Biodiversity in agricultural systems

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Demographic pressure and intensive agricultural practices in combination with diversified agropastoral practices, deforestation, bush fires and urbanization have disrupted the ecosystem functions. These changes caused secondary formation consisting essentially of graminaceous plants, numerous seasonal or perennial species alternating with crops. Agricultural arable land presently covers around 52% of the total surface area of the country and is permanently cultivated (RNRA 2012). The time between two growing seasons is the only period of respite. These areas have various crops that play an essential role in the national economy. These crops are usually grouped in two categories: subsistence and cash crops. Some of the food crops include; sorghum, beans (*Phaseolus vulgaris*), eleusine (*Eleusine corocana*), Colocases (*Colocasia antigorum*), maize (*Zea mays*), rice (*Oryza sativa*), wheat (*Triticum sp*), barley (*Hordeum vulgare*), peas (*Pisumsativum*), soja bean (*Soja hispada*), peanut (*Arachis hypogea*), sweet potato (*Ipomea durcis*), potato, cassava (*manihot esculanta*) and banana (*Musa*). The importance of each crop varies according to regions. Some crops, like bananas, potatoes, different varieties of wheat, sorghums and beans are subject to high commercial trade. Potatoes, beans, cassava and bananas are present everywhere for the daily diet of the people. The cash crops are very few. They are limited to coffee, tea and pyrethrum.

### **3.6. Pastoral zones**

In Rwanda, the essential part of animal husbandry is limited to the family and a small number of animals per household. As agriculture occupies the biggest portion of land, the cows graze in paddock, some parts of marginal lands and limited pasturelands mainly Gishwati national reserve and Umutara. This obliges farmers to adopt the semi-permanent farming and grow fodder crops such as *Tripsacum laxum*, *Setaria spp*, *Desmodium spp*, *Pennisetum purpureum*, *Mucuna pruriensis*, *Cajanus cajan*, *Calliandra calothyrsis*, *Leucaena diverifolia*, *Sesbania sesban*, etc. However, there is the development of ranching in Umutara and Gishwati. Other pastoral land is very limited and distributed all over the country. These areas are prone to bush fires, trampling and sometimes overgrazing. The latter is the main cause of reduction of the biological diversity as it exterminates the most precious species along with pyrophyte species with small bromatologic value such as *Eragrostis spp*, *Sporobolus spp* and *Digitaria spp*.

### **3.7. Woodlands**

Tree planting in Rwanda was limited to some plants around households such as *Ficus thoningii*, *Euphorbia tirucalli*, *Erythrina abyssinica*, *Vernonia amygdalena*, *Dracaena afromontana*, etc., but the cultivation of woody perennials for timber, energy generation or other services was not part of the customs. That resulted in a massive exploitation that quickly proved its limits. The first forest plantations were created in 1920 and 1948 and only consisted of *Eucalyptus*. Later on, other species were introduced. These were namely *Pinus spp*, *Callistria spp*, *Grevillea robusta*, *Cedrella spp*, *Cupressus*. The Arboretum of Ruhunde (RAB Station) has 206 species among which 146 feuillus, 56 resinous and a species of bamboo. Those species proved to be dangerous for the biological patrimony because they used to drain and acidify places that are already acid, what caused the reduction or even the extermination of the undergrowth. Thus, planting those species would lead to erosion. The covered surface area was estimated at 256,300 hectares in 1998. Despite efforts of diversifying tree species, 99% of trees consisted of *Eucalyptus spp*.

### **3.8. Socio-economic and environment**



### 3.8.1. Population and demographic characteristics

### 3.8.2. Gender distribution of the population per administrative District

In a bid to promote a sustainable and equitable development as a subsequent impact of any development projects, gender needs to be mainstreamed into the day to day development initiatives. This is important for the design and implementation of projects that are responsive to the practical needs of women, households, and to those of communities in general.

Table 3 : Resident population by sex, Province, District and population density

Province/ Districts	Counts			Population share (% of the total population)	Population density
	Both sexes	Male	Female	Both sexes	-
Rwanda	<b>13,246,394</b>	<b>6,429,326</b>	<b>6,817,068</b>	<b>100</b>	<b>503</b>
<b>City of Kigali</b>	<b>1,745,555</b>	<b>888,882</b>	<b>856,673</b>	<b>13.2</b>	<b>2,401</b>
Nyarugenge	374,319	195,780	178,539	2.8	2,830
Gasabo	879,505	443,987	435,518	6.6	2,056
Kicukiro	491,731	249,115	242,616	3.7	2,944
<b>Southern Province</b>	<b>3,002,699</b>	<b>1,448,455</b>	<b>1,554,244</b>	<b>22.7</b>	<b>547</b>
Nyanza	365,718	178,645	187,073	2.8	545
Gisagara	397,051	188,965	208,086	3	584
Nyaruguru	318,126	151,980	166,146	2.4	409
Huye	381,900	188,859	193,041	2.9	657
Nyamagabe	371,501	176,725	194,776	2.8	441
Ruhango	359,121	172,096	187,025	2.7	573
Muhanga	358,433	173,615	184,818	2.7	555
Kamonyi	450,849	217,570	233,279	3.4	683
<b>Western Province</b>	<b>2,896,484</b>	<b>1,384,635</b>	<b>1,511,849</b>	<b>21.9</b>	<b>693</b>
Karongi	373,869	178,417	195,452	2.8	482
Rutsiro	369,180	176,498	192,682	2.8	565
Rubavu	546,683	267,299	279,384	4.1	1,614
Nyabihu	319,047	150,072	168,975	2.4	642
Ngororero	367,955	171,065	196,890	2.8	551
Rusizi	485,529	236,426	249,103	3.7	871
Nyamasheke	434,221	204,858	229,363	3.3	632
<b>Northern Province</b>	<b>2,038,511</b>	<b>972,960</b>	<b>1,065,551</b>	<b>15.4</b>	<b>663</b>
Rulindo	360,144	171,849	188,295	2.7	635
Gakenke	365,292	172,600	192,692	2.8	520

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Province/ Districts	Counts			Population share (% of the total population)	Population density
	Both sexes	Male	Female	Both sexes	-
Musanze	476,522	227,340	249,182	3.6	1,157
Burera	387,729	184,782	202,947	2.9	682
Gicumbi	448,824	216,389	232,435	3.4	544
<b>Eastern Province</b>	<b>3,563,145</b>	<b>1,734,394</b>	<b>1,828,751</b>	<b>26.9</b>	<b>433</b>
Rwamagana	484,953	243,794	241,159	3.7	740
Nyagatare	653,861	318,740	335,121	4.9	373
Gatsibo	551,164	264,461	286,703	4.2	435
Kayonza	457,156	221,448	235,708	3.5	338
Kirehe	460,860	221,763	239,097	3.5	398
Ngoma	404,048	192,720	211,328	3.1	498
Bugesera	551,103	271,468	279,635	4.2	450

Source: PHC5-2022 Main indicators report

The table above shows that in all administrative districts, the female population is greater than the male population except in the city of Kigali, which shows that females will have to play the big role in this project implementation and therefore contribute to the development and increment of household income which increase also the role of women in the society. As one of the gender mainstreaming strategies, the project has prepared the gender action plan (GAP) which should be implemented to make sure that women are not left behind by the project but ensures their full involvement in the project activities as shown that they represent a big number of the population.

Table 4 : Prevalence of disability by type, sex and residence

Type of disability	Total			Urban			Rural		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
Seeing	1.4	1.2	1.6	1.2	1	1.4	1.4	1.2	1.6
Hearing	0.6	0.5	0.6	0.4	0.3	0.4	0.7	0.6	0.7
Walking/Climbing	1.1	1	1.1	0.8	0.8	0.9	1.2	1.1	1.2
Communicating	0.4	0.4	0.3	0.3	0.3	0.2	0.4	0.5	0.3
Remembering and Concentrating	0.6	0.6	0.7	0.4	0.4	0.5	0.7	0.7	0.8
Selfcare	0.4	0.4	0.4	0.3	0.3	0.3	0.4	0.5	0.4
Short stature disability	0.1	0.1	0.1	0	0	0	0.1	0.1	0.1
Albinism disability	0	0	0	0	0	0	0	0	0

Source: PHC5-2022 Main indicators report

**Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)**

According to the table above illustrating the disability status in Rwanda, different types of disability were analysed including disability of seeing, hearing, walking/climbing, communicating, remembering and concentrating, selfcare, short stature disability and albinism disability. The findings provided that, seeing disability is dominant with 1.4 and female dominates male in this disability with 1.6 contrary to men with 1.2. the walking/climbing disability also is dominant with 1.1 prevalence and still female have the higher prevalence than men (1.1/1). The hearing and, remembering and concentrating also are present with 0.6 prevalence rate, Communicating and selfcare disability prevalence was found to be 0.4, with few cases of short stature disability (0.1), while the albinism disability is almost nonexistent with 0 prevalence rate. However, in all cases of disability, the rural population have the higher prevalence rate than urban ones as demonstrated in the table above.

*Table 5 : Number and Percentage of population aged 5+ years with disability by district*

Province/District	Counts			Percentage		
	Both sexes	Male	Female	Both sexes	Male	Female
<b>Rwanda</b>	<b>391,775</b>	<b>174,949</b>	<b>216,826</b>	<b>3.4</b>	<b>3.1</b>	<b>3.6</b>
<b>City of Kigali</b>	<b>34,730</b>	<b>15,502</b>	<b>19,228</b>	<b>2.3</b>	<b>2</b>	<b>2.6</b>
Nyarugenge	8,206	3,791	4,415	2.5	2.2	2.8
Gasabo	17,585	7,779	9,806	2.3	2	2.6
Kicukiro	8,939	3,932	5,007	2.1	1.8	2.3
<b>Southern Province</b>	<b>98,337</b>	<b>43,918</b>	<b>54,419</b>	<b>3.7</b>	<b>3.5</b>	<b>4</b>
Nyanza	12,692	5,589	7,103	4	3.6	4.3
Gisagara	11,499	5,055	6,444	3.4	3.1	3.6
Nyaruguru	9,914	4,383	5,531	3.6	3.4	3.8
Huye	13,675	6,572	7,103	4.1	4	4.2
Nyamagabe	11,813	5,175	6,638	3.6	3.3	3.8
Ruhango	14,355	6,040	8,315	4.6	4	5
Muhanga	11,586	5,388	6,198	3.7	3.5	3.8
Kamonyi	12,803	5,716	7,087	3.2	3	3.5
<b>Western Province</b>	<b>88,967</b>	<b>39,357</b>	<b>49,610</b>	<b>3.5</b>	<b>3.3</b>	<b>3.8</b>
Karongi	12,628	5,561	7,067	3.8	3.6	4.1
Rutsiro	10,464	4,686	5,778	3.2	3.1	3.4
Rubavu	14,446	6,455	7,991	3.1	2.8	3.3
Nyabihu	10,257	4,297	5,960	3.7	3.3	4
Ngororero	10,379	4,533	5,846	3.2	3.1	3.4
Rusizi	14,773	6,794	7,979	3.5	3.4	3.7
Nyamasheke	16,020	7,031	8,989	4.3	4	4.5
<b>Northern Province</b>	<b>60,336</b>	<b>26,348</b>	<b>33,988</b>	<b>3.4</b>	<b>3.1</b>	<b>3.6</b>
Rulindo	10,093	4,399	5,694	3.2	2.9	3.4
Gakenke	10,474	4,605	5,869	3.2	3	3.4

**Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)**

Musanze	13,025	5,623	7,402	3.1	2.8	3.4
Burera	12,347	5,304	7,043	3.6	3.3	3.9
Gicumbi	14,397	6,417	7,980	3.7	3.4	3.9
<b>Eastern Province</b>	<b>109,405</b>	<b>49,824</b>	<b>59,581</b>	<b>3.6</b>	<b>3.3</b>	<b>3.8</b>
Rwamagana	13,003	6,050	6,953	3.1	2.8	3.3
Nyagatare	20,631	9,346	11,285	3.7	3.4	3.9
Gatsibo	16,420	7,614	8,806	3.4	3.3	3.5
Kayanza	14,937	6,940	7,997	3.8	3.6	3.9
Kirehe	14,230	6,409	7,821	3.6	3.4	3.8
Ngoma	13,165	5,797	7,368	3.7	3.5	4
Bugesera	17,019	7,668	9,351	3.6	3.3	3.9

Source: PHC5-2022 Main indicators report

The table above illustrate the disability status based on the provinces and the districts within these provinces. It shows that the Southern province has the higher prevalence rate (4) and that Ruhango district has the higher prevalence than the remaining districts with prevalence rate of 5. The Eastern province and Western Province have 3.8 prevalence rate each, Northern province has 3.6 prevalence rate while Kigali City has the less prevalence rate of 2.6, and the less prevalent district is located in Kigali City with 2.3 prevalence rate.

Table 6: Number of youth (16-30 years) by district, sex and residence

Province/ District	Total			Urban			Rural		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
<b>Rwanda</b>	<b>3,595,670</b>	<b>1,767,063</b>	<b>1,828,607</b>	<b>1,163,894</b>	<b>570,801</b>	<b>593,093</b>	<b>2,431,776</b>	<b>1,196,262</b>	<b>1,235,514</b>
<b>City of Kigali</b>	<b>584,290</b>	<b>288,533</b>	<b>295,757</b>	<b>526,310</b>	<b>257,692</b>	<b>268,618</b>	<b>57,980</b>	<b>30,841</b>	<b>27,139</b>
Nyarugenge	126,094	65,433	60,661	109,444	55,074	54,370	16,650	10,359	6,291
Gasabo	282,898	137,605	145,293	242,683	117,681	125,002	40,215	19,924	20,291
Kicukiro	175,298	85,495	89,803	174,183	84,937	89,246	1,115	558	557
<b>Southern Province</b>	<b>746,908</b>	<b>370,748</b>	<b>376,160</b>	<b>128,358</b>	<b>63,563</b>	<b>64,795</b>	<b>618,550</b>	<b>307,185</b>	<b>311,365</b>
Nyanza	87,247	43,603	43,644	9,570	4,506	5,064	77,677	39,097	38,580
Gisagara	96,997	48,165	48,832	3,651	1,847	1,804	93,346	46,318	47,028
Nyaruguru	80,401	40,128	40,273	2,259	1,138	1,121	78,142	38,990	39,152
Huye	94,211	48,390	45,821	23,808	13,290	10,518	70,403	35,100	35,303

**Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)**

Nyamagabe	99,691	49,141	50,550	12,051	5,721	6,330	87,640	43,420	44,220
Ruhango	85,663	42,138	43,525	10,668	4,933	5,735	74,995	37,205	37,790
Muhanga	90,816	44,843	45,973	26,678	13,431	13,247	64,138	31,412	32,726
Kamonyi	111,882	54,340	57,542	39,673	18,697	20,976	72,209	35,643	36,566
<b>Western Province</b>	<b>757,749</b>	<b>368,921</b>	<b>388,828</b>	<b>182,053</b>	<b>87,991</b>	<b>94,062</b>	<b>575,696</b>	<b>280,930</b>	<b>294,766</b>
Karongi	94,832	46,491	48,341	9,779	4,694	5,085	85,053	41,797	43,256
Rutsiro	99,652	49,078	50,574	5,637	2,672	2,965	94,015	46,406	47,609
Rubavu	153,630	75,745	77,885	85,668	40,638	45,030	67,962	35,107	32,855
Nyabihu	89,609	42,913	46,696	22,695	10,687	12,008	66,914	32,226	34,688
Ngororero	92,595	43,679	48,916	5,444	2,618	2,826	87,151	41,061	46,090
Rusizi	122,794	60,957	61,837	44,322	22,680	21,642	78,472	38,277	40,195
Nyamasheke	104,637	50,058	54,579	8,508	4,002	4,506	96,129	46,056	50,073
<b>Northern Province</b>	<b>564,353</b>	<b>274,197</b>	<b>290,156</b>	<b>107,855</b>	<b>51,351</b>	<b>56,504</b>	<b>456,498</b>	<b>222,846</b>	<b>233,652</b>
Rulindo	92,714	45,113	47,601	9,991	4,519	5,472	82,723	40,594	42,129
Gakenke	95,141	45,791	49,350	4,309	2,032	2,277	90,832	43,759	47,073
Musanze	139,508	67,241	72,267	73,423	35,101	38,322	66,085	32,140	33,945
Burera	112,731	54,951	57,780	11,586	5,654	5,932	101,145	49,297	51,848
Gicumbi	124,259	61,101	63,158	8,546	4,045	4,501	115,713	57,056	58,657
<b>Eastern Province</b>	<b>942,370</b>	<b>464,664</b>	<b>477,706</b>	<b>219,318</b>	<b>110,204</b>	<b>109,114</b>	<b>723,052</b>	<b>354,460</b>	<b>368,592</b>
Rwamagana	130,746	67,206	63,540	55,345	30,130	25,215	75,401	37,076	38,325
Nyagatare	177,981	87,827	90,154	44,845	22,147	22,698	133,136	65,680	67,456
Gatsibo	145,378	71,160	74,218	16,080	7,860	8,220	129,298	63,300	65,998
Kayonza	120,691	59,127	61,564	19,423	9,219	10,204	101,268	49,908	51,360
Kirehe	123,154	59,826	63,328	8,510	4,074	4,436	114,644	55,752	58,892
Ngoma	99,607	47,908	51,699	10,233	4,739	5,494	89,374	43,169	46,205

Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)

Bugesera	144,813	71,610	73,203	64,882	32,035	32,847	79,931	39,575	40,356
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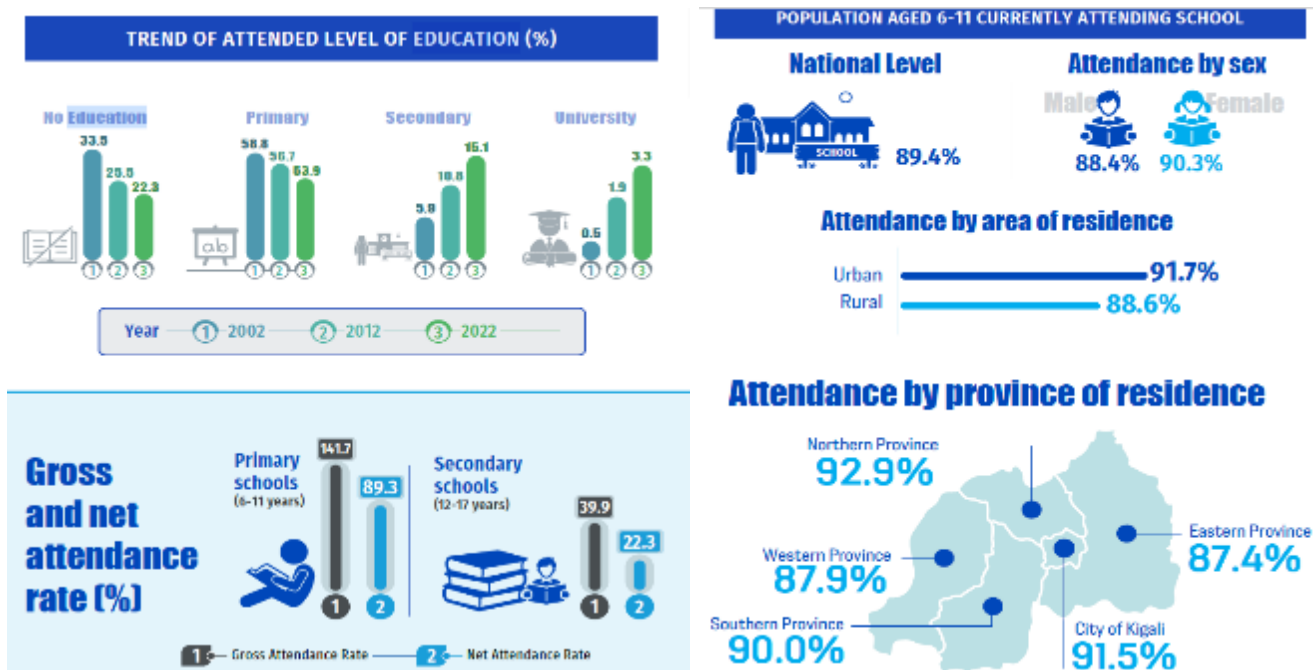
Source: PHC5-2022 Main indicators report

The table above shows the youth distribution by provinces and districts. In Rwanda female youth population was found to more than male population 1,828,607/1,767,063. The eastern province has higher number of youth population with 942,370 people and Kigali city has the less number of youth population with 584,290 people. The total number of youths is 3,595,670 while the total population of the country as revealed by this 2022 census of population was found to be 13,246,394 people which means that the youth is 27% of the total population.

### 3.8.3. Education

It has been observed almost everywhere that education can help lift someone out of poverty when well educated. It is also the case that children from poor households tend to get less education than their more-affluent peers. Both effects appear to hold true in Rwanda (PHC5-2022).

Figure 13 : Education characteristics



Source: National Census 2022 of Rwanda-Key figures

As the table above shows, the literacy rates decrease overtime, which shows the efforts of the Government of Rwanda among the population and all children benefiting the free education and fighting children drop out.

### 3.8.4. Improved drinking water distribution per administrative District

**Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)**

The provision of adequate Water Supply System services is more generally a prerequisite and indicator for socio-economic development. The Government's objective is to increase a hundred percent (100 %) access to clean water supply for the population, which will contribute to enhanced hygiene and sanitation hence reducing waterborne diseases in the targeted area.

*Table 7 : Percentage of private households that have access to improved drinking water by district*

	Rwanda			Male Head			Female Head		
District	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
<b>Rwanda</b>	<b>82.3</b>	<b>95.8</b>	<b>76.8</b>	<b>82.7</b>	<b>96.1</b>	<b>76.9</b>	<b>81.4</b>	<b>95.1</b>	<b>76.4</b>
<b>City of Kigali</b>	<b>97.4</b>	<b>98.8</b>	<b>86.4</b>	<b>97.5</b>	<b>98.9</b>	<b>86.4</b>	<b>97</b>	<b>98.6</b>	<b>86.1</b>
Nyarugenge	98.9	99.2	96.9	99	99.2	96.9	98.9	99.2	96.7
Gasabo	95.8	98.3	83.5	95.9	98.4	83.5	95.3	98.1	83.4
Kicukiro	99.1	99.3	80.4	99.2	99.3	80.8	98.8	99	79.1
<b>Southern Province</b>	<b>78.4</b>	<b>93.7</b>	<b>75.9</b>	<b>78.6</b>	<b>94.1</b>	<b>75.8</b>	<b>78.1</b>	<b>92.6</b>	<b>75.9</b>
Nyanza	78.9	94.5	77.2	79.2	94.8	77.5	78.3	93.9	76.7
Gisagara	78.4	91.3	78	78.2	92.3	77.7	78.9	89.7	78.5
Nyaruguru	72.1	91.3	71.6	72	92.4	71.5	72.2	88.9	71.8
Huye	88.6	97.7	86.6	88.9	98.1	86.7	88	96.9	86.3
Nyamagabe	59	87.3	55.9	58.4	86.7	55.8	60.2	88.3	56.4
Ruhango	76.4	93.1	74.3	76.8	93.9	74.6	75.5	91.2	73.6
Muhanga	84.8	98.6	80.7	85	98.7	80.9	84.2	98.1	80.3
Kamonyi	85.6	90.8	83.2	86.2	91.5	83.6	84	88.7	82.2
<b>Western Province</b>	<b>75.4</b>	<b>95.1</b>	<b>69.8</b>	<b>75.8</b>	<b>95.4</b>	<b>70.2</b>	<b>74.5</b>	<b>94.6</b>	<b>69</b>
Karongi	63.7	88.7	61.1	63.4	89.8	60.5	64.5	86.4	62.2
Rutsiro	61.2	76.7	60.3	61.9	77.1	61	59.4	75.7	58.4
Rubavu	93.5	97.8	88.1	93.6	97.8	88.2	93.3	97.6	87.8
Nyabihu	77.9	94.1	72.8	78	93.8	73.2	77.8	94.6	71.7
Ngororero	68.6	88.2	67.6	68.8	88.7	67.7	68.1	86.8	67.2
Rusizi	82.1	95.8	75.2	82.3	96.1	75.3	81.6	94.9	74.9
Nyamasheke	73.5	94.2	71.7	74.2	94.8	72.4	71.8	92.5	70.2
<b>Northern Province</b>	<b>84.9</b>	<b>93.2</b>	<b>83.2</b>	<b>85</b>	<b>93.3</b>	<b>83.3</b>	<b>84.7</b>	<b>93</b>	<b>82.9</b>
Rulindo	86	94.5	85	86.5	95	85.4	84.9	92.8	84.1
Gakenke	76.5	98.2	75.5	76.8	98.6	75.8	75.6	97.2	74.7
Musanze	90.8	93.7	88	90.7	93.7	87.8	91.2	93.7	88.7
Burera	80.8	83.7	80.5	80.9	83.7	80.6	80.7	83.9	80.3
Gicumbi	88.4	96.7	87.8	88.3	96.9	87.8	88.5	96	87.9
<b>Eastern Province</b>	<b>81.1</b>	<b>92.1</b>	<b>78.2</b>	<b>81.2</b>	<b>92.4</b>	<b>78.2</b>	<b>80.9</b>	<b>91.4</b>	<b>78.2</b>

Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)

District	Rwanda			Male Head			Female Head		
	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
Rwamagana	90.5	96.2	87.5	90.6	96.5	87.4	90.3	95.6	87.6
Nyagatare	78	90.6	73.9	78.1	90.8	73.9	77.9	90.1	73.8
Gatsibo	78.4	92	76.8	78.5	92.4	76.8	78.2	91	76.6
Kayonza	84.4	95.3	82.5	84.5	95.7	82.5	84.3	94.3	82.6
Kirehe	80.7	99.3	79.4	80.4	99.5	78.9	81.5	98.9	80.4
Ngoma	83.5	93.4	82.5	83.9	93.7	83	82.6	92.6	81.7
Bugesera	75.1	87.8	66.4	75.8	88.2	67	73.3	86.8	65

Source: PHC5-2022 Main indicators report

The table above elaborate that the access to the improved drinking water is 82.9% where the urban population has high access rate with 95.8% while the rural population access is 76.8%. Within Rutsiro, Karongi and Ngororero districts of western province the % is very low with 61.2%; 63.7;68.1% respectively.

### 3.8.5. Energy sources of Households

Energy is the essential in the community lives and is taken as a measure of environmentally friendly the community is becoming, through the use of energy sources with less CO2 emissions and environmental degradation. The 2 table below summarizes the source of fuel by source of lighting and Cooking respectively in within the country and give a clear picture of which effort is needed for climate resiliency and poverty alleviation in the Rwandan community.

Table 8 : % Energy sources distribution by source of lighting in all administrative Districts of Rwanda

Province/District	Total	Electricity from REG	Private Hydro Mini grid	Solar power	Generator/Batteries	Kerosene/Paraffin/Lamp	Biogas	Candles	Firewood	Flashlight/phone flashlight	Other	Not Stated
<b>Rwanda</b>	<b>100</b>	<b>47</b>	<b>0.1</b>	<b>13.9</b>	<b>1.3</b>	<b>1.6</b>	<b>0</b>	<b>2.9</b>	<b>4.2</b>	<b>28.4</b>	<b>0.5</b>	<b>0</b>
<b>City of Kigali</b>	<b>100</b>	<b>88</b>	<b>0.1</b>	<b>1.6</b>	<b>0.2</b>	<b>0.4</b>	<b>0</b>	<b>3.9</b>	<b>0.2</b>	<b>5.5</b>	<b>0.1</b>	<b>0</b>
Nyarugenge	100	92	0.1	0.8	0.1	0.3	0	3	0.1	3.5	0.1	0
Gasabo	100	84.5	0.1	2	0.2	0.5	0	4.6	0.3	7.6	0.2	0
Kicukiro	100	91.5	0	1.4	0.1	0.4	0	3.1	0.1	3.2	0.1	0
<b>Southern Province</b>	<b>100</b>	<b>35</b>	<b>0.2</b>	<b>19.9</b>	<b>1.8</b>	<b>1.3</b>	<b>0</b>	<b>2</b>	<b>4.7</b>	<b>34.6</b>	<b>0.6</b>	<b>0</b>
Nyanza	100	35.2	0.1	16.3	2.2	1.3	0	1.1	2.5	40.6	0.6	
Gisagara	100	38.6	0.1	13.8	2	0.8	0	1.8	4.5	37.5	0.7	0



## Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)

Province/District	Total	Electricity from REG	Private Hydro Mini grid	Solar power	Generator/Batteries	Kerosene/Paraffin/Lantern lamp	Biogas	Candles	Firewood	Flashlight/phone flashlight	Other	Not Stated
Nyaruguru	100	32	0.2	33.6	0.8	0.9	0	1.8	10.4	19.6	0.8	0
Huye	100	41.2	0.1	15.1	2	2.1	0	3.2	4.1	31.6	0.5	0
Nyamagabe	100	20.7	0.1	25.8	1.7	0.8	0	2.2	12.4	35.6	0.5	0
Ruhango	100	42.2	0.2	16.2	1.8	1.4	0	1.3	2.4	34	0.5	0
Muhanga	100	34.1	0.5	22.6	1.8	1.3	0	1.4	2.2	35.8	0.4	0
Kamonyi	100	34.3	0.4	19.3	1.8	1.6	0	3	0.9	38.2	0.5	0
<b>Western Province</b>	<b>100</b>	<b>45.5</b>	<b>0.1</b>	<b>11.1</b>	<b>1</b>	<b>2.1</b>	<b>0</b>	<b>3.2</b>	<b>9.8</b>	<b>26.7</b>	<b>0.6</b>	<b>0</b>
Karongi	100	30.6	0.1	19.7	1.9	1.3	0	1.9	7.1	36.6	0.8	0
Rutsiro	100	42.1	0.1	8	1.1	1.2	0	1.8	13.8	31.4	0.6	0
Rubavu	100	67.8	0.1	3.6	0.3	1.9	0	6.7	6.5	12.7	0.5	0
Nyabihu	100	37.3	0.1	9.7	0.5	2	0	3	14.9	32	0.5	0
Ngororero	100	27.4	0.1	13	1.3	1.7	0	1.3	15.6	39	0.6	0
Rusizi	100	58.2	0.1	8.9	1.1	3.2	0	3.2	5.4	19.1	0.7	0
Nyamasheke	100	44	0.3	17.3	0.9	3.2	0	2.8	7.8	23	0.7	0
<b>Northern Province</b>	<b>100</b>	<b>39</b>	<b>0.1</b>	<b>15</b>	<b>0.9</b>	<b>1.2</b>	<b>0</b>	<b>3</b>	<b>5</b>	<b>35.3</b>	<b>0.4</b>	<b>0</b>
Rulindo	100	30.2	0.1	24.3	0.9	1.1	0	4	2.9	36	0.4	0
Gakenke	100	26.6	0.1	23	1.3	1.4		1.2	6.9	39.2	0.4	0
Musanze	100	58.7	0	4.2	0.3	1.1	0	4.7	4.5	.1	0.3	
2602260Burera	100	45.7	0	6.9	0.5	1.5	0	1.8	7.7	35.4	0.5	0
Gicumbi	100	30	0.1	19	1.5	0.9	0	2.9	3.7	41.3	0.5	0
<b>Eastern Province</b>	<b>100</b>	<b>40.3</b>	<b>0.2</b>	<b>17.1</b>	<b>1.9</b>	<b>2.4</b>	<b>0</b>	<b>3.1</b>	<b>1.4</b>	<b>33.2</b>	<b>0.5</b>	<b>0</b>
Rwamagana	100	53	0.2	14.5	1	1.3	0	4.6	0.8	24.2	0.5	0
Nyagatare	100	37	0.1	17.4	2.4	1.5	0	2.7	1.5	37	0.4	0
Gatsibo	100	27	0.4	21.4	2.8	1.5	0	3.2	1.3	41.8	0.6	0
Kayonza	100	39.6	0.2	18.1	1.7	3.7	0	2.7	1.4	32.1	0.4	0
Kirehe	100	40.6	0.3	16.2	1.6	3.8	0	2.4	1.4	33.3	0.4	
Ngoma	100	36	0.1	22.1	1.7	5.5	0	1.8	1.1	31.1	0.6	
Bugesera	100	49.8	0.3	10.7	1.7	0.9	0	3.8	2	30.5	0.4	0

Source: PHC5-2022 Main indicators report

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Table 9 : % of the private households by main source of energy for cooking, Province and District

Province/District	Total	Firewood	Charcoal	Gas	Other	Do not cook	Not Stated
<b>Rwanda</b>	<b>100</b>	<b>76.1</b>	<b>17.3</b>	<b>4.6</b>	<b>0.7</b>	<b>1.4</b>	<b>0</b>
<b>City of Kigali</b>	<b>100</b>	<b>19.3</b>	<b>57.6</b>	<b>20</b>	<b>0.2</b>	<b>2.9</b>	<b>0</b>
Nyarugenge	100	17.8	60	17.8	0.2	4.2	0
Gasabo	100	23	56.6	17.5	0.2	2.6	0
Kicukiro	100	13.6	57.4	26.2	0.2	2.6	0
<b>Southern Province</b>	<b>100</b>	<b>88.5</b>	<b>8.8</b>	<b>1.3</b>	<b>0.3</b>	<b>1.1</b>	<b>0</b>
Nyanza	100	92.2	5.3	0.9	0.3	1.2	
Gisagara	100	94.1	2.9	1.8	0.2	0.9	0
Nyaruguru	100	95.4	3.3	0.3	0.1	0.8	0
Huye	100	82.8	13.7	1.9	0.2	1.4	0
Nyamagabe	100	92.3	6.2	0.4	0.2	0.9	0
Ruhango	100	91.6	5.7	0.6	1	1.2	0
Muhanga	100	80.9	15.9	1.8	0.2	1.2	0
Kamonyi	100	81.3	14.8	2.3	0.3	1.4	0
<b>Western Province</b>	<b>100</b>	<b>83.9</b>	<b>13.9</b>	<b>1.2</b>	<b>0.2</b>	<b>0.8</b>	<b>0</b>
Karongi	100	87.8	10.2	0.8	0.2	1	0
Rutsiro	100	95.6	3.5	0.2	0.2	0.4	0
Rubavu	100	56.3	38.8	4	0.1	0.8	0
Nyabihu	100	85.6	13.6	0.3	0.1	0.5	0
Ngororero	100	94.9	4	0.3	0.3	0.5	0
Rusizi	100	82.5	14.4	1.4	0.3	1.3	0
Nyamasheke	100	95.1	3.5	0.4	0.1	0.8	0
<b>Northern Province</b>	<b>100</b>	<b>88.4</b>	<b>8.7</b>	<b>1.4</b>	<b>0.8</b>	<b>0.8</b>	<b>0</b>
Rulindo	100	87.9	9.7	1	0.4	0.9	0
Gakenke	100	96.6	2.2	0.3	0.2	0.7	0
Musanze	100	73.9	21	4	0.4	0.7	0
Burera	100	93.4	3.3	0.2	2.5	0.6	0
Gicumbi	100	93.5	4.3	0.7	0.6	0.9	0
<b>Eastern Province</b>	<b>100</b>	<b>83.8</b>	<b>10</b>	<b>3.2</b>	<b>1.5</b>	<b>1.6</b>	<b>0</b>
Rwamagana	100	73.7	22	2.4	0.3	1.5	0
Nyagatare	100	83.6	7.1	1.8	6.1	1.4	0
Gatsibo	100	89.7	6.3	0.9	1.5	1.6	0
Kayonza	100	87	9.3	1.9	0.3	1.6	0
Kirehe	100	83.8	3	11.1	0.6	1.5	0

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Province/District	Total	Firewood	Charcoal	Gas	Other	Do not cook	Not Stated
Ngoma	100	93.1	4.4	0.8	0.2	1.5	
Bugesera	100	77.4	16.7	3.9	0.2	1.8	0

Source: PHC5-2022 Main indicators report

According to the table above, it is clear that the project area community still relies on the forest felling to cook and this is an indicator of what happens inside their homes. The much depending on firewood increases the risk of indoor air pollution which is source of many respiratory diseases in the community without forgetting the CO<sub>2</sub> emissions from this burning. The charcoal is also used by many populations in Kigali city districts and in mostly secondary cities like Rubavu, Musanze, Rwamagana, Rusizi, Huye, Muhanga and Kamonyi. All these energy sources/fuels are the main cause of deforestation and emit a great deal of CO<sub>2</sub> emissions, hence the need to promote the fuel which is environmentally friendly and make it affordable to the community members. Against this need the clean cooking solutions and LPG constitutes a response to this environmental issue.

### 3.8.6. Human settlements

The Rwandan settlement pattern has been scattered since time immemorial. It has long been characterized by the traditional use of land associated with the ancestral lifestyle, but which does not correspond any more to the present environmental and economic constraints. It is in that perspective that the present policy of the Government of Rwanda regarding settlement consists of encouraging a clustered habitat commonly known as «IMIDUGUDU».

In most urban areas, Rwanda has not yet developed city master plans. There are only plans of different towns of which some have expired and need updating. Urban centers developed spontaneously without taking environmental aspects into consideration. Sanitary facilities are insufficient and sometimes inadequate in city centers. In suburban zones known as spontaneous quarters, solid wastes are piled in disorder, drinking water is rare, and rainwater draining gutters are insufficient. Thus, diseases are frequent in those areas, the degradation of environment is more pronounced and living conditions are poor.

City development should normally be based on urban planning documents like the “Urban management master plan (SDAU)”. Presently, only two centers have that kind of document and the SDAU of Kigali and Rwamagana are under development. The policy of city development, which is under finalization, is aimed at supporting districts in their efforts to quickly prepare urban planning documents integrating environmental aspects.

### 3.8.7. Cultural Heritage

As per ESS8, the objective of the Cultural Heritage is to protect it from the adverse impacts of project activities and support its preservation, to address cultural heritage as an integral aspect of sustainable development, to promote meaningful consultation with stakeholders regarding cultural heritage and finally promote the equitable sharing of benefits from the use of cultural heritage. The cultural heritage

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encompasses tangible and intangible heritage, which may be recognized and valued at a local, regional, national or global level, as follows: Tangible cultural heritage, which includes movable or immovable objects, sites, structures, groups of structures, and natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance. Tangible cultural heritage may be located in urban or rural settings, and may be above or below land or under the water; Intangible cultural heritage, which includes practices, representations, expressions, knowledge, skills as well as the instruments, objects, artifacts and cultural spaces associated therewith that communities and groups recognize as part of their cultural heritage, as transmitted from generation to generation and constantly recreated by them in response to their environment, their interaction with nature and their history.

Rwanda's cultural heritage, seen from a general perspective, is rich and diversified. But it has, for long, been regarded as being a sector of minor importance, and, because of such consideration, failed to play its basic role of developing the nation.

However, there is no doubt cultural heritage is one of the main pillars for sustainable development. Rwanda's cultural heritage is rich and diversified; it contains sacred hills, forests and trees with legendary history, traditional huts and royal palaces countrywide, churches and other colonial buildings and structures, caves and rocks with bas-reliefs marking the legendary or historical events that have occurred on the site, thermal springs and wells used for ritual purposes, genocide against Tutsi memorial sites and designated burial sites which are located in different administrative districts where the project activities will be implemented.

The environmental and social assessment also takes into consideration the significance of intangible cultural heritage that may be materially affected or put at risk as a result of the project. For example, project activities may require cutting of trees or the movement of boulders that are used for cultural or religious practices and are considered sacred. If potential risks and impacts are identified, measures and actions to avoid, mitigate, and/or manage them are put into place. For example, it may be possible to arrange for protection in place, or for scheduled visitations, or community-sanctioned movement of such sacred items. Protection and preservation of national cultural heritage consolidate national unity, social cohesion, cultural freedom and recognition of community identity.

Therefore, the Government of Rwanda and its partners have the obligation to preserve and perpetuate this cultural heritage for present and future generations because, on the one hand, it brings in a lot of money as do agriculture, industry, gold or oil and, on the other, it maintains harmony and social balance between peoples. A chance finds procedure is a project-specific procedure which will be followed if previously unknown cultural heritage is encountered during project activities. It will be included in all contracts relating to construction of the project, including excavations, demolition, movement of earth, flooding or other changes in the physical environment. The chance finds procedure will set out how chance finds associated with the project will be managed. The procedure will include a requirement to notify relevant authorities of found objects or sites by cultural heritage experts; to fence-off the area of finds or sites to avoid further disturbance; to conduct an assessment of found objects or sites by cultural heritage experts; to identify and implement actions consistent with the requirements of this ESS and national law; and to

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train project personnel and project workers on chance find procedures, this have been detailed in Environmental and Social Commitment Plan (ESCP) developed under this ASCENT, a sample of the chance find procedure is attached to this ESMF.

### **3.8.8. Agriculture**

The agriculture production system in all 27 district and is based on small family exploitations whose production is more than 80 % consumed by the owners. The systems of crops are complex, based on the diversification of productions and the association of crops. Seven main crops—namely banana, bean, sweet potato, cassava, sorghum and potatoes, of which the first five—are present in 90 % of production units and constitute the common basis for all the regions of Rwanda.

Great investments in modern agriculture and research-based agriculture using fertilizers and improved seeds on consolidated lands, pumping irrigation on hillsides, etc., have allowed great production of maize, soya beans, voluble beans, wheat, Irish potatoes and rice. This achievement resulted in the Ministry of Agriculture (MINAGRI)'s decision of putting in place specialized centers for policy implementation and research under Rwanda Agriculture and Animal Resources Development Board (RAB). The recent survey has proved that the agriculture is the most important sector of the Rwandan economy and contributes considerably to poverty reduction. For instance, from 2011 to 2013, the total production of vegetables increased by 9% and their exports while fruits production increased by 18%. Their exports counted an increase from 15.4 ('000 Tons) in 2012 which generated 5,013,260 USD to 31.9 ('000 Tons) which generated 9,494,442 USD (Rwanda Statistical Yearbook, 2014).

However, the extensive agriculture practiced by the majority of Rwandan population contributes to the degradation of environment. Moreover, the agricultural intensification at the level of projects was often realized without taking into account environmental drawbacks accrued from inputs like (mineral fertilizers, pesticides, herbicides and used techniques).

### **3.8.9. Animal husbandry**

The pastures consisted mainly of family fallows and marginal lands considered as inappropriate to agriculture such as the undergrowth. The limited subsisting pastoral areas were badly used because farmers did not master the management of pastures. That was showed by the overgrazing and overexploitation caused by trampling, degradation, and disappearance of vegetation cover. The MINAGRI policy of keeping cattle in shed known as “zero grazing” program has significantly limited environmental degradation and crops damage, which was also a source conflicts between neighbors, but this program also helps the people to have sufficient fertilizer household-based and many of the farmers are mobilized to make and use organic compost from their cows and other natural vegetation.

Moreover, the demographic pressure has progressively led to the semi intensification or intensification of fodder resources used to feed animals. Hence, animal husbandry, essentially made of cattle, was progressively transformed. This resulted in considerable increase of milk production from 257,450 in 2008 to 628,266 tons in 2013 and beef meat production increased from 24,889 to 29,807 tons in 2013 (Rwanda Statistical Yearbook, 2014).

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Animal husbandry has also contributed to poverty reduction through a RAB-MINAGRI program called “One Cow per Every Poor household in Rwanda”. This program has decreased the number of malnourished children countrywide and has considerably contributed to poor household food security and assisted the poor household to increase the agriculture production due to the availability of the organic manure.

*Table 10: Economic activities status of the population of Rwanda.*

Indicator		RHHS 2019/2020	
Workforce to population ratio		87	
Workforce to population ratio by sex and age group	<b>All Rwanda</b>	<b>87</b>	
	Sex and age group	<i>Male</i>	87
		<i>Female</i>	87
		<i>Young (16-30)</i>	79
		<i>Adult (31+)</i>	94
Workforce to population ratio by level of education attained	<b>All Rwanda</b>	<b>87</b>	
	Level of education	<i>Never attended</i>	90
		<i>Primary not completed</i>	93
		<i>Primary completed</i>	86
		<i>Post Primary</i>	96
		<i>Lower Secondary</i>	63
		<i>Upper Secondary</i>	79
		<i>University</i>	83
Distribution of workers by main job type	Wage Farm	15	
	Wage Non-farm	22	
	Independent farmer	51	
	Independent non-farmer	10	
	Unpaid family workers	2	

Source: RHHS 2019/2020

From the above table, it is clear that the main activity in the population is predominantly farming where independent farmers represent 51% of all households which means that most of the rural population in Rwanda depends on farming and the findings from the table above show that the industry sector is still under exploited as the wage non-farm and independent non-farm is 22 and 10 respectively. The fact that the workforce to population ratio is the same for male and female population is the evidence that women can contribute to the development as same as men. There is no distinction among women and men about the working capacity.

People need to shift from agriculture to industry and get more income from non-farm services. Electricity access is anticipated to boost the development where many households are ready to use it to develop the other off farming activities including using mills, hair cutting saloon, welding, carpentry with machine

among many other services. NST1 recognizes access to electricity as one of the main factors which will help in its achievement.

### 3.9. Study on Sustainable cooking for Rwandan schools

In Rwanda cooking energy is dominated by electricity, biomass and fossil fuels, where biomass accounts 83% of all energy consumed (mainly for cooking, households & institutions) (RURA, 2021). The problem is getting worse in the rural area and the big institutions like schools where the use of biomass is too high, what lead to deforestation and increased emission. It is therefore necessary to intervene now, by developing other source of cooking energy, rather than later when the problems get worse. Alternatives to firewood as the main source of cooking fuel is aligned with NST1 priority 7 specifically the key intervention by halving the number of households depending on firewood as a source of energy for cooking from 79.9% (2016/17) to 42% by 2024. To this end, there is a company called GDEO Engineering LTD is interested in targeting schools and the community surrounding as beneficiaries by providing the alternative fuel for cooking.

#### 3.9.1. Study description

The major tasks executed by **G DEO ENGINEERING COMPANY** Ltd include **pilot testing of briquettes** usage in Gisagara district, Mugombwa refugee camps as an alternative cooking fuel in order to reduce the quantity of firewood used by refugees in the context of mitigating climate change and protection of environment. GDEO Ltd also supplied briquettes in the schools of Gisagara district for reducing firewood used in the implementation of school feeding program. It is important to highlight the collaboration that has been engaged between G DEO Ltd and Muhabura Company, to supply the briquettes in different prisons of Rwanda for reducing the use of firewood in food preparation for prisoners. The company has also conducted Jyambere baseline survey, commissioned by MINEMA with the aim of contributing to refugee's economic integration and economic growth in the six target districts, by promoting entrepreneurship and employment for host community members and refugees. The aims of these activities are as follows:

- Refurbishing institutional improved cook-stoves (ICS) or (Muvero) and former masonry stoves in schools of Rwanda, to replace currently used old masonry stoves and open fire three-stone system (and traditional stoves); and
- Switching from non-renewably logged trees to a sustainable energy supply: briquettes made of renewable biomass wastes.
- Conducting a training session to the ICSs users on how they operate, and the benefits associated with abandoning the former system of cooking.
- Liaise with private partners for the involvement in the manufacturing and distributing the briquettes in the entire country.

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Compared to the used three-stone fires or traditional stoves, the advanced technology of ICS and refurbished masonry stoves allows quicker heating-up, longer cooking and heat retaining with less fuel wood as well as lower combustion fumes. It results in saving wood-fuel and associated expenses.

### **3.9.2. Baseline scenario**

According to the Ministry of Environment (2021), Rwanda has achieved 30% of forest cover equivalent to an area of 673,516.80 ha in 2021. The consumption of fuel wood for Rwandan households is estimated at 2.7 million tons per year and charcoal making accounts for about 50% of total fuel wood used. The Business-as-Usual scenario on wood supply/demand, estimates the deficit between wood supply and demand to be 4.3 million tonnes (oven dry weight) in 2017, which is projected to increase to 7.5million tonnes by 2026. This is due to a high increase demand for firewood and wood for charcoal. This must imply over-exploitation of already low stocked forests.

Currently the common practice for cooking consists essentially of using traditional open fire (3-stone) system, traditional stoves and old masonry stoves fired by wood fuel which are still dominant in most schools. These stoves are notoriously wasteful, with an efficiency level of 10-15% (EAC, 2008). Other drawbacks of traditional biomass stoves include the diffusion of heat during windy conditions, the difficulty of controlling the fire, users' exposure to heat and smoke as well as fire hazards. In spite of this, traditional stoves are extensively used by schools, partly because of lack of awareness of the existence and advantages of improved biomass energy technologies and partly due to lack of access to these technologies. Besides, non-renewable wood fuel consumption, despite its ever-increasing scarcity, damage to the environment and price, remains by far the main energy source purchased by school's communities by lack of alternatives.

### **3.9.3. Benefits of using improved cook stoves in the schools**

### **3.9.4. Socio-economical improvements**

The access to improved cooking technology, will reduce the expenses involved in school feeding program by switching from non-renewable biomass purchase, hence improving their financial capacity to serve their core missions. For a school with an average of 1000 students, if it adopts to use cooking gas it pays a flat cost of 10,000,000 Frw (Ten million Rwandan Francs) per term and the price can change according to the availability of the gas on market. It means per month it is 3,300,000 Frw. The business as usual for this study is the use of firewood as cooking energy in schools. The expenses were estimated as follow: per day it uses 3 steres of firewood costing 25,000Frw per stere<sup>1</sup> and 75,000Frw per day. Per month they use 2,250,000Frw. And per term they can use 6,750,000Frw. Now if the option of briquette is adopted per day the school can use 250Kg, 1kg of briquettes costs 150Frw, it means per day it uses 37,500Frw, per month it uses 1,125,000Frw, per term it can use 3,375,000Frw. The use of briquette is a cost-effective option as compared to the use of cooking gas because a school can earn 6,250,000Frw per term. For those who are using firewood they can earn 3,375,000Frw if they adopt to use briquettes as source of cooking energy. Note that this is an estimated cost without considering the cost relating to the firewood preparation with

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<sup>1</sup> The stere or stère (st) is a unit of volume in the original metric system equal to one cubic metre.



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axe for easy use in the cooking stoves, security requirement and displacement that can induce other extra costs if the option of firewood is adopted.

**Health benefits**

Health hazards from combustion gases breathing and insufficient cooking time are likely to decrease. Respiratory diseases (infections, lung cancer, and asthma) due to carbon monoxide and other harmful particles related to incomplete and/or indoor solid fuels combustion rank among the worst threats to women and children’s life in poor developing countries, along with malnutrition, HIV/AIDS and lack of clean water and adequate sanitation. By reducing indoor air pollution, ICS reduce the risk of respiratory diseases, especially for women and children (infections, lung cancer and asthma due to carbon monoxide and other harmful particles rank among the worst threats to women and children’s life in poor developing countries – more than 1.5 million deaths a year) (Rob Bailis, 2009; World-Health-Organization, 2006).

**Environmental sustainability**

The ICS promotes and stimulates the use of renewable biomass energy, the promotion of forest conservation necessities, ahead of the Government’s will, thereby contributing to the CO2 emission reduction for environmental protection. The ash remaining after preparing the foods for students is reached with nutrients and can be used as fertilizer.



*Figure 14: Cook stoves used in schools*



: Example of the Muvero cookstove that uses briquettes



Figure 4: Improved cookstoves with briquettes for home use.



Figure 15: The use of briquettes in Huye prison

### 3.10. Clean cooking solution under ASCENT

The component 3 of the project relates to catalysing private investment in off-grid electricity access and clean cooking, the clean cooking crisis is particularly acute in sub-Saharan Africa where approximately 86% of the population lives without clean fuels and better cooking technologies thus many people die each year of smoke-related diseases.

Increasing use of clean cooking technologies for households in Africa offers huge promise to advance Sustainable Development Goals (SDGs) on good health and well-being (SDG3), gender equality (SDG5) and affordable and clean energy (SDG7). Rwanda has already set a goal to reduce the number of households using wood and other biomass fuels from 79.9 percent to 42 percent by 2024. It hopes to achieve universal clean cooking access by 2030, in line with sustainable universal energy access goals under the Sustainable Development Goal 7.

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The energy use is a key indicator to measure people's standard of living globally, the choice of which cooking fuel is suitable for a household that has a direct bearing on the welfare of the respective families especially women and children because they are more concerned to collect firewood.

The firewood collection and charcoal production are worldwide significant factors to forest degradation and to deforestation respectively. Moreover, the carbon emission from the wood fires is responsible for an estimated 18% of the global warming process, moreover agriculture residues used as cooking fuel are not anymore going back to soil for fertility, leading to soil degradation with difficult to reverse. Households in Rwanda spend up to 6 hours per day collecting firewood and up to a third of their income for their energy needs, exacerbating the cycle of poverty. Nationwide, about 79.9% of households use firewood as their primary cooking fuel, and most of them likely to collect it for free, hence spending one hour acquiring and preparing fuel collection and preparation. Affordable, reliable and clean energy for cooking is essential not only for reducing health and environmental impacts but also helping women to work productively and develop the rural economy as demonstrated in biomass energy strategy, a sustainable path to clean cooking solution developed by MININFRA to be used in a period from 2019-2030.

The traditional cook stoves lead to household air pollution and cause the death from different diseases due to the carbon monoxide and particulates from the fires and generate significant disease such as severe respiratory (upper or lower) diseases, perinatal mortality, low weight birth, cancer, eyes illness, cardiovascular diseases, etc.

Against the above statements, the ESMF of Accelerating Sustainable and Clean Energy Access Transformation Project proposes the summary of potential positive Environmental and social impacts, and Environmental and Social Management Plan where negative impacts have been identified and mitigated based on the different activities which will be undertaken under the same component.

### **3.11. Natural hazards**

With its geographical location in the East African Rift Valley near the Nyiragongo volcanoes and the effect of the Inter Tropical Convergence Zone (ITCZ) on the continent, Rwanda is vulnerable to natural disasters emanating from climatic or seismic disturbances. Some of these disasters include drought, torrential rains, floods, landslides, earthquakes, volcanic eruptions, and epidemics. In the past 10 years, these disasters have practically occurred throughout the country. Such disasters are exacerbated by poor farming practices, deforestation, and environmental degradation among others. Even though disasters experienced in Rwanda are not always linked to climate change, a single disruption of the usual climatic trend leads to terrible consequences due to the overreliance on agriculture in a context of overpopulation.

*Figure 16 17: Cattle graze in the forest in Akagera National Park, especially during periods of drought*



Source: REMA report on Climate Change and Natural Disasters

### 3.11.1. Droughts

The Figure below shows the rainfall deficit risk zone of Rwanda. It includes Bugesera, Nyagatare, Gatsibo, Kayonza, Ngoma and Kirehe districts in the eastern province and the eastern parts of Nyanza and Gisagara districts in southern province. These districts are characterized by high frequency of rainfall deficit, late rainfall onsets, early rainfall cessations, a significant number of dry spells and are prone to drought. Prolonged droughts are frequent in the east and southeast such as Bugesera, Mayaga and Umutara. They tend to be cyclical and can be persistent. Droughts are often responsible for famine, food shortages, a reduction in plant and animal species and displacement of people in search of food and pasture. At times this has led to conflicts over different land uses such as with protected areas. For instance, drought has on several instances forced herders to move their herds from Mutara closer to or into the Akagera National Park during the dry season (Chemonics International Inc., 2003).

### 3.11.2. Impacts of drought in Bugesera

Bugesera experienced severe droughts in 1999, 2006 and more recently in November 2008. The livelihoods of people in Bugesera are dependent on agriculture. So long dry spells have great impacts on their livelihoods and welfare. Crop failure during the 2000 drought meant that the entire region had to depend on external food supplies. The length and intensity of land degradation have also weakened the lands' resilience. When combined with overgrazing and poor cultivation practices, drought has led to deterioration in pasture and arable land to the point where they have been abandoned. Changing climatic conditions has been associated with declining food crop production due to low moisture content. Cassava, the main food and income-generating crop is now a rare commodity; and the production of beans has also been negatively affected by the low soil moisture. Little effort has been made to mitigate the problems of rainfall unpredictability. There is an emergence of pests and diseases, possibly because of changing environmental conditions, crop pests were reported to have increased (WFP/FEWS-NET 2003, REMA 2007).

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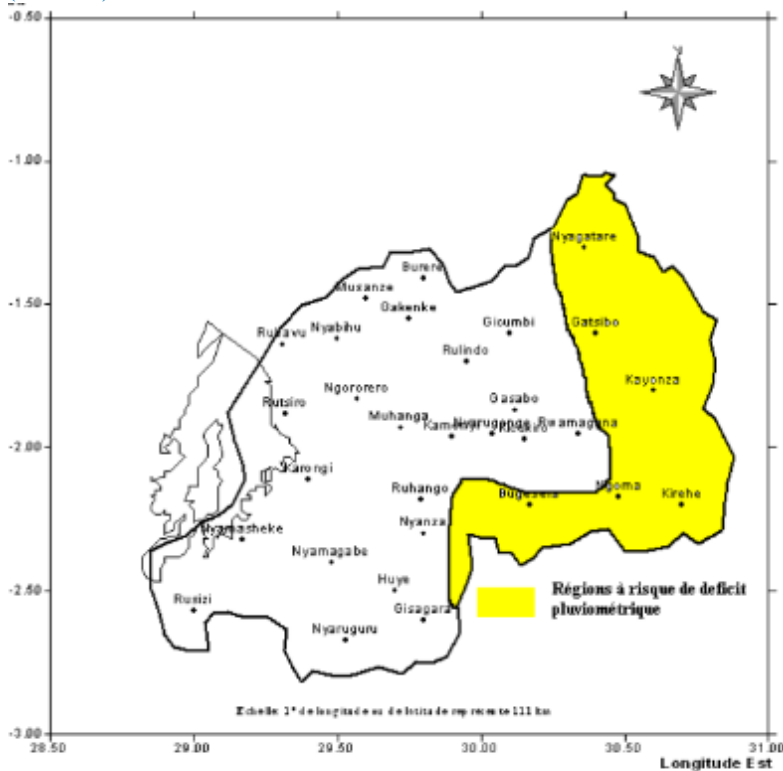


Figure 1819: Map showing rainfall deficit risk zone in Rwanda.

### 3.11.3. Floods

Heavy rainfall, in combination with natural factors like topography, is having great impact in some areas. Floods and landslides are the main disasters in the high altitude regions mainly during the rainy seasons. Indeed in light of Rwanda's topography, the potential for flash flooding in many parts of the country is ever present. The results of human activities (poor farming practices, deforestation and environmental degradation) have aggravated the impacts of floods on people, agriculture and the physical infrastructure. The 'flood and landslide risk zones' derived from the analysis of frequencies of daily rainfall exceeding 50 mm, are located in the southern, northern and western province (MINITERE 2006). These zones have been largely deforested, and now experience heavy rains which have caused extensive flooding and landslides, rock falls, soil erosion, destruction of crops, houses and infrastructure (roads, bridges and schools) as well as losses of human and animal lives. Cases of floods and landslides are often associated with outbreaks of water-borne and water-related diseases like malaria, diarrhea, cholera and viral infections mainly through the contamination of wells and ground water. In September 2008 the heavy rains and winds adversely affected 8 among 12 sectors of Rubavu district: Gisenyi, Rubavu, Rugerero, Nyamyumba, Nyundo, Cyanzarwe, Nyakiriba and Kanama.

### 3.11.4. Floods in Gishwati forests

Like in any other tropical forests, Gishwati forests helps maintain soil quality, limit erosion, stabilize hillsides and modulate seasonal flooding. It has also protected downstream water resources from

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accelerated siltation. The loss of the forest in many areas has resulted in tremendous environmental consequences such as accelerated soil erosion and consequent direct loss of agricultural productivity of the farmers. This ecological function is particularly important to the poorest people who rely on natural resources for their everyday survival. Degradation has also led to more floods in Gishwati and electricity shortage in Cyangugu due to siltation of Sebeya River. The rehabilitation and remediation cost of Gishwati is estimated at US\$ 3.6 million. Agricultural loss due to degradation was estimated to be up to RWF 120,000 for the next harvesting season. The overall cost of activities to partly rehabilitate Gishwati is estimated at RWF 2 billion for 5 years.

*Figure 20 : A farm and a house near Gishwati forest damaged by floods*



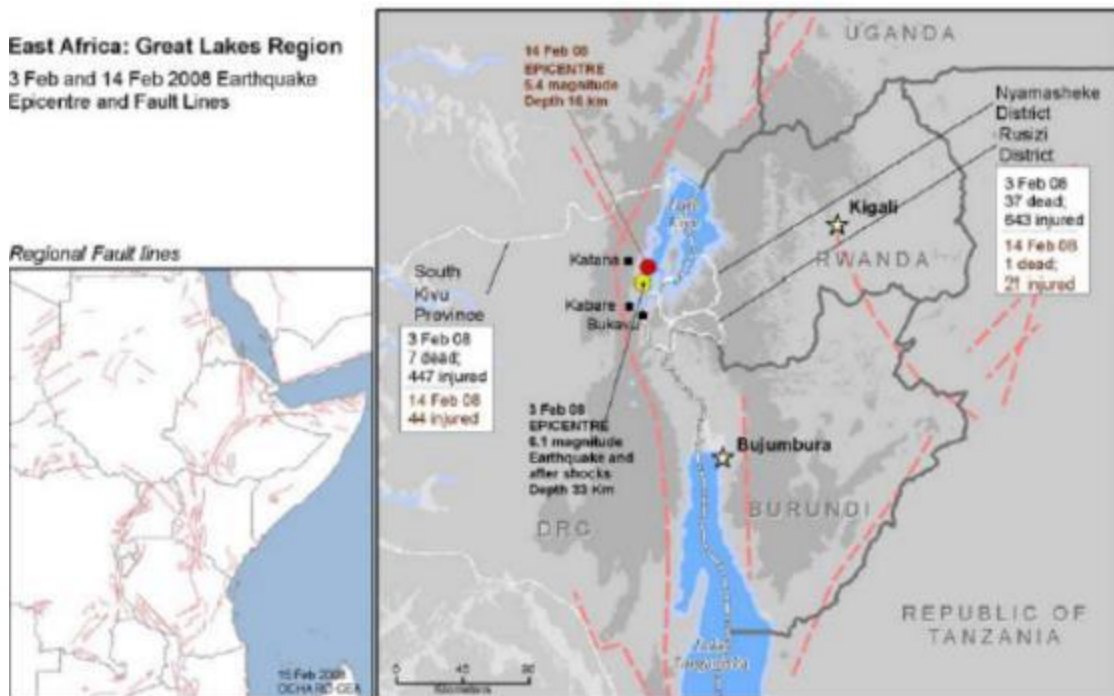
Source: REMA report on Climate Change and Natural Disasters:

### **3.11.5. Earthquakes**

Rwanda is located in a tectonic region whose epicentre is located in Lake Kivu. The northwest part of the country is occupied by a volcanic chain that is seismically active. This location makes Rwanda, especially the western region, susceptible to earthquakes. Indeed recently, two earthquakes of magnitude 6.1 and 5.0 and subsequent aftershocks occurred on 3rd and 14th February 2008 respectively. The epicentre of these earthquakes was located close to the Kivu lakeside city of Bukavu in the Democratic Republic of Congo (see figure 19). These earthquakes affected seriously Rusizi and Nyamasheke districts where 37 people died and 643 were injured. In addition 1,201 families lost their homes and 20 primary and 4 secondary schools were damaged. According to the government, 212 classrooms require reconstruction and an additional 113 need to be repaired. The hospital of Bushenge was also badly affected (OCHA 2008).

*Figure 21 : February 2008, earthquake in Rwanda and the Democratic Republic of Congo: Epicentre and fault lines*

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Source: <http://www.reliefweb.int/rw/rwb.nsf/db900sid/CMAS-7BUL8X?OpenDocument&rc=1&cc=rwa>

### 3.11.6. Volcanic eruptions

The volcanic chain in the northwest, including the Nyiragongo located in Democratic Republic of Congo, is still active and frequently erupts. This volcanic activity is a hazard for the inhabitants of the Goma and Gisenyi regions in the Democratic Republic of Congo and Rwanda, respectively. The most recent eruption in August 2005 caused infrastructure damage in Goma city in Democratic Republic of Congo which borders Gisenyi city in Rubavu district. A major eruption began at Nyiragongo volcano on 17th January 2002 with lava flows reaching Goma. About 15 per cent of the town especially the commercial area and much of the water and electricity supply was destroyed by the lava flows and resulting fires. The lava flows triggered a massive exodus of the population from Goma, some going southwards inside DRC towards Saké, but the majority - perhaps up to 400,000 people - fled across the adjacent border into Rwanda in the vicinity of Gisenyi (IFRC 2002).

### 3.11.7. Responses

### 3.11.8. Adaptation to climate change

The majority of the Rwandan population relies on rain fed agriculture for their livelihoods, and the impacts of variability in climate patterns are already being felt. There are thus opportunities for improved food security, water availability and livelihoods if programmes to assist with adapting to climate change are implemented. Rwanda is a signatory to the United Nations Framework Convention on Climate Change (UNFCCC) and to the Kyoto Protocol. In the framework of implementation of the convention but also in order to reduce the damage from disasters arising from the impacts of climate change, Rwanda has identified the following six priority areas for adaptation to climate change:

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- Integrated Water Resource Management (IWRM);
- Setting up an information system for early warning of hydrological and agrometeorological systems and rapid intervention mechanisms;
- Promotion of intensive agro-pastoral activities;
- Promotion of non-agricultural income generating activities;
- Introduction of species resistant to extreme conditions;
- Development of alternative sources of energy to firewood.

### **3.11.9. Mechanisms to reduce vulnerability to disasters**

Mechanisms to address disasters have mainly focused on mobilization and distribution of relief to populations affected by specific disaster events. The key elements of disaster management namely prevention, preparedness, assessment, mitigation and disaster reduction are now being given due attention. In this regard, a Disaster Management Coordination Unit (DMC) was established by the Cabinet Meeting of 27th October 2004 and Disaster Teams at district and sector levels were put in place in 2007. The Disaster Management Coordination Unit is under the national police and has the following mandate:

- Assess and evaluate disasters frequently observed in districts or sectors,
- Prepare disaster management programmes including disaster mitigation,
- Assess and evaluate disaster socio-economic cost,
- Report to Disaster Management Coordination (Prime Minister's office)

The Disaster Management Coordination Unit has carried out disasters risk assessments studies in the sensitive parts of the country, especially in the northern, western and southern parts of the country. There is an ongoing monitoring of volcanic activity by a team of volcanologists of the Goma Volcano Observatory together with the National University of Rwanda. However, this activity needs more human and financial means to be able to monitor the Nyiragongo volcano and to disseminate or diffuse the research results and to have sufficient early warning systems. Monitoring of meteorological parameters is also currently being given prominence. The few existing meteorological monitoring stations are run down due to a lack of maintenance and expertise to track changing climatic conditions. The country also does not have an operational observatory network to facilitate adequate understanding of the national climate conditions and lacks the ability to predict local climate change. Therefore the government plans to gradually strengthen its meteorological service by adopting and implementing a meteorological policy and strategy, establishing an upper air observatory and establishing an atlas on the spatial and temporal distribution of rainfall, temperature and humidity over Rwanda by 2012 (ROR 2007).

### **3.12. Waste management**



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In Rwanda, waste management is implemented throughout the country with some areas having specialization like Enviro Serve in Bugesera working as E-waste recycling facility for the country and MINISANTE incinerator in Mageragere sector of Nyarugenge District. Environmental impacts of poor waste management and sanitation at a local level include pollution of land and water sources, spread of diseases, and bad odors'. At a global level, applying the four (4) R principles of cleaner waste management (Reducing, Reusing, Recycling and Recovering of waste) can reduce energy use which will reduce greenhouse gas emissions. So, not only the hygiene is damaged by the mismanagement of the waste but also, the physical environment is destroyed by the non-decomposable waste that is thrown into inappropriate areas of the communities. Waste management is an issue in both urban and rural areas of Rwanda, due to the proper waste management awareness which is still need to be improved.

### 3.12.1. Waste generation and handling

Solid waste generated in is dominated by organic waste accounting for 75% of the collected waste. Among recyclable waste, plastics and paper accounts for the biggest share of the recyclable materials, at 8% and 6% respectively. The source segregation mechanism is enforced by the municipality even though different companies operating in this waste management industry collect them and transport them mixed, though separated at source, while some informal waste pickers scavenge recyclable waste for commercial purposes. The population is willing to separate waste at source if households are provided with clear information and guidance on a source segregation mechanism. Households have different motivation factors to separate waste, ranging from aesthetic factors (e.g. cleanliness of the households) to market-based factors (e.g. discounted collection fees or direct cash handouts from selling recyclables).



*Wooden dustbin used in a market*



*Poorly managed waste corner in a market*

*Figure 22: Waste storage in markets in Huye*

### 3.12.2. Waste collection and transportation

Waste collection services are provided by private operators based on door-to-door collection. Most households are located in truck accessible areas according to the planned settlement, which is an important incentive to waste collection companies. The waste which is not collected regularly results in children, especially, scavenging on waste at disposal and collection sites. The irregular service is mostly explained by limited physical capacities of collection companies and no designation of intervention zones for each

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operator. Each company in different district of the country owns at least one collection truck to provide services both to household and business entities. As business entities are the main customers of the service, they are given a higher priority in the service delivery. In Kigali city, each sector owns a private company and a clear schedule is given to the population. The collection is mainly door to door in the well-planned settlements with roads access, while in the informal settlements mainly those which do not have access to the road, the waste sites are used for temporal storage before being transported to the designated dumpsites. In Kigali some companies like COPED (Company for Protection of Environment and Development) uses partitioned trucks for proper waste collection which was segregated at source, while many others use big trucks in form of compressor machines which totally mix the waste collected.



*Figure 23: Plastic waste sorted and valorized by COPED LTD.*



*Figure 24: Waste trucks in form of compressor used in Kigali*



Figure 25: Door to door waste collection and transportation by COPED LTD

### 3.12.3. Waste treatment and disposal

There are different sanitary landfill in different districts of Rwanda which are used for waste disposal. The organic waste component at the landfill is turned into composting different districts in the country sides, the practice which is still a dream in the country biggest landfill of NDUBA where normally the waste is compacted. Some companies like COPED LTD and COSEN LTD valorise waste into compost, briquettes and other recyclable materials to be used by different plastic manufacturing industries like ECOPLASTIC in Mageragere sector of Nyarugenge District. Waste entering into the landfill is dominated by organic waste counting 75% of the collected waste, as discussed above. In addition to composting, some non-biodegradable waste, such as plastic jerry cans and polyethylene bags, are sorted and on-sold by the private company that operates the landfills in different district of the country.



Figure 26: Waste treatment/ Valorization by COPED LTD



Figure 27: Waste disposal at NDUBA Dumpsite

## IV. REVIEW OF NATIONAL, INSTITUTIONAL POLICIES AND REGULATORY FRAMEWORK

### 4.1. Legal Framework

Rwanda is just revising and enacting new institutional, policy and legislative frameworks in all its sectors and sub-sectors after operating with a colonial framework until after 1994. Most of the government ministries have already developed the 36 respective sector policies and strategic plans, most of which are based on the poverty reduction strategy and National Strategy for Transformation One.

#### 4.1.1. The Constitution of the Republic of Rwanda of 2003 revised in 2023

Under Article 21 all Rwandans have the right to good health. Article 22 specifies that everyone has the right to live in a clean and healthy environment, while Article 53 specifies that everyone has the duty to protect, safeguard and promote the environment. The constitution gives ways to many laws, policies and strategies for protecting, safeguarding and promoting the environment and social wellbeing. Article 34 determines the rights to private properties and stipulates that every person has right to hold a private property whether individually or collectively owned. The private property, individual or collective is inviolable. The right to private property shall not be encroached upon except in public interest and in accordance with the provisions of law. Article 35 specifies the right to private ownership of land and other rights that are related to land are granted by the State. A law determines the modalities of concession transfer and use of land. All PAPs will be compensated for the asset to be damaged and will still have the right to cultivate the land after the construction works with some restrictions.

#### 4.1.2. Environmental Law No 48/2018 of 13/08/2018

The most relevant legislation for this ESMF is the Environmental law. This is the law that regulates the protection of environment in Rwanda. The law sets out the general legal framework for environment protection and management in Rwanda. It also constitutes environment as a one of the priority concerns of the Government of Rwanda. The fundamental principle on national environmental protection policy develops national strategies, plans and programs, aiming at ensuring the conservation and use of sustainable environmental resources.

The law gives right to every natural or legal person in Rwanda to live in a healthy and balanced environment. They also have the obligation to contribute individually or collectively to safeguard country's natural, historical and socio-cultural heritage. The framework of the law on the protection and management of natural resources centres on avoiding and reducing the disastrous consequences on environment. It measures result from an environmental evaluation of policies, programs and projects, aimed at preventing the consequences of such activities. The principle of sustainability of environment and equity among generation emphasizes human beings at the core of sustainable development. Therefore, they have a right to a healthy and productive life in harmony with nature. They must so as to equitably meet the needs of the present and future generation. The protection and management of environment is currently registered in the environmental law that has been published in the official Rwanda Gazette in September 2018. MoE, which is the ministry responsible for the environment under article 65, puts in place the Rwanda Environment Management Authority (REMA) which is the institution now charged with the responsibility of ensuring environmental protection by demanding for ESIA studies to be undertaken before projects are executed. The present organic law has the following objectives.

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- To protect human and natural environment.
- To establish fundamental principles of management and protection of environment against all forms of degradation so as to develop natural resources and to fight all kinds of pollutions and nuisances;
- To improve the living conditions of the population while preserving ecosystems and available resources;
- To ensure sustainable environment and resources as well as rational and sustainable use of resources, considering the equality between the present and future generations;
- To guarantee to all Rwandans an economically viable, ecologically rational and socially acceptable development;
- To establish the precaution principle in order to reduce the negative effects on Environment and ensure the rehabilitation of degraded areas.

In chapter 5 of the Environmental law, Article 30 clearly calls for the need to subject projects to mandatory Environmental Impact Assessment. Article 3: States that every person has the duty to protect safeguard and promote environment. The State shall protect, conserve and manage the environment. Article 33 states that the review and approval of environmental impact assessments, environmental audit, and strategic environmental assessment must be approved by the Authority or another state organ authorised in writing to do so by the Authority. If the approval is done by an authorised, such organ does so on behalf of the Authority which also responsible for its audit. With regards to the costs of conducting Environmental Assessments, Article 34 stipulates that consultancy cost for environmental audit and environmental Assessment are borne by the program initiator. This program will trigger this law because it will involve negative impacts to the environment through tree felling and bush clearance for right of way, air pollution, noise pollution and soil degradation among others. However, all of these will be mitigated to minimize to the extent possible their effect on the environment.

#### **4.1.3. Environmental Impact Assessment regulations**

REMA has now developed the ESIA regulations which provide a guideline and requirements for ESIA in Rwanda. Projects with identified adverse impacts on the environment call for a full ESIA process for mitigation measures. Thus the Ministerial Order No. 001/ 2019 of 15/04/2019 establishes the list of projects that must undergo environmental impact assessment, instructions, requirements and procedures to conduct environmental impact assessment. The order specifies the works, activities and projects that have to undertake an environmental impact assessment. The list of works, activities and projects that must undergo a full environmental impact assessment before being granted authorisation for their implementation is found in Annex I of the Order. The No 12 of this Annex 1 put the construction of hydro-dams, hydropower plants and electrical lines of high and medium voltage <sup>2</sup>in the projects that must undergo full environmental Impact Assessment;

The list of works, activities and projects that must undergo a partial environmental impact assessment before being granted authorisation for their implementation is found in Annex II of the Order. The construction of micro hydroelectric power plants is in the project works, activities and projects that have to undertake a partial environmental impact assessment. The detailed list of these is found on the annex 2 of this order.

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<sup>2</sup> High voltage or HV: 45 kV to 230 kV. Medium voltage or MV: 1000 V to 45 kV. Low voltage or LV: up to 1000V.

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Projects, works and activities which are not listed on the Annex I and II to the Order are not subject to the environmental impact assessment. However, when it is evident that work, activity or project not listed on the Annex I and II to this Order has a negative and irreversible impact on the environment and is similar in nature to the work, activity or project listed in Annex I and II of this Order, the Authority or authorized organ may request the developer to conduct an environmental impact assessment.

The project activities will involve construction of new HV, MV and LV lines, rehabilitation and upgrade of different substations, Solar Home Systems provision and provision of materials for clean cooking solutions. The construction of HV and MV lines will be subject to full Environmental Impacts Assessment while the components of clean cooking solutions and the part of solar home system, the focus will be much on waste management from end users after they are used and become waste.

**4.1.4. N° 27/2021 of 10/06/2021 Law governing land**

This law determines the terms of use and management of land in Rwanda. It also fixes the principles to be applied to the recognized rights on the whole lands located along the national territory together with anything connected to it and which is incorporated to it, either naturally or artificially. The Article 3, precise that the land is involved (included) within the common inheritance of all the Rwandans; the ancestors, the presents and future generations. Notwithstanding the rights recognized to people, only the government (state) holds the distinguished related to the land's management along the national territory that it uses in the general interest of all in order to assure the rational economic and social development in a way defined by the law. Related to this issue, only the government has power to grant the rights of occupation and use of the land, it also has the right to order the expropriation due to a public cause of public necessity, housing conditions and development (fixing up) of the national territory in the way defined by law against a fair and previous compensation. The Article 4 mentions that any kind of discrimination, in particular the one focused on gender and to the use of land's rights shall be prohibited. The man and woman have the same rights related to the land's property.

**4.1.5. Law no 32/2015 of 11/06/2015 relating to expropriation in the public interests**

The Expropriation Law provides for public dissemination on the importance of the project to be established and the need for expropriation. Article 11 of the Expropriation Law stipulates that the relevant organ, after receiving the request for expropriation, shall examine the basis of that project proposal. In case it approves the basis of the project proposal, the relevant Land Committee shall request, in writing, the District Council concerned to convene a consultative meeting of the population where the land is located, at least within a period of thirty (30) days after receipt of the application for expropriation, and indicating the date, time and the venue where the meeting is to be held. The relevant competent authority shall take a decision within a period of at least fifteen (15) days after the consultative meeting with the population.

Article 9 stipulates that it is only the Government that shall order expropriation in the public interest and must be done with prior and fair compensation. The law also bars anybody from interfering of stopping expropriation "on pretext of self-centred interests". Accordingly, Article 3 provides for any underground or surface activity carried out with in public interest on any land but with due and fair compensation to the landowner. Article 4 requires that any project, at any level, which intends to carry out acts of expropriation in the public interest, must budget and provide funding for valuation of the property of the person to be expropriated and for fair compensation.

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It is important that the expropriation of properties and lands be based on the WB Environmental and Social Standard 5 (Land Acquisition, Restrictions on Land Use and Involuntary Resettlement), and, National expropriation procedures. In case of mismatch between the national law and the World Bank's Environmental and Social Safeguards Standards, the World Bank's Environmental and Social Safeguards Standards will prevail. All assets that will be damaged will be compensated in compliance with this law.

**4.1.6. Ministerial order N°2 of 17/05/2012 determining conditions for occupational and health safety**

This order 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. In addition, it provides for the protection of persons other than those at work against hazards to health and safety arising out of or in connection with activities of persons at work. Environmental and health risks, article 29 which related to the control of air pollution, noise and vibration stipulates that when there is any dust, fume or other impurity which are harmful to persons employed, protected measure shall be taken to protect employee against inhalation of dusts or fume or its accumulation on the work place. For noise and vibration, the article indicates that all practicable protective measures shall be taken by the employer to protect the safety of workers and against the noise by reducing elimination or control of such sound or protecting them against the vibration. All project workers will be safeguarded and occupational health and safety of the employees will be kept at high standard; all workers will be trained regarding the concept of hazard avoidance, accident investigation/risk assessment and prevention, worker man compensation law, PPE usage and first Aid, the detail are available in Labor Management Procedure prepared under this Project.

**4.1.7. Law n° 027/2023 of 18/05/2023 amending the Law n° 66/2018 of 30/08/2018 regulating labour in Rwanda**

**(i) Individual labor disputes**

Workers will elect representatives who will form a committee that will act as the Workers Grievance Redress Committee. As mandated by article 102 of the law regulating labor in Rwanda, the employees' representatives amicably settle individual labor disputes between employers and employees. If employees' representatives fail to settle the disputes amicably, the concerned party refers the matter to the labor inspector of the area where the enterprise is located. In the case of this program, it will be the District where activities are being carried out. If the Labor Inspector of the District fails to settle the dispute due to the nature of the case or conflict of interests, he/she refers the dispute to the Labor Inspector at the national level stating grounds to refer such a dispute. If amicable settlement fails at the national level, the case is referred to the competent court. In any case, the PIU will be informed from the beginning of any workers grievances and provide insight and mediation if possible. The matter will be referred to the labor inspector only if the PIU fails to do the mediation.

**(ii) Collective labor disputes**

The law requires that collective labour disputes be directly notified to the labor inspector of the area by the workers representatives. Within this framework, any collective labor disputes that will arise under the program, will be addressed to labor inspector at District level for assessment and settlement. In case of escalation, the matter will be referred to the national level.

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Before escalating the collective labor dispute, the PIU through the Environmental and Social Specialists will be alerted. Necessary investigations will be conducted, and the contractor will be duly approached. The matter will be referred to the labor inspector only if the PIU and workers representatives fail at amicable settlement.

**4.1.8. Regulations No 002 of 26/04/2018 governing e-waste management in Rwanda**

The project is expected to have an environmental impact related to waste management in all its three components (1,2,3). The management of waste will follow the regulations in Rwanda to make sure the produced waste does not cause harm to the environment and human health. Referring to the regulations on E-waste in Rwanda in its Article 10: Any person who wishes to recycle e-waste shall: Have an Environmental Impact Assessment (EIA) undertaken before establishing e-waste facility; An environmental Audit (AU) for existing facilities; Have the state of the art facility complying with all the environmental standards in terms of emissions, effluents, noise e-waste treatment and disposal. Article 20: any collector and transporter of e-waste shall ensure that e-waste collected is stored in proper and secured manner till is sent to the licensed dismantler or recycler; Ensure that no damage is caused to the environment and human health, during storage and transportation of e-waste Article 22: Any recycler shall; Ensure that the facility and recycling processes are in accordance with the standards published by the national standard body; Ensure that the recycling processes do not have any adverse effect on human health and environment; Ensure that the residues generated thereof are disposed of in a hazardous waste treatment storage facility for disposal. Article 24: any producer shall be responsible to: provide information to the regulatory authority on the subsequent year's projected imports of any electrical and electronic equipment products; Provide information to recyclers on how to dismantle their product at the end of life and the location of any hazardous substances or items within the product. Article 25: The consumer of electrical and electronic equipment shall: Ensure that e-waste is segregated from other forms of waste and is taken to licensed refurbishes, collection centres, dismantler or recyclers; Ensure that e-waste is not resold or auctioned or exchanged; maintain records of e-waste generated and make such records available for scrutiny by the Regulatory Authority. As this project is expected to produce e-waste especially in its component 3 concerning the off-grid part, stakeholders should bear in mind their harmfulness and the way to eliminate them from environment. The existing Enviro Serve functioning in Bugesera industrial park will be the platform of all electronic waste from used panel and batteries whereas districts, Solar home companies and other relevant stakeholders should make sure that this waste is removed and transported safely from households to this official recycling facility.

**4.1.9. Guidelines on the management of waste disposal site/dumpsites (landfill)**

Waste disposed of on the site must be compacted and covered on a monthly basis with a minimum of 150 millimetres of soil. Burning of waste on the Site will only be allowed under the permission of the Regulatory Agency confirming that it does not have a detrimental impact on the environment and operation of the Site. Disposal of dead animals, rejected carcasses, parts of dead animals, contaminated food, food rests or any edible material must be immediately carried out when brought onto the Site by burying it in trench and covered with at least 500 millimetres soil. The registered person must take steps to ensure that the Site is operated in a manner that will prevent the creation of nuisance conditions or health hazards. The registered person must apply sufficient dust control measures to prevent windblown dust from causing



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nuisance conditions or health hazards. Wind-blown litter leaving the Site must be collected on a daily basis. The waste which will be produced by the project activities except electronic waste produced by solar panels and batteries and other hazardous waste which should be managed in a special way, all remaining concerning municipal solid waste will be taken to the district dumpsites. The districts dumpsites were installed and complied to these guidelines. The electronic waste will be managed by respecting the regulations on e-waste as discussed above.

#### **4.1.10. Ministerial Order N° 001/2021 of 08/02/2021 on Environmental Audit**

Ministerial Order N° 001/2021 of 08/02/2021 establishing the list of projects that must undergo environmental audit, instructions and procedures for conducting environmental audit is relevant to this project. Article 3: Environmental audit is conducted on existing projects or facilities and based on project description or design and baseline information generated during the environmental impact assessment process.

However, for activities, projects and facilities for which no environmental impact assessment was conducted prior to their commencement, the environmental audit is based on the description and background information generated in the scoping process. Article 4: The developer submits to the Authority a written application which includes a brief description of the project. The details of the required information within a brief description of the project are in the environmental assessment guidelines issued by the Authority. Article 5: Upon reception of the brief description of the project and its analysis, the Authority submits to the developer the terms of reference for the environmental audit.

However, the Authority may develop terms of reference for projects, facilities, works or activities basing on audit findings. Article 6: Upon reception of the terms of reference, the developer selects experts from the list of experts published, in accordance with relevant legislation to conduct the environmental audit.

## **4.2. Policy Framework**

### **4.2.1. The Rwanda National Strategy for Transformation (NST1)**

The National Strategy for Transformation (NST1) which is also the Seven Year Government Programme (7YGP) comes at a unique moment in the country's development trajectory which will see the crossover from Vision2020 towards Vision 2050. This strategy is expected to lay the foundation for decades of sustained growth and transformation that will accelerate the move towards achieving high standards of living for all Rwandans. The NST1 aims to lay the foundation for achieving upper-middle-income country status by 2035 and high-income status by 2050. It is guided by the Sustainable Development Goals (SDGs), the Africa Union Agenda 2063 and its First 10-Year Implementation Plan 2014–2023, and the East African Community (EAC) Vision 2050. The strategy lays out targets under the three pillars of economic transformation, social transformation, and transformational governance, and several cross-cutting areas. Under the social transformation pillar, NST1 aims to achieve universal electricity access by the end of the seven-year period (2024).

The Rwanda national strategy for transformation (NST1) considers environment and climate change as key strategic areas. With regard to environmental management, the focus is on improving cross sectoral coordination to ensure smooth implementation of environmental policies and regulations. In this regard, critical sectors identified for strengthening include agriculture, urbanization, infrastructure and land use

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management. Additional emphasis will be put on strengthening monitoring and evaluation. High impact areas selected include implementation of: Environmental and social Impact Assessments, biodiversity and ecosystem management, pollution and waste management.

**4.2.2. National wetland conservation program**

Though not a policy as such, the wetland convention implementation office in Rwanda has formulated a National Wetland Conservation Program for 2002-2030 jointly working with the National Commission for Development and Reform, the Ministries of Finance, Education Scientific Research and Technology, Environment, Lands, Water and Natural Resources and Agriculture. The program aims at engaging the various government ministries in wetland conservation and ensure a holistic approach to wetland management. All authorities concerned will have proper coordination of activities concerning wetland management, a factor which leads to efficiency implementation of policies. To avoid further exploitation of the resources, Rwandan Government has established rules governing wetlands in the country. This is done by subjecting any acts concerned with water and its resources like watering plants, the use of swamps to prior environmental impact assessment which is submitted for approval to REMA or any person given a written authorization by REMA. During the project site selection, the project will make sure that no project should be located in the wetland.

**4.2.3. RURA Guidelines for Right of Way in Rwanda**

The construction of medium voltage lines requires a Right of Way (RoW) for both construction and operational phases. During the construction, the right of way is cleared for visibility and construction activities while during operational Phase the RoW is used under restriction conditions. Due to the impacts associated with the acquisition of rights-of-way, the projects will follow procedures in conformance with the Rwanda Utilities Regulatory Agency (RURA) guidelines No 01/GL/EL-EWS/RURA/2015 on the right-of way for Power Lines in Rwanda. In accordance to the guidelines No 01/GL/EL-EWS/RURA/2015 on the right-of way for Power Lines in Rwanda the information given below will govern the use of the right of Way.

• **General requirements on the use of the Right of Way/ Restrictions:**

- It is forbidden for any person to construct any building or structure or carry out cultivation, farming or any other activity within the Right-of-Way prior to the consent of the Licensee;
- to drill, mine or excavate or carry on any similar operation within the Right-of-Way;
- to place any combustible material inside the Right-of-Way;
- to cause any fire to burn within Sixty (60) meters of the transmission line Right-of-Way;
- to climb on to, attach to or hang any object on or from any tower/pole or transmission/distribution line;
- to cause anything to come into contact with the power line;
- to place, drive, tow, pull or carry any crane, jig, or any object, under, over or near the transmission line except with the prior consent of the Licensee obtained in writing and subject to any condition that the Utility may impose in relation to such consent;
- to carry out any form of blasting within hundred (100) meters of any power line; and

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- Permanent buildings, including foundations and overhangs, pools, septic tanks, dumps, junkyards, wells, fuelling or fuel storage facilities, garbage, recycling receptacles and other non-compatible uses shall not be permitted on the Right-of-Way.

- **General derogations on the use of the Right of Way**

As long as minimum clearances from poles and conductors are maintained and with a prior written consent of the Licensee, the Right-of-Way can be used for certain activities such as yards, gardens, pastures and farming, recreational fields, streets, roads, driveways, parking lots, lakes, fences, drainage ditches, grading or any other activity that may not interfere with the line operation. Temporary buildings or structures that are small and easily movable may be acceptable in the Right-of-Way with prior approval of the Licensee, provided that:

- they are located away from the Licensee' works and access roads and not directly beneath overhead conductors;
- they are not habitable;
- they are not used for the purpose of storing flammable, explosive or toxic materials that could create a fire hazard;
- they do not have electrical or water service;
- they are of non-metallic construction or are grounded to the utilities' satisfaction.
- they do not adversely affect safety of customers, utility personnel and the general public.

- **General Licensee's Obligations**

In constructing and maintaining power lines on the property covered by the easement, the Licensee shall:

- Maintain the Right-of-Way as it requires, both within the Wire Zone and the Border Zone;
- Remove vegetation that could pose danger to a power line or pole inside the Right-of-Way and outside the Right-of-Way if it could come too close to power lines or poles;
- If excavation is necessary, ensure that the topsoil is stripped, piled and replaced upon completion of the operation;
- Restore to its original condition any strip of land which has been disturbed by the construction or maintenance;
- Clear all debris and remove all stones and rocks resulting from construction activity upon completion of construction;
- Pay for any damage caused by such construction or maintenance or satisfactorily repair any damage caused by such construction or maintenance to its original condition;
- Control vegetation and weeds around its power lines and facilities, and decide the appropriate method to adopt to ensure that the clearance space remains free of vegetation that could pose danger to a power line taking account of the potential risk to the public, conservation and other values;
- Ensure that the pruning or clearing is done responsibly; and determine the regrowth space, hazard space and the pruning and clearing cycle;
- Notify the landowner before carrying out any pruning and clearing. In emergency situations, the Licensee may remove vegetation which poses an immediate risk without notification, but the Licensee should notify the owner or occupiers as soon as practicable after the removal of the vegetation;

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- Ensure that pruning or clearing activities near power lines are undertaken safely. This may require the Licensee to de-energize the power lines or install necessary grounding to landowner's fence or equipment to enable the clearance of vegetation safely; and
- Ensure that any of his employees undertaking operations in the vicinity of his power lines, and any contractors he engages to carry out such works are appropriately trained and competent for that task, especially on safe working practices near power lines.

It's worth to note that in addition to the compensation of crops and tree affected during right of way clearing, the implementing agency will pay 5% of disturbance allowances to cover impacts caused by restriction use of land in the RoW as a requirement stated in the nation expropriation law.

### **Right of Way Dimensions**

As per the above said RURA guidelines the horizontal right of way for then 15KV-30KV is 12 meters, for 120KV is 25m, for 220 KV the right of way is 30m while for 400KV the right of way width becomes 50m.

### **4.3. Institutional framework for environmental management**

The responsibility for formulation and implementation of environmental matters fall under the Ministry of Environment (MoE) as the key institutions with this mandate. The other aspects of environmental management related to different projects are dealt with several other institutions, among which the most prominent are the Rwanda Environment Management Authority (REMA); Rwanda Development Board (RDB); Rwanda Land Use and Management Authority (RLMUA), Rwanda Water and Forest Authority (RWFA) Rwanda Natural Resources Authority) among others. In case of any technically or circumstantially perceived environmental risk or threat, the proprietor is obliged to request from REMA the opinion of the need and, if necessary, the conditions for undertaking ESIA. Depending upon the assessment of potential significance of environmental impacts, REMA can decide if there is a need to apply partial or full ESIA procedure for the relevant projects.

#### **4.3.1. The Ministry of Environment (MoE)**

The MoE has the responsibility for developing land utilization policies (including surveying, land classification, land laws and land tenure); the development of environmental policies and procedures (including impact assessments), protection of natural resources (water, land, flora, and fauna), environmental legislation, biodiversity, and other environmental aspects informed by the Environment Law among others. Chapter IV of the Organic Law Article 65 clearly calls for the need to subject projects to mandatory Environmental Impact Assessment.

Article 65: Further specifies that every project shall be subjected to environmental impact assessment prior to its commencement. It shall be the same for programs, plans and policies likely to affect the environment. Specific details of projects referred to in this Article shall be spelt out by the order of the Minister in charge of environment. Article 66 states that Environmental Impact Assessment (ESIA) shall include at least the following:

- A brief description of the project and its variants.
- Analysis of direct and indirect foreseeable consequences on the environment.
- Analysis of the initial state of the environment.
- Measures envisaged reducing, preventing or compensating for the Consequence

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- Reasons for the choice.

A summary of requisitions from clause 1 to 5 of this article;

- A definition of the evaluation and monitoring methods used regularly and environmental indicators before (initial state), during and after implementation of the project or, as the case may be, at the final evaluation stage of the project;
- A financial evaluation of measures recommended preventing, reducing or compensating for the negative effects of the project on the environment and measures for regular monitoring and control of relevant environmental indicators.

#### **4.3.2. Rwanda Environmental Management Authority**

The overall responsibility of the management of the bio-physical environment lies with the Rwanda Environment Management Authority as stipulated by its establishing law of 2003, promulgated by the Government of Rwanda. The functions of REMA include:

- 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;
- To take stock and conduct comprehensive environmental audits and investigations, to prepare and publish biannual reports on the state of natural resources in Rwanda;
- To undertake research, investigations, surveys and such other relevant studies in the field of environment and disseminate the findings;
- To ensure monitoring and evaluation of development programs in order to control observance of proper manage E&S risk in the planning and execution of all development projects, including those already in existence, that have or are likely to have significant impact on the environment;
- To participate in the setup of procedures and risk management for the prevention of accidents and phenomena which may cause environmental degradation and propose remedial measures where accidents and those phenomena occur;
- To render advice and technical support, where possible, to entities engaged in natural resource management and environmental protection;
- To provide awards and grants aimed at facilitating research and capacity building in matters of environmental protection.

#### **4.3.3. Rwanda Development Board (RDB)**

This is a one stop institution bringing together several government bodies in Rwanda focussed on promoting investment in Rwanda. RDB has a department responsible for ESIA processes including reviewing all projects ESIA reports before approval of the implementation of the projects, a duty that was previously undertaken by REMA.

#### **4.3.4. BRD's Environmental and Social Management System**

##### **4.3.4.1. Introduction**

The Development Bank of Rwanda Ltd (BRD) is committed to financing projects and Participating Financial Institutions (PFIs) that support Rwandan development activities while also considering the social and environmental risks as part of the process of evaluating the financial risks and viability of projects. In this regard, it developed and promoted the use of an Environmental and Social Management System

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(ESMS) to guide the: (i) identification, assessment, management, and evaluation of environmental and social (E&S) risks and impacts of PFI subprojects and projects before their financing and on an ongoing basis, (ii) integration of E&S procedures and due diligence at PFIs, (iii) monitoring of ongoing projects E&S performance after disbursement and (iv) mitigation of adverse risks and impacts during implementation.

The BRD ESMS provides guidance on:

- Identifying and assessing environmental and social (E&S) risks/impacts of the lending activities of the Bank and thereby enhancing the understanding of E&S risks associated with BRD's transactions;
- Promoting improved E&S performance of direct borrowers and PFIs through strengthening their capacity and ensuring enforcement of E&S national laws and regulations;
- Defining E&S risks/impacts management plans, including implementation arrangements as well as monitoring and reporting procedures, to prevent and mitigate the negative impacts that could result from financed activities;
- Stakeholder engagement and defining grievance redress mechanisms;
- Setting the necessary organizational capacity and competency to ensure an efficient implementation of the ESMS and its improvement through audits and reviews.

In this regard, the ESMS requirements are applied to all BRD-financed investments that could potentially affect the environment, either positively or negatively, directly, or indirectly, or depending on the environmental components for their success. The developed ESMS helps to manage identified environmental, social, and climate change impacts/risks, and ensure that the following requirements are applied when it comes to Direct lending and on-lending operations.

It is important to note that the BRD's ESMS will be referred to as a guiding document ensuring a sustainable implementation of component 3 "Increasing Access to Off-Grid Electricity, Clean Cooking Solutions, and Productive Uses of Energy (PUE)" with more focus on providing guidelines on effective environmental and social management during the implementation of sub-components 3a (Increasing access to off-grid electricity), 3b (Increasing access to clean cooking solutions), 3c (Increasing access to technologies for PUE) and 3d (Increasing access via Credit support facility for off-grid electrification, clean cooking technology, and piloting PUE technologies).

### **Requirements for Direct Investment**

Agriculture, affordable housing, education, energy, manufacturing and export as well as public infrastructure are key intervention areas of the Bank. The following E&S requirements are applied to all its direct investments:

- i. No financing will be provided to activities included in BRD's list of Excluded Activities reflected in Annex 1;

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- ii. All borrowers and sub-borrowers in the case of lease finance, equipment and assets should follow relevant National E&S laws and regulations and International E&S requirements and standards in the design and implementation of proposed business activities;
- iii. All borrowers and sub-borrowers financed activities categorized as *High, Medium or Low Risk*, will apply applicable E&S standards based on national law and development partner's requirements;
- iv. Borrowers and sub-borrowers required to develop a full or partial ESIA based on the business E&S risk category should submit the prepared ESIA or ESMP to BRD for review before the clearance of the assessment by the Rwanda Development Board (RDB);
- v. Where there are affected communities, borrowers and sub-borrowers will be required to establish and maintain a grievance redress mechanism prepared and implemented in accordance with the relevant provisions of BRD's ESMS or international organization's standards/ policies.

**Requirements for all Participating Financial Institutions (PFIs)**

BRD will apply to all its on-lending investments/PFIs the following applicable E&S requirements for business activities to be financed:

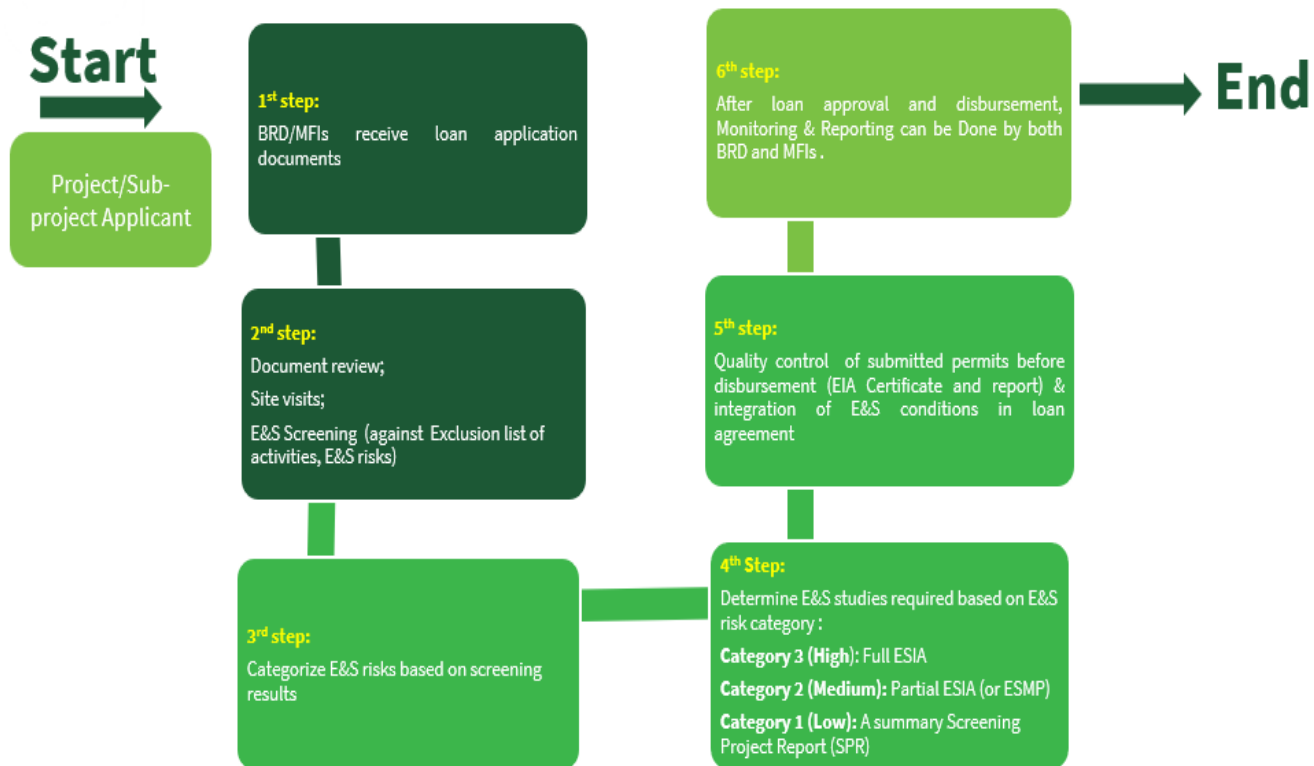
- i. As a condition of eligibility to receive financing from BRD, each PFI have to put in place and maintain an Environmental and Social Management System (ESMS), based on the development partner's requirements; to identify, assess, manage, and monitor E&S risks and impacts associated with business activities they finance, as commensurate with the nature and magnitude of such risks and impacts at the individual transaction and portfolio level. Where the PFI can demonstrate that it has already an ESMS at the time of BRD's due diligence, it provides adequate documented evidence to that effect;
- ii. The PFI's ESMS should include the following elements: (a) environmental and social policy, (b) clearly defined E&S risk identification, assessment, and management procedures, (c) organizational capacity and competency, (d) monitoring and review of E&S risks of individual transactions and the portfolio, and (e) external communications mechanism and stakeholders' engagement. The ESMS should be endorsed by the PFI's senior management and adequate resources should dedicated to its implementation;
- iii. As part of the above elements under (i), BRD Safeguard team will provide technical support where necessary to assist the development of an ESMS at PFI level and the E&S instruments must include:
  - ✚ A screening process for subprojects based on the exclusion activities;
  - ✚ An E&S risk categorization system which clearly defines risk categories;
  - ✚ Applicable E&S requirements should be listed depending on the level of risk associated with business activities financed;
  - ✚ PFI's ESMS should incorporate an appropriate E&S due diligence process taking into consideration provisions of BRD's ESMS;
- iv. BRD will require PFI's to maintain labor-management procedures in line with national laws and partner's requirements on Labor and Working Conditions;
- v. All PFIs are required to review ESIA or ESMP studies from borrowers and sub-borrowers after clearance of the assessment by the Rwanda Development Board (RDB);

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- vi. Based on the loan agreement for reporting regularity, PFIs prepare and submit to BRD an E&S report on the implementation progress of its ESMS. This includes information on E&S risk profile for its financed portfolio and implementation progress of ESMP measures for specific financed projects.

The PFI should promptly notify BRD of any significant accidents or incidents associated with financed subprojects in a maximum 2 days from the occurrence date.

Figure 28: BRD/MFIs E&S Assessment & Management procedure



**4.3.4.2. Stakeholder Engagement and Grievance Redress Mechanism**

**Stakeholder Engagement**

BRD is committed to identify its stakeholders for every investment activity, provide timely and accessible information to them and give them the opportunity to express their views and concerns about the project and its impacts/risks at different stages in the project life cycle to ensure meaningful, effective, and informed participation of stakeholders in the design and implementation of its programs and projects. The project stakeholders including loans beneficiaries, individuals affected by the proposed project, the surrounding community and other interested parties will be involved through information disclosure, consultation, and informed participation in a way proportionate to the risks and impacts on affected parties. This engagement will contribute to building trust, credibility, and local support as well as increasing ownership.

The stakeholder engagement will ensure the following:



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- Identify stakeholders who would be directly or indirectly impacted by the project;
- Be aware of what issues are important to each group; Engagement should be stronger and more frequent with groups that are severely affected;
- If dealing with a representative for the group, make sure that the representative legitimately represents the interests of the affected groups and communities;
- Engage with stakeholders in their own communities or places where they feel comfortable;
- Provide an opportunity for two-way dialogue that provides an opportunity to provide feedback to BRD;
- Keep a record of questions, comments, and suggestions from stakeholders to adapt action plans and improve the project implementation process;
- Report back on how their inputs have been considered;
- Avoid generating expectations that will not be fulfilled;
- Develop a project specific Stakeholder Engagement Plan to guide the engagement process, where needed.

**Grievance Redress Mechanism**

The implementation of the bank's projects/activities is expected to be associated with grievances or complaints that need to be addressed quickly and transparently without retribution to complainants or project-affected people (PAPs). Grievance Redress Mechanisms (GRMs) will therefore become increasingly important as they will serve to prevent and address community concerns, reduce risk, and assist larger processes that create positive social change and increase ownership and sustainability of project activities.

BRD has a Grievance Redress Committee made of key Bank departments and the project specific GRM that will include all key concerned stakeholders will be set with the following objectives:

- Ensure that all grievances, complaints, or concerns arising during project implementation are timely recorded and resolved in a fair, transparent, and easily accessible manner;
- Serve as an early warning system to identify problems and close gaps in a timely and cost-effective manner, thereby avoiding escalation of problems into more entrenched or complex disputes;
- Ensure careful documentation and reporting of grievances, complaints, concerns, and remedial actions;
- Ensure that all issues, concerns, complaints and grievances raised are resolved in a timely manner;
- To identify recurring problems or grievances that may escalate by helping to identify underlying systemic issues that need to be addressed;
- To provide an avenue for escalation and resolution of grievances.

**4.4. World Bank Environmental and Social Framework (ESF)**

The Environmental and Social Framework (ESF) sets out the World Bank's commitment to sustainable development, through a Bank Policy and a set of Environmental and Social Standards (ESSs) that are designed to support Borrowers' projects, with the aim of ending extreme poverty and promoting shared prosperity. The ESSs set out the requirements for Borrowers relating to the identification and assessment

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of environmental and social risks and impacts associated with projects supported by the Bank through Investment Project Financing. Therefore, this ESMF has been prepared to ensure compliance with the World Bank ESF and WB EHS Guidelines are applicable like EHS Guidelines for Electric Power Transmission and Distribution. Different E&S documents were prepared and considered in this ESMF including LMP, ESCP, SEP, RPF and GAP. All the project components will have direct and/or indirect environmental and social risks and impacts. Thus, all the World Bank's ESSs are applicable to the project except ESS7 (Indigenous Peoples/ Sub-Saharan African Historically Underserved Traditional Local Communities) because there are no local communities that meet the requirements of this standard in the project proposed areas. Overall, this ESMF demonstrates how the project will comply with these Bank standards triggered by the project. Those standards are:

- Environmental and Social Standard 1: Assessment and Management of Environmental and Social Risks and Impacts;
- Environmental and Social Standard 2: Labour and Working Conditions
- Environmental and Social Standard 3: Resource Efficiency and Pollution Prevention and Management
- Environmental and Social Standard 4: Community Health and Safety
- Environmental and Social Standard 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement
- Environmental and Social Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources
- Environmental and Social Standard 8: Cultural Heritage
- Environmental and Social Standard 9: Financial Intermediaries
- Environmental and Social Standard 10: Stakeholder Engagement and Information Disclosure.

**4.4.1. Environmental and Social Standard 1: Assessment and Management of Environmental and Social Risks and Impacts**

The activities of component one (Increasing access to grid electricity) of require bush clearing will involve compensation for affected trees, crops and minimum restrictions on land under distribution lines and hence the need to prepare appropriate environment and social risk management tool as part of the design. The activities of Component two (Improving grid stability and enhancing operational efficiency) pose significant OHS issues such as management of oils and lubricants for turbines, transformers and support infrastructures, management of lead/acid batteries and materials; It will also have E&S risks associated with bush clearing, electromagnetic fields, erosion, biodiversity loss caused by permanent land acquisition for tower location, culture heritage property... and hence the need to have proportionate risk mitigation measures integrated in the project design.

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The upgrading of the existing substations will not require generally land acquisition (unless there is a relocation) as they are located/built on the existing REG land. As the construction of High Voltage and Medium Voltage lines may pose serious biodiversity loss and involuntary resettlement, the line routes will be designed to avoid sensitive ecosystem and residential places and the project will not imply permanent land acquisition as the land which will be used for RoW is the agricultural land, and PAPs are allowed, with some restrictions, to use it for agricultural purposes with condition that the grown trees/crops should not exceed 3m of height for power line and community health and security/safety matters. The compensation will be done at full replacement cost based on market price for all asset located in the Right of Way.

The third component of the project is related to catalyzing private sector investment in off-grid energy and clean cooking. There are positive environmental contributions of the project activities under this component, for instance, by supporting electrification through solar off-grid solutions the project will help reduce greenhouse gas emissions if equivalent electricity were sourced from fossil fuel-based utility-scale power plants or emergency diesel power plants. Despite these beneficial impacts, the solar system will have waste management issues, including disposal of used batteries containing hazardous waste. The clean cooking solutions will be very helpful for reducing deforestation and forest degradation, and thus contribute to climate change goals of the country. Component four will involve technical assistance such as sector performance improvements and forward-looking options for sector development; capacity building in planning, skills development, audit and compliance; and policy and regulatory improvement, entrepreneurship development, including targeted training for women entrepreneurs (under clean cooking solutions) and feasibility Studies (such as hydro, etc.).

The policy and regulatory development/improvement part will comprise improving fuel/stove regulations, quality standards, testing capacity, and tax/tariff policies to support clean cooking market development.

The project has prepared ESF instruments (ESMF, RPF, SEP, LMP, GAP and ESCP) to manage these risks and impacts in manner consistent with the ESSs and satisfactory to the World Bank. During the project implementation, site specific environmental and social standards instrument such as environmental and social impact assessments (ESIA), environmental and social management plans (ESMP), Occupational Health and Safety Management Plans will be prepared in order to make sure that all risks associated with the workplace and conditions of work be mitigated, and/or resettlement action plans (RAP/ARAP) will be prepared as required, and implemented and monitored accordingly.

*Table 11 : Project Classification according to levels of impacts*

Category	Definition
High Risk	Projects encompassing sub-project or activities with potential significant adverse environmental or social risks/ impacts that are diverse, irreversible or unprecedented. Examples of these activities includes project affecting highly sensitive ecosystems services, project with large resettlements components, projects with serious occupational and health risks, projects which poses serious socio-economic concerns
Substantial Risk	The Project may not be as complex as High-Risk Projects, its environmental and social scale and impact may be smaller (large to medium) and the location may not be in such

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Category	Definition
	a highly sensitive area, and some risks and impacts may be significant. Potential risks and impacts are likely to be mostly temporary, predictable and/or reversible. Adverse social impacts of the Project, and the associated mitigation measures, may give rise to a limited degree of social conflict, harm or risks to human security. Mitigatory and/or compensatory measures may be designed more readily and be more reliable than those of High-Risk Projects. There is medium to low probability of serious adverse effects to human health and/or the environment (e.g., due to accidents, toxic waste disposal, etc.), and there are known and reliable mechanisms available to prevent or minimize such incidents.
Moderate risk	The potential adverse risks and impacts on human populations and/or the environment are not likely to be significant. This is because the Project is not complex and/or large, does not involve activities that have a high potential for harming people or the environment, and is located away from environmentally or socially sensitive areas. Potential risks and impacts and issues are predictable and expected to be temporary and/or reversible; low in magnitude; site specific, without likelihood of impacts beyond the actual footprint of the Project; low probability of serious adverse effects to human health and/or the environment; and reversible and readily addressed through mitigation measures. Examples of these projects include small scale agricultural initiative, school's construction, forest management activities, low emission energy project.
Low risks	Projects with activities with minimal/negligible or no adverse environmental and social risks and or/ impacts. Example of these projects or activities include education and training, public broad casting, health and family planning, monitoring programmes, and advisory services projects. These Projects, with few or no adverse risks and impacts and issues, do not require further ES assessment following the initial screening.

Based on the above classification, the environmental risk rating of this project is substantial considering the anticipated risks and impacts associated with construction of (medium-voltage) power distributions lines (component 1), construction of transmission line (part of component 2), and distribution of solar system (part of component 3). It also considers technical assistance that involves sector performance improvements and forward-looking options for sector development; capacity building in planning, skills development, audit and compliance; and policy and regulatory improvement and entrepreneurship development, including targeted training for women entrepreneurs under clean cooking solutions (part of component 4), among others. Distribution of solar system will have potential environmental and social risks and impacts related to the storage and final disposal of used batteries containing hazardous waste; and disposal/recycling of solar panels. In addition to disposal and recycling issues, solar batteries may cause environmental, social and safety risks during transportation, installation, and operation (e.g., fire and explosion risks). Overall, the project will also have potential occupational health and safety risks and impacts. Also, during the project implementation, site specific ESSs plan will be prepared prior to construction stages to make sure that all site related risks and impacts are specifically addressed. ESF instruments like ESMP (including EHSP) will be mandatory to contractors who will work on components

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1 and 2 while the companies which will be hired on the component 3 (Increasing access for off-grid electricity and clean cooking solutions) will have to submit the waste management plan to ensure that the plan to offset all hazardous waste related to solar home system will be removed safely from the environment after the end of use life. Prior to start of implementation a standard/base set of EHS mitigation and monitoring measures will be developed for the main subproject types (distribution lines, transmission lines, substation and related works, cooking facility works) that covers both construction and operation/maintenance phase. These should be used as input for any subproject ESIA/ESMP and for terms and conditions for comp 3 cooking facility works.

The social risk rating at this stage is substantial due to the risks related to the investments proposed in component one and two of the project. The investment in grid connections for households, commercial and industrial consumers, and public institutions is likely to involve compensation requirements for affected assets such as crops and trees and land for tower location. All crops and trees to be affected will be compensated in compliance with the National Expropriation law No 32/2015 of 11/06/2015 in public interest and WB ESS5 (land acquisition, restrictions on land use and involuntary resettlement). The project design and the ESF instruments (ESMF, ESCP, RPF, SEP, GAP and LMP) have integrated proportionate social risk management measures to avoid similar occurrences under this new operation. Proportionate mitigation measures for other potential risks such as exclusion of the vulnerable and GBV risk have been included in the ESF instruments as well. The social risk rating will be revised once staffing and implementation arrangements for social risk management are mainstreamed to better serve this project.

**4.4.2. Environmental and Social Standard 2: Labor and Working Conditions**

The ESF and its ESS2 covers different compliance aspects related fair treatment of workers and provision of safe and healthy working condition. The first aspect aims at improving working conditions and management of workers relationships by providing workers with information and documentation that is clear and understandable on terms and conditions of employment on aspects related to rights under national labour and employment law with regard to rights related to working hours, compensation, wage and benefits. The second aspect is related to protecting the workforce by avoiding the child labour by setting up the minimum age and setting conditions that they employability of people below or above minimum working age is not hazardous and interfere with children education or is not harmful to the child health, mental or physical social development. It also prohibits forced labour. The third aspect is related to the creation of grievance mechanism for the employee in order to promptly address workers concerns but without impeding their access to judicial or administrative remedies that are provided by the law to address workers grievances. The fourth aspect aims to set up and apply occupational health and safety measures to the working place.

Anticipated key labor risks and impacts are mainly associated with the planned construction works, and investments related to improving grid stability and operation efficiency. 469 workers are expected to be used by the project and most of them (340=72%) will be sourced from the local community as man power and no campsites will be used for this project as most workers will come from the host community and work and return home after work. There may be risks of child labor associated with the use of local labor. The project must provide appropriate measures for the protection of vulnerable project workers such as women and people with disabilities and care will be given to both categories to ensure inclusion. Among skilled workers, the majority of those involved will be existing government civil servants. As such, these

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employees will remain subject to the terms and conditions of their existing public-sector employment. Majority of the unskilled workers will be sourced from the community members in the project site and a few required skilled workers from outside of the project area. Due to the discrete nature of these activities labor camps and influx are not anticipated. These individuals will however be subject to the requirement of ESS2 in relation to labor and working conditions including occupational health and safety and worker specific grievance redress mechanisms. Likewise, any technical consultants contracted by the project will also need to adhere to such standards. To ensure health and safety of workers during the construction, improving grid stability and operation efficiency, and operational phases of the project, a Health, Safety and Environmental (HSE) plan in line with Good International Industry Practice (GIIP) and EHS Guideline for Electric Power Transmission and Distribution will be prepared as part of the CESMPs, based on site-specific ESMPs/ESIAs for subprojects, with general guidance provided as part of ESMF. The plan will include procedures on incident investigation and reporting, recording and reporting of non-conformity, emergency preparedness and response procedures and continuous training and awareness to workers. In addition, the project has developed written labor management procedures (LMP) that has set out the way in which project workers will be managed including a code of conduct to mitigate GBV related risks which will be used during the project implementation.

**4.4.3. Environmental and Social Standard 3: Resource Efficiency and Pollution Prevention and Management**

This standard aims at efficient use of resources, pollution preventions and greenhouse gases emission avoidance and adoption of mitigation technologies and practices which are achievable. In this regard, the project, through its four components, is expected to improve access to energy and efficiency of energy services delivery in the country, largely in the rural areas. The project's proposed investments, including off-grid solar power and clean cooking, will also contribute to Rwanda's priority mitigation actions under its National Determined Contributions (NDC). The off-grid solar power and clean cooking solutions will also contribute to the reduction of deforestation and forest degradation and indoor air pollution. Thus, in addition to improving resource/energy-efficient practices, the project will have positive environmental contribution through reducing greenhouse gas emissions<sup>3</sup>. However, the project will have risks and impacts of pollution in relation to management of oils and lubricants for turbines, transformers (no PCB transformers will be used) and support infrastructures; solar batteries and panels; and construction/rehabilitation activities, among others. The project may also have environmental damage due to improper management of construction/ rehabilitation material (such as extraction of excess sands and gravels), waste, and domestic waste which may cause expansion of project's environmental footprint. The TA part of the project, including the policy and regulatory development/improvement activity may have impact on resource efficiency and pollution management. The management of impacts/risks of the above issues are addressed in the project design and in this ESMF (including solar batteries and panels management guidelines, and application of WBG EHS Guidelines for Electric Power Transmission and Distribution) and other ESS instruments, and further detailed in site specific ESIAs/ESMPs for subprojects during the project implementation stage. Moreover, in relation to components one and two, the contractor

<sup>3</sup> The GHG emission reductions associated with the nationwide uptake of cleaner technologies for lighting, cooking and other domestic energy needs including off-grid solar home systems and improved and clean cookstoves, will be purchased by Ci-Dev upon certification by the Standardized Crediting Framework (SCF) (<https://www.ci-dev.org/SCF-Rwanda>). In particular, Ci-Dev will purchase an approximate amount of 680,000 tCO<sub>2</sub>e carbon credits from component 3 for the period 2021-2024.

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shall develop C-ESMP (comprising EHSP, waste management plan, and restoration plan for borrow and quarry sites as required in the site specific ESMP/ESIA and ensure their implementation accordingly. No field works should start before ESMPs and C-ESMPs has been approved. ESMPs to be in place prior to the relevant Contractors' bidding phase and subsequent C-ESMPs to be prepared by Contractors.

**4.4.4. Environmental and Social Standard 4: Community Health and Safety**

Majority of the unskilled workers will be sourced from the community members in the project site and a few required skilled workers from outside of the project area. The project is not anticipated to contribute to significant labor influx in the project sites. However, potential community health and safety risks in the project sites are related to increase in crime, prostitution, gender-based violence (GBV) and other related social risks. Also, the project could contribute to potential structural safety risks such as electric shocks during connections, increase in road accidents due to increased number of vehicles during construction phase especially in formal settlement where there is a large number of people in a project site. The other potential community health risk relates to the potential for spread of communicable diseases due to the influx of people in search of work in the project sites. The project does not anticipate any use of security personnel. Also, there will be potential risks and impacts to community health and safety related to generation of wastes, noise, and dust; transportation of construction materials of distribution and transmission lines, and possibility of unauthorized entrance to construction and rehabilitation sites; and restoration of borrow and quarry sites. There will be risks related to transportation, installation, and operation of solar batteries (e.g. fire and explosion risks); and collection, storage and disposal of used solar batteries containing hazardous waste as well. The TA component of the project, including the policy and regulatory development/improvement may have impact on community health and safety. All these potential community health and safety risks, along with mitigation measures, are addressed in this ESMF (comprising generic ESMPs, guidelines for management of solar batteries and panels, and application of WBG EHS Guidelines for Electric Power, Transmission and Distribution, and electromagnetic interference and electrocution, among others) and other relevant ESSs instruments, will be further detailed in the site specific ESIA/ ESMPs for subprojects during the project implementation stage as required. Except the above risks and impacts (which will be managed through preparing and implementing site specific ESIA/ESMPs for subprojects, the project is generally expected to result in positive community health impacts specifically for those households who will benefit from grid connection, off-grid solar connection and clean cooking solutions.

**4.4.5. Environmental and Social Standard 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement**

The project will involve civil works in on-grid connection for a portion of the currently unelectrified households across different parts of the Country. These activities will involve expropriation, temporally restriction on land use Resettlement impacts are mainly expected to be temporary and largely economical. No voluntary land donation anticipated under this project. The project has prepared a Resettlement Policy Framework (RPF) that will give guidance to the implementing agencies during project implementation on how to deal with resettlement and expropriation issues in compliance with National Expropriation law and the Bank requirements, this will help also to prepare site specific RAPs based on prepared RPF. In addition to RPF, the client prepared SEP and ESCP (comprising specific gendered social assessment) through a consultative process.

#### **4.4.6. Environmental and Social Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources**

The aim of standard is to support the protection and conservation of biodiversity and habitats. In this regard, mitigation hierarchy and precautionary approach will be applied in the design and implementation of project that could have risks and impacts on biodiversity. Rwanda is known for its biodiversity and living natural resources and is a party to the Convention on Biological Diversity. The construction of transmission lines and substations considered by this project will have potential impacts on fauna and flora. Also, the clean cooking solutions may have impacts on forest and other resources if biomass sources and other supply chains (including local production of improved and clean cook stoves) are not properly identified and managed in a sustainable manner as per GoR's laws and WB ESSs. In this regard, there is a need to address sustainable management of primary production and harvesting of living natural resources using relevant mitigation measures.

The project will comply with this environmental and Social Standard requirement by avoiding constructing or passing through critical habitat such as national parks or wetland of international importance. The activity of bush clearing will respect the right of way (RoW) stipulated in the RURA guidelines (GUIDELINES N°01/GL/EL-EWS/RURA/2015 ON RIGHT-OF-WAY FOR POWER LINES) and whenever possible the project team will avoid the bush clearance where construction works allow. Also, impacts and risks of other project activities (such clean cooking solutions, construction of transmission lines, and TA related to policy and regulatory improvement and entrepreneurship development, and forward-looking options for sector development) on biodiversity and living natural resources will be managed as per the GoR's policies and legal frameworks and WB ESSs requirements. All these have been reflected in this ESMF, including the environmental and social screening process for managing risks and impacts to biodiversity and natural resources. Consistent with the Project's ESMF, ESS6 and site specific ESSs instruments (ESMPs/ESIAs), REG will require civil works contractor(s) to prepare C-ESMP(s) (satisfactory to the GoR and the WB) and implement it accordingly during construction/rehabilitation, and TA consultants to comply with the ESMF and other instruments.

#### **4.4.7. Environmental and Social Standard 7: Indigenous Peoples/ Sub-Saharan African Historically Underserved Traditional Community**

This standard aims to avoid or minimize impact on indigenous peoples/ Sub-Saharan African Historically Underserved Traditional Community who are defined as marginalized people with distinct characteristics such as self-identification, collective attachment to geographically distinct habitats or territory, customary, economic, social, or political institutions that are separate from those of the mainstream society or culture; or distinct language or dialect. This social standard is not applicable to this project as Rwanda does not have indigenous people or historically underserved traditional community in the project proposed implementation areas.

#### **4.4.8. Environmental and Social Standard 8: Cultural Heritage**

This standard seeks to protect cultural heritage from adverse impact of the project activities and support its preservation, address cultural heritage as integral aspect of sustainable development, promote meaningful consultation with stakeholders regarding cultural heritage and promote specifically the equitable sharing of benefits from the use of cultural heritage. Mitigation measures shall be developed and duly reflected in site specific ESIAs/ESMPs for subprojects to protect cultural heritage from being relocated by construction or rehabilitation activities. Also, "chance finds procedure" (see Annex 9) has been incorporated in this



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ESMF if previously unknown cultural heritage is encountered during project implementation; and will be also included in the site specific ESIA/ESMPs and in all contracts relating to construction or rehabilitation of subprojects.

**4.4.9. Environmental and Social Standard 9: Financial Intermediaries**

Financial Intermediaries (FIs) are public and private financial services providers that receive financial support from the World Bank, either directly from the Bank or the Borrower, or through the Borrower or other FIs. The FIs may be national and regional development banks, which channel financial resources to a range of economic activities across industry sectors. This ESS9 applies to Financial Intermediaries (FIs) and other FIs that receive financing or guarantee the FIs. For compliance with the ESS9 requirements, each FI will put in place and maintain an environmental and social management system (ESMS) to identify, manage, and monitor the environmental and social risks and impacts of FI subprojects on an ongoing basis. The ESMS will be commensurate with the nature and magnitude of environmental and social risks and impacts of FI subprojects, the types of financing, and the overall risk aggregated at the portfolio level. Where the FI can demonstrate that it has already an ESMS in place, it will provide adequate evidence of such an ESMS, indicating which elements (if any) will be enhanced or modified to meet the requirements of this ESS9. The ASCENT project will trigger this standard as financial institutions like BRD will directly receive funding from the World Bank and will also provide financing to the participating financial institutions (PFIs). As such, the Apex-FIs will have the primary responsibility to oversight and monitor and the E&S risks and impacts management for the beneficiary enterprises in accordance with the project's ESMF, RPF, ESCP, SEP, and the ESMSs for BRD. Consistent with ESS9 requirements, the ESMSs for BRD will be cascaded to the benefitting PFI's in this case these Energy Private Developers involved in solar home system business and other entrepreneurs including women entrepreneurs who may be involved in the clean cooking component of the project. BRD will ensure that PFIs have ESMS procedures in place, which are acceptable to the Ministry of Economic Planning and Finance (MINECOFIN). PFIs will monitor the entire World Bank-financed portfolio and report to the Apex-FIs (BRD) while the Apex-FIs will be required to monitor and supervise the E&S performance of the PFIs and their portfolio exposures and report to MINECOFIN. The World Bank will in turn monitor the MINECOFIN and Apex FIs.

**4.4.10. Environmental and Social Standard 10: Stakeholder Engagement and information disclosure**

The objective of this ESS is to engage stakeholder effectively in order to improve environmental and social sustainability of the project, enhance acceptance, and make significant contribution to successful project design and implementation. For this purpose, the project supported by the Bank must identify stakeholders and construct and build good working relationships with them in order to avoid conflicts that may arise, assess the level of stakeholder interests, support and concerns, take stakeholders views, concerns into account during project implementation. In this identification, stakeholders included Project Affected People (PAPs), these are individuals or organisation whose properties (land, houses, infrastructures, business, cultural features) and other aspects that will be affected by the project and other who are related or may be interested in the project implementation. In addition, this ESS will aim at promoting and providing means for stakeholders' engagement in the whole project cycle, and inform stakeholders on the project objectives, environmental and social risks in appropriate manners.

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The project has complied with this ESS through the development of the ESMF and the stakeholder engagement plan (SEP) and both will be disclosed prior to project appraisal. Major stakeholders such as director of one stop centres, Vice mayor in charge of economic development, District environmental officers, Executive secretary of the sectors, sector land managers different ministries and public agencies, local people from not connected centres, and institutions as shown in the Annex 7 have been consulted and their inputs were considered during ESMF and SEP preparation. During the preparation of site-specific RAPs, PAPs will be identified and consulted on different resettlement modalities as stipulated by the Law N° 32/2015 of 11/06/2015 relating to expropriation in the public interests. In addition, the ESMF and RPF have recommended the establishment of grievance redress Committees from project site level and their composition to the district and implementing entity levels.

*Table 12 : World Bank Environmental and Social Standard applicable to ASCENT*

<b>Standard triggered by the project</b>	<b>Yes</b>	<b>No</b>
ESS 1: Assessment and Management of Environmental and Social Risks and Impacts	X	
ESS2: Labour and Working Conditions	X	
ESS3: Resource Efficiency and Pollution Prevention and Management	X	
ESS4: Community Health and Safety	X	
ESS5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	X	
ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	X	
ESS 7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Community.		X
ESS 8: Cultural heritage	X	
ESS9: Financial Intermediary	X	
ESS10: Stakeholder Engagement and information disclosure	X	

**4.5.Comparison of World Bank Environmental and Social Framework (ESF) objectives and Rwanda Policy and Legal requirements.**

Considering its depth and length, comparison of World Bank Environmental and Social Framework (ESF) objectives and the Rwandan Policy and Legal requirements is provided in table below;

Table 13: Comparison of World Bank Environmental and Social Framework (ESF) objectives and Rwandan Policy and Legal requirements.

Table 13 : Comparison of World Bank Environmental and Social Framework (ESF) objectives and Rwanda Policy and Legal requirements

## Standard 1: Assessment and Management of Environmental and Social Risks and Impacts

ESS Objectives	National Legal requirements	Gaps	Recommended Actions
<p>(i)</p> <p>To identify, evaluate and manage the environment and social risks and impacts of the project in a manner consistent with the ESSs.</p>	<p>The Law 48/2018 of 13/08/2018 suggests a systematic process of identifying environmental, social and economic impacts of a project before a decision of its acceptance is made;</p>	<p>The difference lies between the Project Classification according to levels of impacts while WB classifies into 4 categories (High, Substantial, Moderate and Low Risk), the MINISTERIAL ORDER No 001/2019 OF 15/04/2019 classifies projects in three categories after screening. (Project that must undergo full EIA, Partial EIA and no EIA for the project not listed in the Annex 1 and 2.</p> <p>However, when it is evident that work, activity or project not listed on the Annex I and II to this Order has a negative and irreversible impact on the environment and is similar in nature to the work, activity or project listed in Annex I and II of this Order, the Authority or authorized organ may request the developer to conduct an environmental impact assessment.</p> <p>WB ESF does not provide the specific list of the project under these categories, all projects are screened depending on the impacts that they might have on the environment.</p>	<p>All projects should be screened for E&amp;S Impacts classification. The WB ESF should be used for impact classification and the national law used to determine the EIA category required (full EIA, Partial EIA or no EIA required). World Bank Environmental Health and Safety guidelines (WBEHSG) will also be used to make sure that the environment is protected from harmful substances affecting air, water, Soil and living beings.</p>

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ESS Objectives	National Legal requirements	Gaps	Recommended Actions
(ii) To adopt a mitigation hierarchy approach	The Rwandan Regulation does not specify the use of hierarchy but it suggests that the mitigation measures should aim at preventing, eliminating or reducing the adverse effects on human health, natural resources and environment.	Although current legislative framework seeks to avoid and mitigate social risks, there is no explicit directive to minimize impacts or to promote the adoption of a clearly-defined mitigation hierarchy approach to managing social risks. In addition, the current system emphasizes cash compensation as a mitigation measure and hence does not address other losses.	The ESS of the World Bank will be adopted during project implementation.
(iii) To adopt differentiated measures so that adverse impacts do not fall disproportionately on the disadvantaged or vulnerable, and they are not disadvantaged in sharing development benefits and opportunities resulting from the project.	The Constitution of Rwanda approves that the State has also the duty, within the limits of its means, to undertake special actions aimed at the welfare of the indigent, the elderly and other vulnerable groups.  All vulnerable groups benefits from Ubudehe program and VUP (Vision Umurenge Program) even in the absence of the project.	While WB classifies the vulnerability in different health or Social status such as elderly, widow, Physical disability, poverty, living with permanent illness,...in Rwanda the vulnerability is assessed only on the condition that makes you economically disadvantaged or extremely poor.	The WB ESF will be adopted for this particular case.
(iv) To utilize national environmental and social Institutions, systems, laws, regulations and procedures in the assessment, development and	There are various institutions systems, laws and regulations for the Environmental and Social management in the country	The mandated institutions have limited resources for the effective environmental and social implementation and with some exceptions, monitoring and compliance assessment is inadequate or absent.	The ESS1 will be applied to address this Gap. To apply World Bank Group EHS guidelines for electric Power Transmission and Distribution

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ESS Objectives	National Legal requirements	Gaps	Recommended Actions
implementation of projects, whenever appropriate.			
(v) To promote improved environmental and social performance, in ways which recognize and enhance Borrower capacity	The Law suggests to train and improve the capacity of the workforce while ensuring the protection of workers' rights in accordance with laws and international conventions ratified by Rwanda;	The law does not clearly define how they should be trained.	The ESS1 will be applied during to address this Gap.
Standard 2: Labour and Working Conditions			
(i) To promote safety and health at work.	Ministerial order No2 of 17/05/2012 determining conditions for occupational and health safety 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.	The similarity is evident	The project will follow ESS2 and has developed labour management procedures with relevant provisions to bridge the gap. The project will prepare also the Occupational Health and Safety Plan prior to the field works  The project will implement all reasonable precautions to protect the health and safety of workers as outlined in the World Bank EHS guidelines. Preventive and protective measures should be

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ESS Objectives	National Legal requirements	Gaps	Recommended Actions
			<p>introduced according to the hazard mitigation hierarchy.</p> <p>EHS measures on the project should at a minimum include; aspects of the general facility design and operations, Communication and training, Physical hazards, Chemical hazards, Radiological Hazards, Personal Protective Equipment (PPE) and Monitoring.</p> <p>The project will comply with the Ministerial order No2 of 17/05/2012, but it will monitor wages paid.</p> <p>The minimum age of employment should be defined in the Labour Management Plan (LMP) as 16 years. The project should not allow any forced labour.</p>
(ii) To promote the fair treatment, non-discrimination and equal	The working conditions in Rwanda are governed by the Law N° 66/2018 of 30/08/2018 regulating Labor and its implementing orders. This Law	The similarity is evident.	The implementation of the project will apply the ESS2

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ESS Objectives	National Legal requirements	Gaps	Recommended Actions
opportunity of project workers.	<p>applies all aspect of labor be it formal and informal sectors and provides guidelines related to relationship between an employee and his/her employer in regard to: contract, wages and others benefits, working environment, working hours and different types of allowed leaves which the employee is entitled to. This law also sets standards in terms of employment age and prohibits all form of forced labor, discrimination, and sexual harassment.</p>		

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ESS2 Objectives	National Legal requirements	Gaps	Recommended Actions
(iii) To protect project workers, including vulnerable workers.	The law requires the protection of workers during employment	The enforcement is lacking, in part due to lack of budgeting and staffing, as well as the high unemployment in the country, which facilitates the exploitation of workers.	With the budgeting allocated for this project, harmony will be sought for both the ESS and the national requirements
(iv) To prevent the use of all forms of forced labor and child labor.	As (ii) in this section 2	As (ii) in this section 2	The ESS shall be given priority during project implementation
(v) To support the principles of freedom of association and collective bargaining of project workers in a manner consistent with national law.	Article 39 of Rwandan Constitution as revised in 2015 suggests that the right to freedom of association is guaranteed and does not require prior authorization.  This right is exercised under conditions determined by law.	The casual nature of employment affects unionization, as employees paid per day are unable to make the monthly check off in support of union activities.	The World Bank ESS2 that is stronger in terms of supporting the freedom of association will be adopted
(vi) To provide project workers with accessible means to raise workplace concerns.	article 10 of the labor law suggests that employees and their representatives have the right to express their opinions with regard to working conditions, work execution and organization. Employees have the right to form or join a trade union.	The similarity is clear	There is freedom during implementation of the project to adopt either the ESS2 or the national legislations. The Workers Grievance Redress Mechanism developed and will be used as a channel to communicate and resolve grievances.



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## Standard 3: Resource Efficiency and Pollution Prevention and Management

ESS Objectives	National Legal requirements	Gaps	Recommended Actions
(i) To promote the sustainable use of resources, including energy, water and raw materials.	<p>The Law on the environment promote the sustainable use of the resources where in its Article 4 of Principle of environmental sustainability emphasizes that present and future generations enjoy equal opportunities.</p> <p>The right to development must be achieved in consideration of the needs of present and future generations.</p>	The Similarities are evident.	<p>The project will follow provisions of ESS3 and national requirements on resource efficiency in its activities to ensure compliance with the requirements and site specific ESMPs will be developed. The project should promote sustainable use of resources and avoid or minimise environmental pollution through the use of the World Bank ESF.</p> <p>Also, hazardous materials and waste management plan has been developed to support the safe handling of hazardous materials and waste during the project implementation in compliance with the ESF and WB EHS guidelines.</p>
(ii) To avoid or minimize adverse impacts on human health and the environment by avoiding or minimizing	The Law on Environment in its Article 15 of Protection and conservation of the atmosphere suggests the any installation likely to create risks or cause pollution, vehicles and engine driven machines, commercial, craft or agricultural activities must be conducted in accordance with technical principles established by competent authorities in order to protect and preserve the atmosphere.	The National requirement are reinforced by the Law	The World Bank ESS3 will be employed as with most Bank funded projects for effectiveness of this ESS

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ESS Objectives	National Legal requirements	Gaps	Recommended Actions
pollution from project activities.			
(iii) To avoid or minimize project-related emissions of short and long-lived climate pollutants.	<p>The article 26 of the Law on Environment orders to take necessary measures to protect and respect the obligations stipulated in international agreements which it signed; to prohibit any activity carried out on its behalf or in its capacity that may degrade the environment in another country or in regions beyond its national jurisdiction; to co-operate with other states in taking decisions to fight trans-boundary pollution; to protect, conserve and manage properly the environment using appropriate measures; while in its</p> <p>Article 50 establishes punishments. It says that any person who piles, abandons, disposes of wastes or dumps waste water or materials on unauthorized public or private place is liable to an administrative fine of fifty thousand Rwandan francs (FRW 50,000) and is ordered to remove his/her substances or rehabilitate damages caused by him/her.</p>	The National requirement are reinforced by the Law	The national requirements will be applied during project implementation.

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ESS Objectives	National Legal requirements	Gaps	Recommended Actions
(iv) To avoid or minimize generation of hazardous and non-hazardous waste.	<p>Article 19: Management of hazardous and toxic waste</p> <p>Any waste, especially from hospitals, health centres and clinics, research centres equipped with laboratories, industries and any other hazardous or toxic waste must be collected, treated and changed in a manner that does not degrade the environment in order to prevent, eliminate or reduce their adverse effects on human health, natural resources and environment. Management, disposal and trans-boundary movements of hazardous or toxic waste are governed by an order of the Minister.</p>	The Law is enforced and the management to oversee that all kind waste are well managed falls under RURA's responsibility while the management to restrict their entry fraudulently is taken care of by RBS	The national requirements will be applied during project implementation.

## Standard 4: Community Health and Safety

ESS Objectives	National Legal requirements	Gaps	Recommended Actions
(i) To anticipate and avoid adverse impacts on the health and safety of project-affected communities during the project life cycle from both routine and non-routine circumstances.	<p>The constitution of Rwanda as revised in 2015 emphasizes in its article 21 emphasizes that all Rwandans have the right to good health. In its Article 22, it says that everyone has the right to live in a clean and healthy environment, while in its article 23 suggests that the privacy of a person, his or her family, home or correspondence shall not be subjected to interference in a manner inconsistent with the law; the person's honour and dignity shall be respected.</p> <p>A person's home is inviolable. No search or entry into a home shall be carried out without the consent of the owner,</p>	<ul style="list-style-type: none"> <li>- Health and safety issues are generally taken care of in World Bank and donor funded projects.</li> <li>- Most EIAs conducted focus mostly on environmental issues, with social and health issues receiving considerably less attention.</li> </ul>	<p>The ESS4 that is more comprehensive standard will be applied regarding the anticipation and avoidance of adverse impacts on the health and safety of project-affected communities.</p> <p>The project will ensure that workers and the general</p>

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ESS Objectives	National Legal requirements	Gaps	Recommended Actions
	<p>except in circumstances and in accordance with procedures determined by the law.</p> <p>Confidentiality of correspondence and communication shall not be waived except in circumstances and in accordance with procedures determined by the law.</p> <p>Article 45 that The State has the duty to mobilize the population for activities aimed at good health and to assist them in the realization of those activities.</p> <p>Every Rwandan has the duty to take part in activities aimed at good health. While the Ministerial Order N°02 Of17/05/2012 Determining Conditions For Occupational Health And Safety in its Article 50 concerning the Prevention and management of work-related stress suggests that every employer shall ensure that the adequate and suitable means of communications, instructions, warning notices and other penalties, whether oral or written, shall be given to workers in a way that does not undermine the psychological health of the employed person.</p>		<p>public are not exposed to vector borne diseases, STDs and construction and operation related safety hazards.</p>
<p>(ii)</p> <p>To promote quality and safety, and considerations relating to climate change, in the design and construction of</p>	<p>Article 21of Law on the environment regarding the Mainstreaming of environment and climate change in the development planning process suggests that every socio-economic sector must mainstream environment and climate change in the development and implementation of its policies, strategies, plans and programs.</p>	<p>However, there are substantive gaps between the international good practice requirements on the Safety of Dams and the Rwandan regulatory framework. There are inadequate competent professionals to design and</p>	<p>The ESS4 will apply to project implementation since there is no legal framework for implementing the Policy.</p>

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ESS Objectives	National Legal requirements	Gaps	Recommended Actions
infrastructure, including dams.	<p>Administrative entities, national and international non-governmental organizations as well as individuals must conserve the environment and prevent adverse effects of climate change.</p> <p>the MINISTERIAL ORDER No 001/2019 OF 15/04/2019 classifies infrastructures projects including electrical lines and Hydro dams in the must undergo the full Environmental impacts Assessment;</p>	supervise the construction of dams and implementation of dam safety measures through the project cycle. There is also no strong institution to regulate the safety of dams in Rwanda.	
(iii)  To avoid or minimize community exposure to project-related traffic and road safety risks, diseases and hazardous materials.	As discussed in 4 (i) and (ii) above		
iv) To have in place effective measures to address emergency events.	Ministerial Order N°02 Of17/05/2012 Determining Conditions for Occupational Health And Safety in its Article 25 concerning Safety signs emphasizes that any building, depending on the nature of its rooms, shall have a clearly visible sign indicating the way to the nearest exit. Emergency exits and the general emergency evacuation plan shall be marked with clearly visible letters at each level and shall be easily interpreted by all users. There shall be emergency lighting system to facilitate easy evacuation of	Similarities are evident	National regulations will apply

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ESS Objectives	National Legal requirements	Gaps	Recommended Actions
	persons in case of accident in the event of any incidental interruption of normal lights.		
v) To ensure that the safeguarding of personnel and property is carried out in a manner that avoids or minimizes risks to the project-affected communities	A As discussed in 4 (i) and (ii) above		
vi) Ecosystem services (provisioning and regulating) not compromised	The article 49 of the Law 48/2018 of 13/8/2018 establishes punishment for the project which compromises the ecosystem. The doer will have to pay the fine of 2% and the demolition of the established activities.	The Law is enforced.	National regulations will be applied

## Standard 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement

ESS Objectives	National Legal requirements	Gaps	Recommended Actions
(i)To avoid involuntary resettlement or, when unavoidable, minimize involuntary resettlement by exploring project design alternatives.	There are no similar provisions in Rwandan national legislation, which states that ‘expropriation of land will be done when deemed necessary for public purposes.’	Divergence between WB ESS5 and National Expropriation law	WB ESS5 will prevail given that it requires that the PAPs must be assisted even after compensation

## Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)

ESS Objectives	National Legal requirements	Gaps	Recommended Actions
(ii) Mitigate impacts from land acquisition or restrictions on land use by providing timely compensation for asset loss at replacement cost and assisting displaced persons to improve or restore, their livelihoods and living standards, to pre-displacement levels or to levels prevailing prior to beginning of project implementation, whichever is higher.	<p>The National Expropriation Law provides for fair and just compensation to expropriated peoples eligible for compensation but the definition of 'fair and just' is not clearly established.</p> <p>Art. 28 stipulates that without prejudice to other laws, the value of land and property incorporated thereon to be expropriated in the public interest shall be calculated on the basis of their size, nature and location and the prevailing market rates.</p>	Assumption of the livelihood of PAPs may not be restored improved after compensation and resettlement	WB ESS5 will be used because it provides a wider window to explore all sorts of assistance that may need to be applied depending on site specific context, PAPs and community special circumstances.
(iii) To avoid forced eviction	<p>Article 3 of N° 32/2015 of 11/06/2015 Law relating to expropriation in the public interest, concerning Powers to order expropriation in the public interest, it emphasizes that only the Government shall order expropriation in the public interest.</p> <p>Expropriation as provided for under this Law shall be carried out only in the public interest and with prior and fair compensation.</p> <p>No person shall hinder the implementation of the program of expropriation in the public interest on pretext of self-centred interests.</p> <p>No person shall oppose any underground or surface activity carried out on his/her land with an aim of public interest. In</p>	The law does not give the right to any people to oppose the activities due to his personal interests.	The ESS5 will be employed

## Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)

ESS Objectives	National Legal requirements	Gaps	Recommended Actions
	<p>case it causes any loss to him/her, he/she shall receive fair compensation for it.</p>		
<p>(iv)</p> <p>To mitigate unavoidable adverse social and economic impacts from land acquisition or restrictions on land use by: (a) providing timely compensation for loss of assets at replacement cost and (b) assisting displaced persons in their efforts to improve, or at least restore, their livelihoods and living standards, in real terms, to pre-displacement levels or to levels prevailing prior to the beginning of project implementation, whichever is higher.</p>	<p>The National Expropriation Law provides for fair and just compensation to expropriated peoples eligible for compensation but the definition of 'fair and just' is not clearly established.</p> <p>Art. 28 stipulates that without prejudice to other laws, the value of land and property incorporated thereon to be expropriated in the public interest shall be calculated on the basis of their size, nature and location and the prevailing market rates.</p> <p>The national Regulations (expropriation law in public interest, article 27) defines properties subject to valuation for the payment of fair compensation due to expropriation in the public interest are:</p> <p>land;</p> <p>activities carried out on land for its efficient management or rational use;</p> <p>compensations for disruption caused by expropriation. Article 36 of the Expropriation law (2015) state that approved fair compensation shall be paid within a period not</p>	<p>Assumption of the livelihood of PAPs may not be restored improved after compensation and resettlement;</p> <p>Loss of income is not covered under national regulations and regulations are silent on livelihood measures or assistance to vulnerable people</p>	<p>WB ESS5 will prevail given that it requires that the PAPs must be assisted even after compensation</p>



Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)

ESS Objectives	National Legal requirements	Gaps	Recommended Actions
	exceeding one hundred and twenty (120) days from the day of its approval.		
(v)To improve living conditions of poor or vulnerable persons who are physically displaced, through provision of adequate housing, access to services and facilities, and security of tenure	As discussed in 5 (iv)		
(vi)To ensure that resettlement activities are planned and implemented with appropriate disclosure of information, meaningful consultation, and the informed participation of those affected.	As discussed in 5(iv)		

Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources

ESS Objectives	National Legal requirements	Gaps	Recommended Actions
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## Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)

(i) To protect and conserve biodiversity and habitats.	The article 28 on the Biodiversity conservation of the Law 48/2018 of 13/8/2018 on Environment emphasizes that the state has the responsibility to establish the list of species of animals and plants that must be protected depending on their role in ecosystems, their scarcity, their aesthetic value, their threat to extinction and their economic, cultural and scientific role; and to identify areas to be protected for conservation or rehabilitation of ecosystems, forests, woodlands, species of biodiversity and protected zones, monuments, historical sites and landscapes.	The National requirements on protection of Biodiversity accord with the ESS6	The national requirements will be adhered to since they accord with the ESS6
(ii) Where biodiversity impacts likely, apply mitigation hierarchy and precautionary approach in project design & implementation	The National Regulations do not emphasize on the hierarchy.	Though the laws do not emphasize on the hierarchy they agree on the principle of preventing any harm to the biodiversity by all means.	The ESS6 will be adopted for EASP being a bank funded project so as to achieve good compliance
(iii) To promote the sustainable management of living natural resources.	The chapter III regarding the conservation and protection of the environment of the Law on the environment above emphasizes that ;  all natural resources should be protected from all kinds of degradation, and they must be used in a sustainable manner in accordance with relevant laws.	The implementation is highly variable as some implementers do not involve the environmentalist and loose the focus as a result of inadequate knowledge on the environmental impacts.	The ESS6 will be adopted

## Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)

(iv)To support livelihoods of local communities, including Indigenous Peoples, and inclusive economic development, through the adoption of practices that integrate conservation needs and development priorities	National Regulation are silent about economic displacement and does not provide any livelihood restoration program	Livelihood restoration and economic displacement are not considered under national regulations	The ESS6 will be applied
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## Standard 8: Cultural Heritage

ESS Objectives	National Legal requirements	Gaps	Recommended Actions
(i)To protect cultural heritage from the adverse impacts of project activities and support its preservation.	<p>The protection and preservation of culture heritage is governed by the Law N° 28/2016 of 22/7/2016 on The Preservation of Cultural Heritage and Traditional Knowledge</p> <p>The Article 15 of this law on Restrictions on classified heritage requires that, apart from routine tasks of maintaining cultural heritage, no person shall destroy, move, repair or modify in any way classified cultural heritage without prior written approval of the Minister within sixty (60) days from the date of receipt of the complete file. In case the Minister fails to reply within the prescribed period, the application is deemed accepted. No person shall affix texts, images or install advertising signs on a historical monument or in its neighbouring area.</p> <p>Article 21 on Repatriation of Rwandan cultural heritage requires that upon request by the Minister, the Minister in charge of foreign affairs</p>	The law is in line with the ESS	The National legislation will be adopted since it accords with the ESS8

## Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)

ESS Objectives	National Legal requirements	Gaps	Recommended Actions
	<p>claims for the return to Rwanda of cultural heritage exported unlawfully or kept beyond the designated time abroad. When exported cultural heritage has been damaged, the country in which the heritage is located returns it after restoration or give fair compensation pursuant to the convention between both countries. In case there is no convention between Rwanda and the concerned country, international conventions apply.</p> <p>The constitution of Rwanda as revised in 2015 in its article 47 determines that the State has the duty to safeguard and promote national values based on cultural traditions and practices so long as they do not conflict with human rights, public order and good morals.</p> <p>The State also has the duty to preserve the national cultural heritage.</p>		
(ii) To address cultural heritage as an integral aspect of sustainable development.	Article 11 of the above law on preservation of culture requires that a cultural heritage is classified if it can at bear a unique or exceptional testimony to development and Rwandan civilisation in terms of arts, technology and history from generation to generation.	This Law accords with the ESS8	The National legislation will be adopted
(iii) To promote meaningful consultation with stakeholders regarding cultural heritage.	The law is silent on the consultation of people on matters pertaining to cultural heritage	The lack of legislation to guide the consultation of people on matters that affect them remains a big loophole in ensuring planning and budgeting of meaningful consultations.	The ESS that is well elaborate on promotion of meaningful consultations with stakeholders will be applied during project implementation

## Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)

ESS Objectives	National Legal requirements	Gaps	Recommended Actions
(iv) To promote the equitable sharing of benefits from the use of cultural heritage	Article 36 of the constitution determines that every Rwandan has the right to activities that promote National Culture and the duty to promote it.	This Law accords with the ESS8	The National constitution will be adopted

## Standard 9: Financial Intermediaries

ESS Objectives	National Legal requirements	Gaps	Recommended Actions
(i) To set out how the FI will assess and manage environmental and social risks and impacts associated with the subprojects it finances.	The financial institutions are governed by the regulation no2100 /2018 -00011[614] of 12/12/2018 of the national bank of Rwanda governing non deposit taking lending financial institution. This regulation is silent about the financial intermediaries.	There is no law that compels FI to assess and manage E&S risks and impacts associated with projects	The WB ESS9 will be adopted
(ii) To promote good environmental and social management practices in the subprojects the FI finances.	As discussed in (i) above	As discussed in (i) above	As discussed in (i) above
(iii) To promote good environmental and sound human resources management within the FI.	As discussed in (i) above	As discussed in (i) above	As discussed in (i) above

## Standard 10: Stakeholder Engagement and Information Disclosure

## Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)

ESS Objectives	National Legal requirements	Gaps	Recommended Actions
(i) To establish a systematic approach to stakeholder engagement that will help Borrowers identify stakeholders and build and maintain a constructive relationship with them, in particular project-affected parties.	The Law 48/2018 of 13/08/2018 on environment requires in the article 25 on response measures on climate and technology transfer requires that the Authority in charge of climate change upon consultation with administrative entities and national and international non-governmental organisations must promote and cooperate in the development, application and diffusion of, including transfer of technologies, practices and processes that control, reduce or prevent anthropogenic emissions of greenhouse gases and increase the adaptive capacity to build climate resilience.	The lack of legislation to guide the consultation of people on matters that affect them remains a big loophole in ensuring planning and budgeting of meaningful consultations.  The Consultations required would be insufficient for the effective management of social risks on a project with significant impacts since it considers mainly environmental risks.	The ESS10 will be employed during project implementation.  The Project will implement stakeholder consultations throughout the lifetime of the project, as per the prepared Stakeholder Engagement Plans.
(ii) To assess the level of stakeholder interest and support for the project and to enable stakeholders' views to be considered in project design and environmental and social performance.	The MO 001 of 15/04/2019 in its article 10 on public participation to express views on the environmental impact assessment report requires that the stakeholders may comment on the environmental impact assessment report and express views on the impacts of the proposed project.  The authorised organ covers all costs of the public hearing process. The stakeholders views are considered when selecting the best alternative of the project to be implemented.	The similarities are evident	The Ministerial order on the environment will be applied
(iii) To promote and provide means for effective and inclusive	The Expropriation law in public interest of 2015 in its article 6 requires that the initiator of an act aimed at the	During the project implementation Project	The ESS10 will be applied to promote

## Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)

ESS Objectives	National Legal requirements	Gaps	Recommended Actions
engagement with project-affected parties throughout the project life cycle on issues that could potentially affect them.	<p>implementation of land use and development master plans shall first negotiate with owners of assets that are affected by the project.</p> <p>In case negotiations fail, formalities related to expropriation in the public interest shall be followed upon request of the expropriator and the initiator of the project, considering the interests of the person to be expropriated.</p> <p>The price or value of assets affected by the project shall be paid by the initiator of the project before any commencement of activities.</p>	affected People are engaged and the Grievance Redress Mechanism is established together with the committees at cell, sector, and district level. However, the implementation is hampered by the poor training and lack of means to help the committees to carry out the regular meetings and visits.	effective inclusion of project affected parties in the implementation
(iv)To ensure that appropriate project information on environmental and social risks and impacts is disclosed to stakeholders in a timely, understandable, accessible and appropriate manner and format.	Though the studies are disclosed, the law is silent about the disclosure of the E&S document.	The National laws on environment need to clarify how the information containing in the E&S documents may be disclosed.	The ESS and the applicable
(v)To provide project-affected parties with accessible and inclusive means to raise issues and grievances and allow Borrowers to respond to and manage such grievances.	As discussed in (iii)	As discussed in (iii)	The project GRMs shall be adopted in accordance to this ESS10

## 4.6. World Bank Group Environmental, Health and Safety Guidelines

### 4.6.1. Environmental, Health, and Safety General Guidelines

The Environmental, Health, and Safety (EHS) Guidelines<sup>4</sup> are technical reference documents with general and industry-specific examples of Good International Industry Practice (GIIP) that WB funded project should apply. These General EHS Guidelines are designed to be used together with the relevant Industry Sector EHS Guidelines which provide guidance to users on EHS issues in specific industry sectors. The ASCENT will apply both the General EHS and Electric Power Transmission and Distribution EHS. . The applicability of the EHS Guidelines should be tailored to the hazards and risks established for each project on the basis of the results of an environmental assessment in which site-specific variables, such as host country context, assimilative capacity of the environment, and other project factors, are considered. When host country regulations differ from the levels and measures presented in the EHS Guidelines, projects are expected to achieve whichever is more stringent. If less stringent levels or measures than those provided in these EHS Guidelines are appropriate, in view of specific project circumstances, a full and detailed justification for any proposed alternatives is needed as part of the site-specific environmental assessment. This justification should demonstrate that the choice for any alternate performance levels is protective of human health and the environment.

**General Approach to the Management of EHS Issues at the Facility or Project Level:** Effective management of environmental, health, and safety (EHS) issues entails the inclusion of EHS considerations into corporate-and facility-level business processes in an organized, hierarchical approach that includes the following steps:

- Identifying EHS project hazards and associated risks as early as possible in the facility development or project cycle, including the incorporation of EHS considerations into the site selection process, product design process, engineering planning process for capital requests, engineering work orders, facility modification authorizations, or layout and process change plans.
- Involving EHS professionals, who have the experience, competence, and training necessary to assess and manage EHS impacts and risks and carry out specialized environmental management functions including the preparation of project or activity-specific plans and procedures that incorporate the technical recommendations that are relevant to the project.
- Understanding the likelihood and magnitude of EHS risks, based on: The nature of the project activities, such as whether the project will generate significant quantities of emissions or effluents, or involve hazardous materials or processes; The potential consequences to workers, communities, or the environment if hazards are not adequately managed, which may depend on the proximity of project activities to people or to the environmental resources on which they depend.

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<sup>4</sup> [http://www.ifc.org/wps/wcm/connect/topics\\_ext\\_content/ifc\\_external\\_corporate\\_site/ifc+sustainability/our+approach/risk+management/ehsguidelines](http://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/ifc+sustainability/our+approach/risk+management/ehsguidelines)



**Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)**

- Prioritizing risk management strategies with the objective of achieving an overall reduction of risk to human health and the environment, focusing on the prevention of irreversible and/or significant impacts.
- Favouring strategies that eliminate the cause of the hazard at its source, for example, by selecting less hazardous materials or processes that avoid the need for EHS controls.
- When impact avoidance is not feasible, incorporating engineering and management controls to reduce or minimize the possibility and magnitude of undesired consequences, for example, with the application of pollution controls to reduce the levels of emitted contaminants to workers or environments.
- Preparing workers and nearby communities to respond to accidents, including providing technical and financial resources to effectively and safely control such events, and restoring workplace and community environments to a safe and healthy condition.
- Improving EHS performance through a combination of ongoing monitoring of facility performance and effective accountability.

*Table 14: Environmental Health and Safety Guidelines*

Effect	Description	Management	Measures in place
<b>Environment</b>			
Greenhouse Gases (GHGs)	<p>Energy is one of the sectors that can have potential significant emissions of greenhouse gases.</p> <p>GHGs may be generated from direct emissions. Green House gases are gases responsible for Global Warming and include carbon dioxide (CO<sub>2</sub>); methane (CH<sub>4</sub>); nitrous oxide (N<sub>2</sub>O); hydrofluorocarbons (HFCs); perfluorocarbons (PFCs); and sulphur hexafluoride (SF<sub>6</sub>).</p>	Promote, develop and increase use of renewable forms of energy which include hydroelectric power and solar energy which means that the impact of ASCENT is positive to the environment as it contributes to GHGs emissions reduction.	<ul style="list-style-type: none"> <li>- -Hydroelectric power used and promoted</li> <li>- Solar system used in form of Mini grid and also solar home system were distributed across the country to remote areas to promote the renewable energy use.</li> </ul>

Effect	Description	Management	Measures in place
			<ul style="list-style-type: none"> <li>- Clean Cooking solutions being implemented throughout the country.</li> <li>- All vehicles are tested for air pollution and are given of National Police permit (Control Technic)</li> </ul>
Hazardous Materials	<p>Hazmats can be classified according to the hazard as explosives; compressed gases, including toxic or flammable gases; flammable liquids; flammable solids; oxidizing substances; toxic materials; radioactive material; and corrosive substances.</p>	<ul style="list-style-type: none"> <li>- The overall objective of hazardous materials management is to avoid or, when avoidance is not feasible, minimize uncontrolled releases of hazardous materials or accidents (including explosion and fire) during their production, handling, storage and use.</li> <li>- Where practicable, avoiding or minimizing the use of hazardous materials. For example, non-hazardous materials have been found to substitute asbestos in building materials, PCBs in electrical equipment, persistent organic pollutants (POPs) in pesticides formulations, and ozone depleting substances in refrigeration systems;</li> <li>- Preventing uncontrolled releases of hazardous materials to the environment or uncontrolled reactions that might result in fire or explosion;</li> <li>- Using engineering controls (containment, automatic alarms, and shut-off systems) commensurate with the nature of hazard;</li> <li>- Implementing management controls (procedures, inspections, communications, training, and drills) to address residual risks that have not been prevented or controlled through engineering measures.</li> </ul>	<ul style="list-style-type: none"> <li>- Different dumpsites were installed to be used to treat the waste generated.</li> <li>- Other waste management system used include Ministry of Health Incinerators to incinerate medical and other relevant toxic waste, EnviroSource to manage electronic waste among others.</li> <li>- Waste is sorted at source, stored and</li> </ul>

Effect	Description	Management	Measures in place
		<ul style="list-style-type: none"> <li>- Job safety analysis to identify specific potential occupational hazards and industrial hygiene surveys, as appropriate, to monitor and verify chemical exposure levels, and compare with applicable occupational exposure standards;</li> <li>- Hazard communication and training programs to prepare workers to recognize and respond to workplace chemical hazards.</li> </ul>	<p>collected by the waste collection and transportation companies on regular basis.</p>
	<p>Reactive, flammable, and explosive materials should also be managed to avoid uncontrolled reactions or conditions resulting in fire or explosion.</p>	<ul style="list-style-type: none"> <li>- Storage of incompatible materials (acids, bases, flammables, oxidizers, reactive chemicals) in separate areas, and with containment facilities separating material storage areas;</li> <li>- Provision of material-specific storage for extremely hazardous or reactive materials;</li> <li>- Use of flame arresting devices on vents from flammable storage containers;</li> <li>- Provision of grounding and lightning protection for tank farms, transfer stations, and other equipment that handles flammable materials;</li> <li>- Selection of materials of construction compatible with products stored for all parts of storage and delivery systems, and avoiding reuse of tanks for different products without checking material compatibility;</li> </ul>	<ul style="list-style-type: none"> <li>- No transformers containing PCBs that will be used in this project.</li> <li>- Asbestos sheets banned in the country</li> </ul>
Waste	<p>Any solid, liquid, or contained gaseous material that is being discarded by disposal, recycling, burning or incineration. It can be by product of a manufacturing process or an obsolete commercial product that can no longer be used for intended purpose and requires disposal.</p>	<ul style="list-style-type: none"> <li>- Establishing waste management priorities at the outset of activities based on an understanding of potential Environmental, Health, and Safety (EHS) risks and impacts and considering waste generation and its consequences</li> <li>- Establishing a waste management hierarchy that considers prevention, reduction, reuse, recovery, recycling, removal and finally disposal of wastes.</li> <li>- Avoiding or minimizing the generation waste materials, as far as practicable</li> <li>- Where waste generation cannot be avoided but has been minimized, recovering and reusing waste;</li> <li>- Where waste cannot be recovered or reused, treating, destroying, and disposing of it in an environmentally sound manner</li> </ul>	
<b>Occupational Health and Safety (OHS)</b>			

Effect	Description	Management	Measures in place
Approach	Employers and supervisors are obliged to implement all reasonable precautions to protect the health and safety of workers. Companies should hire contractors that have the technical capability to manage the occupational health and safety issues of their employees, extending the application of the hazard management activities through formal procurement agreements.	<ul style="list-style-type: none"> <li>- Eliminating the hazard by removing the activity from the work process. Examples include substitution with less hazardous chemicals, using different manufacturing processes, etc.</li> <li>- Controlling the hazard at its source through use of engineering controls. Examples include local exhaust ventilation, isolation rooms, machine guarding, acoustic insulating, etc.</li> <li>- Minimizing the hazard through design of safe work systems and administrative or institutional control measures. Examples include job rotation, training safe work procedures, lock-out and tag-out, workplace monitoring, limiting exposure or work duration, etc.</li> <li>- Providing appropriate personal protective equipment (PPE) in conjunction with training, use, and maintenance of the PPE.</li> <li>- The application of prevention and control measures to occupational hazards should be based on comprehensive job safety or job hazard analyses. The results of these analyses should be prioritized as part of an action plan based on the likelihood and severity of the consequence of exposure to the identified hazards.</li> </ul>	<ul style="list-style-type: none"> <li>- Projects/ Subprojects prepares Occupational Health and Safety Plans to manage and handle issues related the workplace health and safety conditions.</li> <li>- Personnel in charge of OHS (Occupational Health and Safety) are in place.</li> </ul>
The workplace and Exit		<ul style="list-style-type: none"> <li>- The space provided for each worker, and in total, should be adequate for safe execution of all activities, including transport and interim storage of materials and products.</li> <li>- Passages to emergency exits should be unobstructed at all times. Exits should be clearly marked to be visible in total darkness. The number and capacity of emergency exits should be sufficient for safe and orderly evacuation of the greatest number of people present at any time, and there should be a minimum two exits from any work area.</li> <li>- The workplace should be designed to prevent the start of fires through the implementation of fire codes applicable to industrial settings.</li> </ul>	<ul style="list-style-type: none"> <li>- The OHS plan also indicate the risks associated to the workplace through the establishment of sound Risk Assessment and the Emergency Response Plan is prepared and communicated for safe exit.</li> </ul>

Effect	Description	Management	Measures in place
		<ul style="list-style-type: none"> <li>- The employer should ensure that qualified first-aid can be provided at all times. Appropriately equipped first-aid stations should be easily accessible throughout the place of work.</li> <li>- Training about OHS should be provided to all workers and should consist of basic hazard awareness, site-specific hazards, safe work practices, and emergency procedures for fire, evacuation, and natural disaster, as appropriate. Any site-specific hazard or colour coding in use should be thoroughly reviewed as part of orientation training.</li> <li>- Vibration exposure levels should be checked based on daily exposure time and data provided by equipment manufacturers.</li> </ul>	
Fire and Explosions	Fires and or explosions resulting from ignition of flammable materials or gases can lead to loss of property as well as possible injury or fatalities to project workers.	<ul style="list-style-type: none"> <li>- Storing flammables away from ignition sources and oxidizing materials.</li> <li>- Providing bonding and grounding of, and between, containers and additional mechanical floor level ventilation if materials are being, or could be, dispensed in the storage area</li> <li>- Where the flammable material is mainly comprised of dust, providing electrical grounding, spark detection, and, if needed, quenching systems</li> <li>- Defining and labelling fire hazards areas to warn of special rules (e.g. prohibition in use of smoking materials, cellular phones, or other potential spark generating equipment)</li> <li>- Providing specific worker training in handling of flammable materials, and in fire prevention or suppression</li> </ul>	<ul style="list-style-type: none"> <li>- Fire extinguishers used and installed at each functional unit and professional fire fighters with specialized equipment from Fire brigade used in case of extensive fire.</li> </ul>
Electrical	Exposed or faulty electrical devices, such as circuit breakers, panels, cables, cords and hand tools, can pose a serious risk to workers. Overhead wires can be struck by metal devices, such as poles or ladders, and by	<ul style="list-style-type: none"> <li>- Marking all energized electrical devices and lines with warning signs;</li> <li>- Locking out (de-charging and leaving open with a controlled locking device) and tagging out (warning sign placed on the lock) devices during service or maintenance;</li> <li>- Checking all electrical cords, cables, and hand power tools for frayed or exposed cords and following manufacturer recommendations for maximum permitted operating voltage of the portable hand tools;</li> </ul>	<ul style="list-style-type: none"> <li>- For electricity the insulation are used and during the power line, maintenance or energization, there is a channel to be used managed by</li> </ul>

Effect	Description	Management	Measures in place
	<p>vehicles with metal booms. Vehicles or grounded metal objects brought into proximity with overhead wires can result in arcing between the wires and the object, without actual contact.</p>	<ul style="list-style-type: none"> <li>- Protecting power cords and extension cords against damage from traffic by shielding or suspending above traffic areas</li> <li>- Appropriate labelling of service rooms housing high voltage equipment ('electrical hazard') and where entry is controlled or prohibited;</li> <li>- Establishing "No Approach" zones around or under high voltage power lines;</li> <li>- Conducting detailed identification and marking of all buried electrical wiring prior to any excavation work.</li> </ul>	<p>the outage manager to make sure that the safety is maximized.</p>
<p>Personal Protective Equipment</p>	<p>PPE is considered to be a last resort that is above and beyond the other facility controls and provides the worker with an extra level of personal protection.</p>	<ul style="list-style-type: none"> <li>- Active use of PPE if alternative technologies, work plans or procedures cannot eliminate, or sufficiently reduce, a hazard or exposure;</li> <li>- Identification and provision of appropriate PPE that offers adequate protection to the worker, co-workers, and occasional visitors, without incurring unnecessary inconvenience to the individual;</li> <li>- Proper maintenance of PPE, including cleaning when dirty and replacement when damaged or worn out. Proper use of PPE should be part of the recurrent training programs for employees;</li> <li>- Selection of PPE should be based on the hazard and risk ranking and selected according to criteria on performance and testing established by recognized organizations</li> </ul>	<ul style="list-style-type: none"> <li>- Personal Protective Equipment for workers and visitors used for different projects.</li> </ul>
<p>Accidents and Diseases monitoring</p>		<ul style="list-style-type: none"> <li>- The employer should establish procedures and systems for reporting and recording: Occupational accidents and diseases; Dangerous occurrences and incidents These systems should enable workers to report immediately to their immediate supervisor any situation they believe presents a serious danger to life or health.</li> <li>- The systems and the employer should further enable and encourage workers to report to management all: Occupational injuries and near misses; Suspected cases of occupational disease; Dangerous occurrences and incidents</li> </ul>	<ul style="list-style-type: none"> <li>- Accidents prevention, control and management are specified in each OHS Plan that is prepared.</li> <li>- The same documents also caters for communicable</li> </ul>

Effect	Description	Management	Measures in place
		<ul style="list-style-type: none"> <li>- All reported occupational incident and diseases should be investigated with the assistance of a person knowledgeable/competent in occupational safety. The investigation should: Establish what happened; Determine the cause of what happened; Identify measures necessary to prevent a recurrence;</li> </ul>	<p>diseases prevention awareness campaign.</p>
<b>Community Health and Safety</b>			
<p>Communicable and Vector borne Diseases</p>	<p>Health hazards typically associated with large development projects are those relating to poor sanitation and living conditions, sexual transmission and vector-borne infections. Communicable diseases of most concern during the construction phase due to labor mobility are sexually transmitted diseases (STDs), such as HIV/AIDS.</p>	<ul style="list-style-type: none"> <li>- Providing surveillance and active screening and treatment of workers;</li> <li>- Preventing illness among workers in local communities by: Undertaking health awareness and education initiatives, for example, by implementing an information strategy to reinforce person-to-person counselling addressing systemic factors that can influence individual behaviour as well as promoting individual protection, and protecting others from infection, by encouraging condom use.</li> <li>- Vector borne diseases should be addressed by:                         <ul style="list-style-type: none"> <li>- Prevention of larval and adult propagation through sanitary improvements and elimination of breeding habitats close to human settlements;</li> <li>- Elimination of unusable impounded water;</li> <li>- Promoting use of repellents, clothing, netting, and other barriers to prevent insect bites; Use of chemoprophylaxis drugs by non-immune workers and collaborating with public health officials to help eradicate disease reservoirs;</li> <li>- Monitoring and treatment of circulating and migrating populations to prevent disease reservoir spread;</li> <li>- Collaboration and exchange of in-kind services with other control programs in the project area to maximize beneficial effects;</li> <li>- Educating project personnel and area residents on risks, prevention, and available treatment.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>- The project carried out the communicable diseases prevention and control campaign within the project area before and during the project implementation.</li> <li>- Labor Influx is avoided by using labor force sourced from the host community.</li> </ul>

### 4.6.2. Environmental, Health, and Safety Guidelines for Electric Power Transmission and Distribution

The EHS Guidelines for Electric Power Transmission and Distribution include information relevant to power transmission between a generation facility and a substation located within an electricity grid, in addition to power distribution from a substation to consumers located in residential, commercial, and industrial areas.

### 4.6.3. Specific Impacts and management

The following section provides a summary of EHS issues associated with electric power transmission and distribution that occur during the construction and operation phases of a facility, along with recommendations for their management

Table 15: Summary of EHS Guidelines for Electric Power Transmission and Distribution

Effect	Description	Management
<b>Design and planning phase</b>		
Poor site selection	Poor selection of project site for the substation sites, RoW transmission and distribution lines and be an environmental degradation threat that include the destruction of sensitive ecosystems such as wetlands or protected areas	Avoid construction sites in or near sensitive ecosystems where Possible. Any activity that is located within the sensitive ecosystem or protected area, should ensure that any increase in pollution levels is as small as feasible, and amounts to a fraction of the applicable short-term and annual average air quality guidelines or standards as established in the project-specific environmental assessment. Do not sell land that contravenes the regulations of the Government of Rwanda in relation to natural resources and sensitive ecosystems Where there is no alternative for ROW in wetland ecosystems, ensure that existing water flow regimes and irrigation channels is maintained and/or re-established where they are disrupted due to works being carried out.
Technical assistance, policy and regulatory improvement	Poor planning and setting the regulations without considering environmental and social impact of the regulations. Unemployment due to the taxation increase on charcoal and decrease on the clean cooking stove due the promotion of environmental	<ul style="list-style-type: none"> <li>- Reviewing taxes of cook stoves equipment by putting in this sector the intensive that will make the cook stove affordable to the community.</li> <li>- The energy source/fuel to be used in the cook stove should be tested for the emissions and the biomass with lower emissions shall be used.</li> <li>- Reducing the tax of LPG (<i>Liquefied Petroleum Gas</i>) which will reduce the buying price to the community which will help to reduce the pressure on the forest.</li> <li>- Increasing the tax on charcoal which is massively used by the community to reduce by the half the population who depends on firewood.</li> </ul>



Effect	Description	Management
	protection through energy efficiency.	<ul style="list-style-type: none"> <li>- People who previously should be given the alternative and priority in the promoted fuel e.g.: Clean cooking stove</li> </ul>
<b>Construction phase</b>		
<b>Environmental Impacts:</b> Terrestrial habitat alteration; Aquatic habitat alteration; Electric and magnetic fields and hazardous materials.		
Terrestrial habitat alteration Right-of-way	<b>construction activities may transform habitats</b> , depending on the characteristics of existing vegetation, topographic features, and installed height of the transmission lines.	RoW (Right of Way) construction <ul style="list-style-type: none"> <li>- Site transmission and distribution rights-of-way, access roads, lines, towers, and substations to avoid critical habitat through use of existing utility and transport corridors for transmission and distribution, and existing roads and tracks for access roads, whenever possible;</li> <li>- Installation of transmission lines above existing vegetation to avoid land clearing;</li> <li>- Avoidance of construction activities during the breeding season and other sensitive seasons or times of critical life history events;</li> <li>- Revegetation of disturbed areas with native plant species;</li> <li>- Removal of invasive plant species during routine vegetation maintenance (see right-of-way maintenance section below).</li> </ul> Right of way maintenance: <ul style="list-style-type: none"> <li>- Unchecked growth of tall trees and accumulation of vegetation within rights-of-way may result in a number of impacts, including power outages through contact of branches and trees with transmission lines and towers; ignition of forest and brush fires; corrosion of steel equipment; blocking of equipment access; interference with critical grounding equipment.</li> <li>- Implement an integrated vegetation management approach (IVM). The selective removal of tall-growing species and the encouragement of low-growing grasses and shrubs. Observing manufacturer machinery equipment guidelines, procedures with regard to noise, and oil spill prevention and emergency response.</li> <li>- Avoiding clearing in riparian areas; Avoiding use of machinery in the vicinity of watercourses.</li> </ul>
Forest Fires	If underlying growth is left unchecked, or slash from routine	<ul style="list-style-type: none"> <li>- Monitoring right-of-way vegetation according to fire risk;</li> <li>- Removing blowdown and other high-hazard fuel accumulations;</li> </ul>

Effect	Description	Management
	<p>maintenance is left to accumulate within right-of-way boundaries, enough fuel can accumulate that may promote forest fires.</p>	<ul style="list-style-type: none"> <li>- Time thinning, slashing, and other maintenance activities to avoid forest fire seasons;</li> <li>- Planting and managing fire resistant species (e.g. hardwoods) within, and adjacent to, rights-of-way;</li> <li>- Establishing a network of fuel breaks of less flammable materials or cleared land to slow progress of fire and allow firefighting access.</li> </ul>
<p>Avian and Bat Collisions and Electrocutions</p>	<p>Avian collisions with power lines can occur in large numbers if located within daily flyways or migration corridors, or if groups are traveling at night or during low light conditions (e.g. dense fog). In addition, bird and bat collisions with power lines may result in power outages and fires.</p>	<ul style="list-style-type: none"> <li>- Aligning transmission corridors to avoid critical habitats;</li> <li>- Maintaining 1.5 meter (60-inch) spacing between energized components and grounded hardware or, where spacing is not feasible, covering energized parts and hardware;</li> <li>- Considering the installation of underground transmission and distribution lines in sensitive areas (e.g. critical natural habitats);</li> <li>- Considering the installation of underground transmission and distribution lines in sensitive areas (e.g. critical natural habitats);</li> <li>- Installing visibility enhancement objects such as marker balls, bird deterrents, or diverters</li> </ul>
<p>Aquatic Habitat Alteration</p>	<p>Power transmission and distribution lines, and associated access roads and facilities, may require construction of corridors crossing aquatic habitats that may disrupt watercourses and wetlands, and require the removal of riparian vegetation.</p>	<ul style="list-style-type: none"> <li>- To prevent and control impacts to aquatic habitats include: Site power transmission towers and substations to avoid critical aquatic habitat (e.g. watercourses, wetlands, and riparian areas);</li> <li>- Minimizing clearing and disruption to riparian vegetation.</li> <li>- Whenever possible, route transmission and distribution lines to avoid sensitive aquatic habitats such as riparian crossings and wetlands.</li> <li>- Schedule activities to avoid sensitive periods such as fish breeding or migration seasons.</li> <li>- Install silt fences, sediment basins, or other sediment control measures to prevent sediment-laden storm water from entering watercourses.</li> <li>- As soon as construction in a particular area is complete, stabilize the area by planting it with native vegetation to prevent erosion.</li> <li>- Design and implement a storm water management plan to control runoff and ensure that it doesn't contribute sediment or other contaminants into watercourses.</li> <li>- Implement best practices for erosion control, including the use of erosion control mats or blankets, especially on slopes.</li> </ul>

Effect	Description	Management
		<ul style="list-style-type: none"> <li>- If vegetation removal is essential, ensure that it's minimized and restricted only to areas where construction activities will occur.</li> <li>- Once construction is completed, restore aquatic habitats that were temporarily disturbed. This could include re-establishing native vegetation.</li> <li>- Ensure that all hazardous materials, including fuels and lubricants for machinery, are stored well away from watercourses with appropriate containment measures. Also, have spill response measures in place.</li> <li>- Establish regular monitoring of water quality, especially turbidity levels, during construction to ensure mitigation measures are effective.</li> </ul>
Hazardous Materials	They include insulating oils / gases (e.g. Polychlorinated Biphenyls [PCB] and sulphur hexafluoride [SF6], and fuels, in addition to chemicals or products for wood preservation for poles and associated wood construction material. The use of SF6 should be avoided due to its potential GHGs potential effect.	<ul style="list-style-type: none"> <li>- Replacing existing transformers and other electrical equipment containing PCB, and ensuring appropriate storage, decontamination, and disposal of contaminated units;</li> <li>- Prior to final disposal, retired transformers and equipment containing PCB should be stored on a concrete pad with curbs sufficient to contain the liquid contents of these containers should they be spilled or leaked;</li> <li>- The storage area should also have a roof to prevent precipitation from collecting in the storage area.</li> <li>- Disposal should involve facilities capable of safely transporting and disposing of hazardous waste containing PCB.</li> </ul>
Insulating Oils and Fuels	Highly-refined, mineral insulating oils are used to cool transformers and provide electrical insulation between live components. They are typically found in the largest quantities at electrical substations and maintenance shops. Sulfur Hexafluoride (SF6) may also be used as a gas insulator for electrical switching equipment and in cables,	<ul style="list-style-type: none"> <li>- Evaluate and prioritize the replacement of insulating oils with environmentally safer alternatives when feasible.</li> <li>- Implement rigorous protocols for the safe handling, storage, and disposal of insulating oils and fuels ensuring compliance with relevant environmental regulations.</li> <li>- Conduct regular inspections and maintenance of equipment containing insulating oils to detect and address any leaks or potential hazards promptly.</li> <li>- Sulfur Hexafluoride (SF6) may also be used as a gas insulator for electrical switching equipment and cables, tubular transmission lines, and transformers.</li> <li>- SF6 may be used as an alternative to insulating oils. However, the use of SF6, a greenhouse gas with a significantly higher global warming potential (GWP) than CO2, should be minimized.</li> </ul>

Effect	Description	Management
	<p>tubular transmission lines, and transformers. SF6 may be used as an alternative to insulating oils. However, the use of SF6, a greenhouse gas with a significantly higher global warming potential (GWP) than CO2, should be minimized.</p>	<ul style="list-style-type: none"> <li>- In cases the gas is used for applications involving high voltages (&gt;350 KV), equipment with a low leak rate (&lt;99 percent) should be used.</li> <li>- Establish comprehensive training programs for personnel involved in handling insulating oils and fluids, emphasizing safety procedures and environmental stewardship.</li> </ul>
<p>Wood Preservatives</p>	<p>The majority of wooden utility poles are treated with pesticide preservatives to protect against insects, bacteria, and fungi, and to prevent rot. The preservatives most commonly used for power poles are oil-based pesticides such as creosote, pentachlorophenol (PCP), and chromated copper arsenate (CCA).</p>	<ul style="list-style-type: none"> <li>- Poles should be pre-treated at an appropriate facility to ensure chemical fixation and prevent leaching, and to impede the formation of surface residues at the right-of-way.</li> <li>- Evaluating the cost and benefit of using alternative pole materials (e.g. steel, concrete, and fiberglass);</li> <li>- Consider use of alternative preservatives (e.g. copper azote);</li> <li>- Undertake appropriate disposal of used poles. Landfill facilities should be capable of handling wastes that may have chemical leaching properties.</li> </ul>
<p>Projects Located in Degraded Airsheds or Ecologically Sensitive Areas</p>	<p>E.g.: National Parks, Protected wetlands and any protected area</p>	<ul style="list-style-type: none"> <li>- Ensure that any increase in pollution levels is as small as feasible and amounts to a fraction of the applicable short-term and annual average air quality guidelines or standards as established in the project-specific environmental assessment.</li> <li>- Relocation of significant sources of emissions outside the airshed in question, use of cleaner fuels and technologies, application of comprehensive pollution control measures, offset activities at installations controlled by the project sponsor or other facilities within the same airshed, and buy-down of emissions within the same airshed.</li> </ul>

**Occupational Health and Safety: Mainly discussed in the general guidelines**

Effect	Description	Management
<b>Live Power lines</b>	Workers may be exposed to occupational hazards from contact with live power lines during construction, maintenance, and operation activities.	<ul style="list-style-type: none"> <li>- Only allowing trained and certified workers to install, maintain, or repair electrical equipment;</li> <li>- Deactivating and properly grounding live power distribution lines before work is performed on, or in close proximity, to the lines;</li> <li>- Ensuring that live-wire work is conducted by trained workers with strict adherence to specific safety and insulation standards;</li> <li>- Workers should not approach an exposed energized or conductive part even if properly trained unless: The worker is properly insulated from the energized part with gloves or other approved insulation, or the energized part is properly insulated from the worker and any other conductive object or the worker is properly isolated and insulated from any other conductive object (live-line work);</li> <li>- Where maintenance and operation are required within minimum setback distances, specific training, safety measures, personal safety devices, and other precautions should be defined in a health and safety plan;</li> <li>- Workers not directly associated with power transmission and distribution activities who are operating around power lines or power substations should adhere to local legislation, standards, and guidelines relating to minimum approach distances for excavations, tools, vehicles, pruning, and other activities;</li> <li>- Minimum hot stick distances may only be reduced provided that the distance remaining is greater than the distance between the energized part and a grounded surface.</li> </ul>
Working at height on poles and structures	Workers may be exposed to occupational hazards when working at elevation during construction, maintenance, and operation activities.	<ul style="list-style-type: none"> <li>- Testing structures for integrity prior to undertaking work;</li> <li>- Implementation of a fall protection program that includes training in climbing techniques and use of fall protection measures, inspection, maintenance, and replacement of fall protection equipment and rescue equipment for fall-arrested workers, among others;</li> <li>- Establishment of criteria for use of 100 percent fall protection (typically when working over 2 meters above the working surface, but sometimes extended to 7meters, depending on the activity). The fall protection system should be appropriate for the tower structure and necessary movements, including ascent, descent, and moving from point to point; Installation of fixtures on tower components to facilitate the use of fall protection systems;</li> <li>- Provision of an adequate work-positioning device system for workers; Connectors on positioning systems should be compatible with the tower components to which they are attached; Hoisting equipment should be properly rated and maintained, and hoist operators properly trained;</li> </ul>

Effect	Description	Management
		<ul style="list-style-type: none"> <li>- Safety belts should be of not less than 16millimeters (mm)(5/8 inch) two-in-one nylon or material equivalent strength. Rope safety belts should be replaced before signs of aging or fraying of fibres become evident; When operating power tools at height, workers should use a second (backup) safety strap;</li> <li>- Signs and other obstructions should be removed from poles or structures prior to undertaking work;</li> <li>- An approved tool bag should be used for raising or lowering tools or materials to workers on structures</li> </ul>
<p>Electric and magnetic fields Electric and magnetic fields (EMF)</p>	<p>Electric utility workers typically have a higher exposure to EMF than the general public due to working in proximity to electric power lines</p>	<ul style="list-style-type: none"> <li>- Identification of potential exposure levels in the workplace, including surveys of exposure levels in new projects and the use of personal monitors during working activities;</li> <li>- Training of workers in the identification of occupational EMF levels and hazards;</li> <li>- Establishment and identification of safety zones to differentiate between work areas with expected elevated EMF levels compared to those acceptable for public exposure, limiting access to properly trained workers</li> <li>- Implementation of action plans to address potential or confirmed exposure levels that exceed reference occupational exposure levels developed by international organizations such as the (ICNIRP), and Institute of Electrical and Electronics Engineers (IEEE). Action plans to address occupational exposure may include limiting exposure time through work rotation, increasing the distance between the source and the worker, when feasible, or the use of shielding materials.</li> </ul>
<p>Exposure to chemicals</p>	<p>They include handling of pesticides (herbicides) used for wooden pole preservation, and exposure to PCB in transformers and other electrical components</p>	<ul style="list-style-type: none"> <li>- Train personnel to apply pesticides and ensure that personnel have received the necessary certifications or equivalent training where such certifications are not required;</li> <li>- Respect post-treatment intervals to avoid operator exposure during treated wooden poles handling;</li> <li>- Ensure hygiene practices are followed to avoid exposure of family members to pesticides residues.</li> <li>- Contamination of soils, groundwater, or surface water resources, due to accidental spills during transport, mixing, and storage of pesticides should be prevented by following the hazardous materials storage and handling recommendations presented in the General EHS Guidelines</li> </ul>
<p><b>Community Health and Safety</b></p>		
<p>Electrocution</p>	<p>Hazards resulting from direct contact with high-voltage electricity or from contact with tools/device in contact high voltage electricity.</p>	<ul style="list-style-type: none"> <li>- Use of signs, barriers (e.g., locks on doors, use of gates, use of steel posts surrounding transmission towers particularly in urban areas), and education / public outreach to prevent public contact with potentially dangerous equipment and mark "no-entry" areas around transmission towers and substations;</li> <li>- Grounding conducting objects (e.g. fences or other metallic structures) installed near power lines, to prevent shock.</li> </ul>

Effect	Description	Management
		<ul style="list-style-type: none"> <li>- Ensure that all power lines are adequately insulated, minimizing risks associated with unintended contact</li> <li>- Establish a regular maintenance schedule to inspect and repair any wear and tear on power lines, towers, related equipment to ensure they remain in safe working condition.</li> <li>- All personnel working near or with power lines are provided with regular safety training and are aware of the associated hazards.</li> <li>- Develop and disseminate emergency response procedures in case of accidental contact or other incidents involving high-voltage electricity.</li> <li>- Ensure that workers are equipped with appropriate personal protective equipment (PPE), such as insulating gloves, boots, and safety harnesses.</li> <li>- Regularly engage with nearby communities, holding sessions to educate them about the dangers and necessary precautions.</li> <li>- Implement a feedback system where locals can report safety concerns or incidents related to the power transmission infrastructure.</li> <li>- Conduct periodic safety audits to assess risks and the effectiveness of the existing safety measures.</li> <li>- Collaborate with local media and schools to run safety campaigns, highlighting the dangers of coming into contact with high-voltage equipment.</li> <li>-</li> </ul>
Soil and Water Pollution	Water and soil pollutants represent two major categories of environmental pollution. Water- and soil-polluting substances are often due to man-made wastes such as household garbage, manufacturing and agricultural wastes, fertilizers used by farmers, oil spills, and radioactive materials	<ul style="list-style-type: none"> <li>- Regular maintenance of all vehicles and machines at regular service stations, if possible, maintenance re-fueling of the construction equipment only on sealed and enclosed areas.</li> <li>- Store all liquid materials (e.g. fuel, engine oil, etc.) and lubricants in locked tanks and on sealed and roofed areas.</li> <li>- Store construction material as bags of cement etc. in containers in order to avoid rinsing out.</li> <li>- Train workers in appropriate sanitation practices</li> <li>- Design bunds around oil collecting system beneath transformers to prevent contamination of soil and groundwater;</li> <li>- Provide proper equipment (as drip pans) and implement procedures to handle transformer oil,</li> <li>- Provide spill-control materials to drivers and workers, in order to clean up spills, if Necessary</li> </ul>

Effect	Description	Management
Noise	<p><b>Noise</b> in the form of buzzing or humming can often be heard around transformers or high voltage power lines producing corona. distribution lines and transformer carry any known health effect</p>	<ul style="list-style-type: none"> <li>- The management include to mitigate this impact during project planning stages to locate rights-of-way away from human receptors to the extent possible and use of noise barriers or noise cancelling acoustic devices should be considered as necessary.</li> <li>- Selecting equipment with lower sound power levels.</li> <li>- Installing silencers for fans.</li> <li>- Installing vibration isolation for mechanical equipment.</li> <li>- Limiting the hours of operation for specific pieces of equipment or operations, especially mobile sources operating through community areas.</li> <li>- Re-locating noise sources to less sensitive areas to take advantage of distance and shielding.</li> <li>- Reducing project traffic routing through community areas wherever possible</li> </ul>
Ozone Depleting Substances (ODS)	<p>Ozone, a colorless gas with a pungent odor, may also be produced. Neither the noise nor ozone produced by power</p>	<ul style="list-style-type: none"> <li>- No processes are expected to generate ozone depleting substance under the present project. However, Montreal protocol on Substances that Deplete the Ozone Layer should be applied whenever necessary.</li> <li>- No new systems or processes should be installed using CFCs, halons, 1,1,1-trichloroethane, carbon tetrachloride, methyl bromide or HBFCs. HCFCs should only be considered as interim / bridge alternatives as determined by the host country commitments and regulations.<sup>20</sup></li> </ul>
<b>Operation phase</b>		
Electric and Magnetic Fields	<p>Although there is public and scientific concern over the potential health effects associated with exposure to EMF (Electro Magnetic Field) (not only high-voltage power lines and substations, but also from everyday household uses of electricity), there is no empirical data demonstrating adverse health effects from exposure to typical EMF levels from power transmissions lines and</p>	<ul style="list-style-type: none"> <li>- Evaluating potential exposure to the public against the reference levels developed by the International Commission on Non-Ionizing Radiation Protection (ICNIRP). Average and peak exposure levels should remain below the ICNIRP recommendation for General Public Exposure;</li> <li>- Considering siting new facilities so as to avoid or minimize exposure to the public. Installation of transmission lines or other high voltage equipment above or adjacent to residential properties or other locations intended for highly frequent human occupancy, (e.g. schools or offices), should be avoided;</li> <li>- If EMF levels are confirmed or expected to be above the recommended exposure limits, application of engineering techniques should be considered to reduce the EMF produced by power lines, substations and transformers. Examples of these techniques include: Shielding with specific metal alloys; Burying transmission lines; Increasing height of transmission towers; Modifications to size, spacing, and configuration of conductors</li> </ul>



Effect	Description	Management
	<p>equipment. However, while the evidence of adverse health risks is weak, it is still sufficient to warrant limited concern.</p>	<ul style="list-style-type: none"> <li>- Introduce time-based work limits in areas with high EMF levels. This ensures that workers aren't exposed to high levels of EMF for prolonged periods.</li> <li>- Regular maintenance and upgrading of equipment can ensure that they operate efficiently, potentially reducing unnecessary EMF emissions.</li> <li>- Ensure a set of guidelines that dictate how and when workers should approach electrical equipment, under what conditions work should be halted due to high EMF readings.</li> <li>- Periodic health screenings for workers who are regularly exposed to high levels of EMF to detect potential health impacts.</li> <li>- Make public aware of any areas with elevated EMF levels to ensure they remain cautious and maintain a safe distance.</li> <li>- Ensure a response plan in place for situations where EMF levels spike beyond acceptable limits. This includes evacuation protocols or immediate shutdown procedures.</li> <li>- Set up permanent monitoring stations in areas with high EMF exposure to ensure real-time monitoring.</li> </ul>

#### 4.6.4. Performance Indicators and Monitoring

**Environment:** Environmental monitoring activities should be based upon potential Environmental Health and Safety direct or indirect risks including emissions, effluents, and resource use applicable to the project among others.. Monitoring frequency should be enough to provide representative data for the parameter being monitored. Monitoring data should be analysed and reviewed at regular intervals and compared with the operating standards so that any necessary corrective actions can be taken.

**Occupational Health and Safety:** Projects should try to reduce the number of accidents among project workers (whether directly employed or subcontracted) to a rate of zero, especially accidents that could result in lost work time, different levels of disability, or even fatalities. Facility rates may be benchmarked against the performance of facilities in this sector in developed countries through consultation with published sources. Facilities should also maintain a record of occupational accidents and diseases and dangerous occurrences and accidents.

## V. PROJECT ENVIRONMENTAL AND SOCIAL RISKS AND MITIGATION MEASURES

### 5.1. Beneficial social and environmental impacts

Accelerating Sustainable and Clean Energy Access Transformation Project implementation will have both positive and negative impacts. The ultimate project beneficiaries will be households, businesses, and public institutions in Rwanda through the following channels: (a) a portion of the currently unelectrified households will get electricity connections (on-grid or off-grid); (b) the quality and reliability of electricity services will improve, enabling households and businesses to make better and productive use of electricity; (c) households using biomass for cooking are expected to get health and economic benefits by switching to cleaner cooking options and in particular women entrepreneurship will receive training from the component 4 on capacity building; and (d) a portion of currently unelectrified public institutions in Rwanda, including schools and health centres (all hospitals in Rwanda are electrified), will get electrified. Furthermore, by supporting electrification through solar off-grid solutions the project will help reduce greenhouse gas emissions if equivalent electricity were sourced from fossil fuel-based utility-scale power plants or emergency diesel power plants. REG will be a direct beneficiary of the project as it is expected to benefit from higher cost-recovery through improved operational efficiency (lower technical and commercial losses), and potentially higher revenues through increased electrification rate and improved quality of service. Finally, the GoR will benefit as improved cost-recovery for REG will ease the burden of fiscal transfers to REG, helping GoR to target other priority sectors, and a higher electrification rate and improved electricity services will help achieve the NST1 targets and consequently aid in economic growth. Only the component 4 as part of the Technical Assistance, extensive support will also be provided on the clean cooking component of the project, particularly on policy and regulatory improvement and entrepreneurship development, including targeted training for women entrepreneurs. The significance of these impacts would vary depending on the individual subproject, its size and location.

Table 16 : Summary of potential positive environmental and social impacts

Component	Environmental Impacts	Social Impacts
Component 1 (Increasing access to grid electricity)	<ul style="list-style-type: none"> <li>- The project will increase access to electricity, promote energy efficiency, substitute fossil fuels, and offset carbon emissions; hence ensuring a sustainable development. Therefore, the implementation of the project will reduce pressure on biomass use and reduce the emission of greenhouse gases, which would have otherwise been generated for power generation of similar capacity.</li> </ul>	<p>The ASCENT will bring various social benefits. Employment opportunities will be offered to skilled and non-skilled workers during construction and operation phases and other employment opportunities benefiting from electricity connection. Income generating activities are expected to be created hence contributing to poverty reduction and increasing revenues and sustaining social and economic development with women at the centers. In the long term, the successful implementation of this project will improve the quality of life including education, health and security.</p>
Component 2 (Enhancing the efficiency of electricity service)	<ul style="list-style-type: none"> <li>- Furthermore, the project will lower the cost of economic infrastructure such as communication, transportation and distribution networks, financial institutions and markets and thus boosting development processes. The quality of life of the beneficiaries in the project area will be improved hence reducing the exploitation of natural resources.</li> </ul>	<p>With transmission and distribution lines, there will be increased capacity and reliability of power supply. This additional capacity will have a positive impact by being able to meet the ever-rising power demand across the entire country.</p>
Component 3 (Increasing Access to Off-Grid Electricity, Clean Cooking Solutions, and Productive Uses of Energy)	<ul style="list-style-type: none"> <li>- The Solar Home System technology reduces the usage of the kerosene lamp and small diesel generator, which has a direct positive impact on the atmosphere as a SHS generates electricity with no discharge of carbon monoxide (CO), nitric oxides (NO), or sulfur dioxide (SO<sub>2</sub>), which negatively affect air quality and amplifies the impact of global warming and climate change;</li> <li>- Improved cooking stoves also play a crucial role in reducing deforestation and a high dependency on wood fuel since improved stove require a small amount of wood fuel for</li> </ul>	<p>For off-grid energy (Solar) under component 3: They are power-efficient and provide a brighter light than a traditional kerosene lamp. This facility offers rural families, especially women, extra time to do household work as well as allowing them to work at night, and students are allowed more time to study and improve their educational qualities.</p> <p>Through the adopted solar system, rural people can gather to watch different programs, movies and matches on the television which helps them in relaxing after hard-working times. Nowadays, government organizations and NGOs disseminate</p>

	<p>cooking and promote an efficient combustion of wood fuel, hence less emissions in the atmosphere.</p>	<p>health, nutrition, family planning issues, and environmental development information through television, radio, and mobile phones. Using this type of technology through SHS plays a vital role in rural development.</p> <p>Concerning clean cooking, disseminated clean cooking stoves play a crucial role in reducing the amount of time required to collect wood fuel since the improved stoves promote a considerable reduction of required wood fuel for cooking, hence not only reducing the time required to collect wood fuel but also reduces the cost for household purchasing wood fuel. Improved stoves also play a positive role in promoting Households good health since indoor pollution considerably reduces due to a proper control of emissions</p>
<p>Component 4 (Institutional Capacity Building, Technical Assistance and Implementation Support for Energy Access Acceleration)</p>	<ul style="list-style-type: none"> <li>- Sector performance improvements and forward-looking options for sector development; capacity building in planning, skills development, audit and compliance; and policy and regulatory improvement and entrepreneurship development, including targeted training for women entrepreneurs (under clean cooking solutions).</li> <li>- The policy and regulatory development/improvement part will comprise improving fuel/stove regulations, quality standards, testing capacity, and tax/tariff policies to support clean cooking market development.</li> <li>- Employment creation through promotion of clean cooking stove use by reducing taxes to make them affordable to the community;</li> <li>- CO2 emissions reduction through the taxation increment on charcoal used by mass community and shift to the LPG and clean cooking stove with lower emissions compared to charcoal.</li> </ul>	

	- Reduction of population who depend on the firewood thereby reducing the pressure to the national forest use.
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Table 17: Summary of potential negative environmental and social impacts

Component	Activities	Potential impacts
<b>Impacts during design and planning phase</b>		
<p>Component 1 (Increasing access to grid electricity)</p> <p>Component 2 (Enhancing the efficiency of electricity service)</p> <p>(Refer to annex 10 referring to EHS guidelines for transmission and distribution lines; and annex 11 addressing guidelines for management of solar panels and batteries including recycling/ safe disposal).</p>	<p>Site selection, land acquisition, planning for civil, mechanical, engineering and electrical specifications, equipment and machineries to be procured, material storage and waste disposal measures.</p>	<ul style="list-style-type: none"> <li>- Dispute and possible conflict over the land identified can arise owing to loss of crops, trees, land acquisition, absence of compensation and lack of dialogue with the Project Affected People (PAP).</li> <li>- Poor selection of project site for the transmission or distribution lines and associated substations/transformers can cause conflict over environmental degradation including the destruction of sensitive ecosystems or protected areas and physical displacement due to poor selection of tower location and substations associated to transmission lines.</li> <li>- Inadequate and poor designs and plans including storage of equipment and machinery and waste disposal can possibly cause environmental degradation. Unsafe storage of creosote treated poles is source of obnoxious odors for workers and general public. Polychlorobiphenyls (PCBs) from transformers and capacitors at substations can cause soil and water pollution if used.</li> <li>- Absence of E&amp;S appropriate instruments (OHS Plan, RAP, LMP, GAP, ESMP) may lead to Environmental and Social related issues including lack of jobs for local people, absence of gender mainstreaming in the project activities, workers working without clear</li> </ul>

Component	Activities	Potential impacts
		<p>OHS plan leading different incidents, increase of expropriation related issues, loss of biodiversity and poor waste management.</p>
<p>Component 3: (Increasing Access to Off-Grid Electricity, Clean Cooking Solutions, and Productive Uses of Energy)</p>	<p>Stakeholder consultation, needs assessment, Subsidy calibration per social classes, defining breaches under component 3, determining effective aftersales principles and technology choice</p>	<ul style="list-style-type: none"> <li>- Poor planning of the end use of solar Home system and Clean cooking stove may result in environmental pollution caused by the accumulation of electronic waste (e-waste) or toxic pollutants in landfills.</li> <li>- Environmental Degradation (either mass deforestation due to the energy to be used in the stove, habitat destruction) and land acquisition caused by the kind of technology chosen.</li> <li>-</li> </ul>
<p>Component 4: (Technical assistance, institutional capacity building, and implementation support)</p>	<p>Technical assistance such as sector performance improvements and forward-looking options for sector development; capacity building in planning, skills development, audit and compliance; and policy and regulatory improvement and entrepreneurship development, including targeted training for women entrepreneurs (under clean cooking solutions), which will complement Component 3.</p>	<p>The policy and regulatory development/improvement part will comprise improving fuel/stove regulations, quality standards, testing capacity, and tax/tariff policies to support clean cooking market development. The adverse environmental and social impact foreseen:</p> <ul style="list-style-type: none"> <li>- Increasing CO2 emissions due to the promoted fuel type.</li> <li>- Increasing the pressure on the forest through increasing population depending on the firewood due to the increased and unaffordable prices.</li> <li>- Loss of employment for people who were working previously in the charcoal sector due to the increment in taxation on the charcoal.\</li> <li>- In some cases, feasibility studies may prioritize economic viability over environmental sustainability, leading to the selection of energy projects with negative environmental impacts, such as increased greenhouse gas emissions, habitat destruction, or water pollution.</li> </ul>

Component	Activities	Potential impacts
<b>Adverse Impacts during construction phase</b>		
<p>Component 1 (Increasing access to grid electricity)</p> <p>Component 2 (Enhancing the efficiency of electricity service)</p> <p>Component 3 (Specifically Subcomponent 3e – <i>institutional clean cooking program</i>)</p> <p>(Refer to annexes 11 and 12 for environmental and social management tools for addressing the potential impacts)</p>	<p>Rehabilitation of substations and old MV lines and construction activities for poles, towers, transformers include site earthworks which involve site preparation, clearing, stripping, grading, soil removal, backfilling, compacting, use of construction material sourcing areas (quarry and borrow pits), disposal of surplus, landscaping, shoring as required and final site cleanup.</p>	<ul style="list-style-type: none"> <li>- Pose public health related issues such as HIV/AIDS, communicable and other sexually transmitted diseases (STDs) due to labor influx.</li> <li>- Risk of GBV and SEA within the project area</li> <li>- To disrupt local communities, causing inconvenience due to noise, dust, road closures, and changes in traffic patterns.</li> <li>- Land use changes can result in the displacement of communities, loss of agricultural land, or disruption of natural habitats.</li> <li>- Disturbance or destruction of archaeological or culturally significant sites, causing a loss of heritage.</li> <li>- Involuntary resettlement can result in the loss of homes, disruption of social networks, and challenges in adapting to new environments.</li> <li>- The influx of workers and increased demand for goods and services may strain local resources and infrastructure.</li> <li>- Noise pollution from construction machines and vehicles, accidents and hazards for both workers and general public from erection of steel poles, manual transportation of the wooden poles at long distance, cutting and concrete work. Injuries can result from trips and falls and other physical and mechanical hazards.</li> </ul>



Component	Activities	Potential impacts
		<ul style="list-style-type: none"> <li>- Particulate matter pollution during site clearance, excavation and spreading of topsoil during construction and exposure to diseases from construction materials can affect site workers and general public.</li> <li>- The excavation and construction activities may also affect physical cultural properties by displacement, damage or loss of structure from RoW location site.</li> <li>- Generation of solid waste such as packaging materials, plastics, scrap metal, timber remain demolition waste from substations Rehabilitation and dumping around the site and in construction camps can pose threat to environment and public health.</li> <li>- Pollution of soil and water can also be generated from machinery fuel and lubricants contamination from accidental spills or unsound disposal or handling. In particular, 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.</li> <li>- Clearing of indigenous vegetation and disturbance to biodiversity and disruption of ecosystem functions.</li> <li>- Excavation works for site preparation, access roads, and poles installation are likely to cause loss of soil cover.</li> <li>- Construction materials sourcing areas that include quarry and borrow pits sites are also likely to cause soil disturbance and soil erosion.</li> <li>- Traffic disruption due to the constructions site location when it is in the proximity of the main road, for the entry and exist of material supplying trucks.</li> </ul>

Component	Activities	Potential impacts
		<ul style="list-style-type: none"> <li>- Additional demand for water and other resources required for every day life in addition to the existing demand due to different demanding activities which can impact the price on commodities and pressure on resources.</li> <li>- Erosion due to the removal of vegetation cover for site preparation before cropping;</li> <li>- labour camps may be a source of wastes including human ones posing the potential risk of poor sanitation;</li> <li>- If not properly managed and disposed of, these types of wastes can create inconveniences; become breeding sites for water disease and their leachate pollute surface and ground water sources.</li> <li>- During construction activities, mainly on the component 2, the construction of transmission lines and rehabilitation of substation will generate dust.</li> <li>- Transportation of materials to site will also generate dust. Decommissioning of existing structures can also create dust that is potentially hazardous.</li> </ul> <p><b>Increase in soil water erosion and water contamination.</b></p> <ul style="list-style-type: none"> <li>- Sedimentation caused by Gravel/soil brought for any filling purposes and soil removed during site preparation which can be washed off to nearby streams, wetlands, rivers and low-lying areas.</li> <li>- Soil erosion may lead to sedimentation in rivers and wetland located downstream. Wastewater generated during construction and from labour camps can also contaminate drinking water sources.</li> </ul> <p>health risks and safety of workers and communnity</p> <ul style="list-style-type: none"> <li>- Accidental collisions with moving vehicles, strains from repeated movements or from lifting and heaving of heavy objects, slips and falls.</li> </ul>

Component	Activities	Potential impacts
		<ul style="list-style-type: none"> <li>- Children dropping out the school to seek for the job.</li> <li>- Forced labour.</li> <li>- Children exploitation and abuse.</li> <li>- Gender Based Violence.</li> <li>- Roads accidents putting the community at risk.</li> <li>- Risk of communicable diseases including sexual transmitted diseases and other infectious diseases among workers and the community.</li> <li>- Accidental cuts from tools and machines are also safety risks.</li> <li>- Wet cement as an electronic material is corrosive on contact to with human skin.</li> <li>- Poor maintenance and hygiene in toilet may be sources of fly infestation and other pathogens that may cause water borne diseases such as diarrhoea, dysentery and typhoid fever.</li> </ul> <p><b>E&amp;S negative impacts related to the substations</b></p> <ul style="list-style-type: none"> <li>- Land Use and Habitat Disruption: Substation construction may lead to the clearing of vegetation and disruption of natural habitats. This can affect local biodiversity and ecosystems.</li> <li>- Soil and Water Contamination: The presence of electrical equipment and substances used in the substation can pose risks of soil and water contamination. Spillages of oil or other hazardous substances may occur during maintenance activities.</li> <li>- 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 nearby residents and wildlife.</li> <li>- Visual Impact: The presence of large substations can have visual impacts on the landscape. Visual intrusion may affect the aesthetics of the surrounding area and potentially impact property values.</li> <li>- Waste Generation: Construction and maintenance activities can generate waste, including hazardous materials such as PCBs (polychlorinated biphenyls) from old</li> </ul>

Component	Activities	Potential impacts
		<p>equipment. Proper disposal and management of waste are critical to mitigate environmental harm.</p> <ul style="list-style-type: none"> <li>- Dust and Air Quality: Construction activities may generate dust, affecting air quality in the vicinity. Proper dust control measures are essential to mitigate these impacts.</li> <li>- Community Disruption: Substation construction and operation can disrupt local communities, leading to temporary inconveniences such as noise, traffic disruptions, and changes in visual aesthetics.</li> <li>- Public Health Concerns: Concerns about electromagnetic fields and potential health impacts may arise among nearby residents. Effective communication and public education are essential to address these concerns.</li> <li>- Property Values: Proximity to a substation may lead to concerns about property values due to visual impacts, noise, and perceived health risks.</li> <li>- Cultural and Heritage Impact: Substation construction in areas with cultural or historical significance may lead to the disturbance or destruction of archaeological sites or heritage assets.</li> <li>- Used PCBs containing transformer to be replaced: The waste generated and leaked oil is harmful to the environment. Measures to be taken for proper storage, collection and disposal.</li> </ul> <p>E&amp;S impacts associated with transmission and distribution line construction</p> <p>The construction and operation of transmission lines for electrical power can have various environmental and social impacts. These impacts can vary based on the characteristics of the transmission line, such as its route, voltage, technology, and the surrounding environment.</p> <ul style="list-style-type: none"> <li>- Land Use and Habitat Disruption: The construction of transmission and distribution lines may require clearing vegetation and disrupting natural habitats. This can lead to the loss of biodiversity and changes in local ecosystems.</li> </ul>

Component	Activities	Potential impacts
		<ul style="list-style-type: none"> <li>- Soil Erosion and Runoff: Construction activities can disturb soil, leading to erosion and increased runoff. Sedimentation in nearby water bodies can harm aquatic ecosystems.</li> <li>- Noise and Electromagnetic Fields (EMFs): Transmission and distribution lines can generate noise during construction and operation. Concerns may arise about the potential health impacts of electromagnetic fields (EMFs) associated with high-voltage lines.</li> <li>- Vegetation Management: To maintain clearances and prevent vegetation from interfering with power lines, vegetation management activities such as tree trimming or removal may be necessary.</li> <li>- Waste Generation: Construction activities generate waste materials, including potentially hazardous substances. Proper disposal and management of construction waste are essential to prevent environmental harm.</li> <li>- Wildlife Disturbance: Construction activities and the presence of transmission and distribution lines can disturb wildlife, particularly in ecologically sensitive areas. Mitigation measures may be needed to minimize disruptions.</li> <li>- Corridor Fragmentation: The construction of transmission and distribution line corridors can fragment natural landscapes, impacting wildlife movement and contributing to habitat isolation.</li> <li>- Community Disruption: Construction activities may disrupt local communities, causing noise, traffic disruptions, and changes in the visual landscape. These disruptions can lead to inconvenience for residents.</li> <li>- Property Values: The presence of transmission and distribution lines may be perceived negatively by residents, potentially impacting property values in the vicinity.</li> <li>- Public Health Concerns: Concerns may arise among nearby residents about potential health risks associated with electromagnetic fields (EMFs) from high-voltage transmission lines.</li> </ul>

Component	Activities	Potential impacts
<b>Impacts during operation phase</b>		
<p>For component 1 and 2 (Refer to annexes 10-13 for environmental and social management tools for addressing the potential impacts)</p>	<p>During operation phase, activities include maintenance of infrastructure such as transmission, distribution lines, solar home system and HPP.</p>	<ul style="list-style-type: none"> <li>- Bush/Vegetation clearance due to the maintenance of right of way.</li> <li>- Potential social adverse impacts include of electrocution, bite by snake or other insects, injury for workers and general public and risk of accidents to life property.</li> <li>- Water and soil pollution and risk on biodiversity due to the disposal of used creosote treated wooden poles.</li> <li>- Potential environmental and social risks from the distribution, storage and final disposal of used batteries containing hazardous waste; and disposal/recycling of solar panels.</li> <li>- Health and safety risks related to the maintenance of infrastructure from EMF, fire hazards, electrocution, falling from height, being cuts from sharp objects among others.</li> <li>- Leachates from transformers contain PCBs that are harmful to the environment.</li> </ul>
<p>Component 3 (Increasing Access to Off-Grid Electricity, Clean Cooking Solutions, and Productive Uses of Energy) i.e., Sub-component 3a, 3b, 3c and 3d (Refer to annexes 11 and 12 for the environmental and social management tools for managing</p>	<p>Off-grid solar connections to reach poorer more remote areas and clean cooking solutions</p>	<p><b>E&amp;S negative impacts associated with clean cooking stove:</b></p> <p>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. Some of the negative impacts associated include among others:</p>

Component	Activities	Potential impacts
<p>the potential impacts of component 3)</p>		<p>Potential environmental, social and safety risks during transportation, installation, and operation (e.g., skin cuts caused by metal materials composing manufactured stoves, fire and explosion risks among others);</p> <p>Progressive loss of forest cover due to the need of biomass used in clean cooking systems (e.g., Tier 3 type of cooking stoves);</p> <p>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;</p> <p>The manufacturing process of clean cooking stoves may generate emissions and pollutants contributing to air and environmental pollution in general;</p> <p>Lack of access to spare parts, repair services, or technical expertise can lead to difficulties in maintaining or repairing clean cooking stoves. This may result in abandoned or underutilized stoves;</p> <p><b>E&amp;S negativeImpacts associated to the use of off grid/ Solar Home system:</b></p> <p>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:</p> <p>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 the water</p>

Component	Activities	Potential impacts
		<p>bodies. Acid and lead particulates could also contaminate the soil and become airborne when dry;</p> <p>Health-wise, cadmium and nickel are known human carcinogens, lead has been linked to birth defects and to neurological and developmental damage, and mercury is also highly toxic, especially in vapor form. Excessive levels of lead can affect a child’s growth, cause brain damage, harm kidneys, impair hearing and induce behavioral problems, and in adults, lead can cause memory loss and lower the ability to concentrate as well as harm the reproductive system.</p> <p>Lack of Technical Support: Solar Home Systems are anticipated to have technical problems such as power failures caused by poor battery quality, bad solar panel positioning, over-usage of the system, and many more. After-sale facility by system providers should be effective enough to avoid any case where users complain that awaiting the time for fixing a SHS difficulty is too large. Insufficient technical personnel and poor technical knowledge about the system by users can easily decrease the chance of SHS adoption;</p> <p>High Initial Investment and Repair Cost: The initial down payment investment cost can become a huge investment to poor households. Furthermore, the costs of battery replacement after 3-5 years might be a crucial financial problem to the poor users. The cost of a SHS could be identified as one of the main difficulties especially when it comes to the initial down-payment and monthly payments.</p> <p>A notable limitation of the poor users could be that the smallest monthly installment can be a comparatively immense amount for the poor rural peoples, while kerosene can be bought easily in lesser amounts at low prices day-to-day;</p> <p>Technical and Maintenance Problems: Solar panels can face a problem of not generating electricity up to its optimum capacity because of several issues including bad quality of silicon cell, shaded by trees, solar panels slowly facing damage by UV rays, rains, mud,</p>



Component	Activities	Potential impacts
		<p>temperatures variations, storm, and winds. In addition, maintenance problems such as not cleaning the panel surface frequently can occur and consequently cause deep layers of dirt to gather on the panel surface, hence causing a fall in power production.</p> <p>Battery charging issues: It is also anticipated that some users will not be able to fully charge their batteries throughout the rainy season or foggy weather conditions. Thus, the user is required to consume carefully and sometimes experience power failure. This can be a setback to users and can easily slow the adoption of the system.</p>
<b>Decommissioning phase</b>		
<p>Component 1, 2 and 3  (Refer to annexes 10-13 for the environmental and social management tools for managing the potential impacts of this phase)</p>	<p>Activities include dismantling of infrastructure of transmission lines, removal of storage facilities, disposal and recycling of spent batteries, CFLs and cook stoves</p>	<ul style="list-style-type: none"> <li>- Contamination of ground and surfaces water resources through unsound disposal of used CFLs which are hazardous to the soil and ground resources especially if disposed indiscriminately.</li> <li>- Dismantling of transformers is likely to cause noise and generate dust impacts and waste debris from equipment including oil spills and different hazardous materials.</li> <li>- Poor disposal of old and unfunctional cookstoves and solar home systems in bound to cause environmental pollution is uneffectively disposed in the open environment, hence polluting both soil and water resources and could also cause human health issues once in contact with toxic substances composing disseminated solar home systems/cookstoves.</li> <li>- Illegal dismantling and recycling of E-waste produced from both the clean cooking and off-grid electricity program could cause the risk of legal penalties which can affect the financial performance of financed projects/companies.</li> </ul>



## 5.2.Environmental and Social Management Plan (ESMP)

For the purposes of this Environmental and Social Management Plan (ESMP), the activities in the ASCENT that are likely to have adverse impacts are mainly expected to arise from the ASCENT components activities.

Mitigation measures involve avoiding impacts altogether, minimizing the impact, rectifying the impact and gradual elimination of impact over time. Depending on the nature, these measures will be implemented by all stakeholders and REG will oversee the overall coordination of its implementation.

Mitigation measures are twofold: biophysical and socio-economic. Bio-physical measures relate to issues of project siting, re-vegetation and preventive measures like bush clearing, erosion, sedimentation and pollution control and good construction practices, proper waste management, setting regulatory that promotes environmental preservation for component four which will involve new regulations and taxation policy, and application of Environmental Guidelines for Contractors. Socio-economic measures will include education and awareness, hygiene and sanitation training, rules and regulations and institutional support (including skills training and knowledge transfer) and avoiding to the extent possible the physical relocation of the Project affected People (PAPs), where not possible, PAPs should be fully compensated in compliance with World Bank ESS5, and National Expropriation Law 32/2015 of 11/6/2015 concerning the expropriation in public interest. The following table provides the generic Environmental and Social Management Plan (ESMP) and gives a link between the impacts of project activities and the mitigation measures put in place to minimize the adverse impacts and enhance the positive impacts during different project phases.

## Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)

Table 18 : Environmental and Social Management Plan

## 5.2.1. Planning and design phase

Project components/ Activities	Negative Impacts	Mitigation Measures	Responsibility	Cost Estimates (USD)
Temporary Land Acquisition/Permanent land acquisition, physical displacement and assets loss	Dispute and possible conflict over the land identified can arise owing absence of compensation and dialogue with the PAPs.	<p>Ensure that the land identified for the project is acquired as per the requirements of the Government of Rwanda and World Bank guidelines in relation to land acquisition, resettlement and compensation.</p> <p>Involve and meaningfully engage the PAPs, general public including administration, and local/traditional leaders in the transparent acquisition of the land.</p> <p>PAPs should be compensated prior to construction work and be given enough time to relocate where physical displacement is involved, and this should be done in compliance with ESS5 of WB on Involuntary resettlement.</p> <p>Utilize the RPF document available and develop RAP to be used in temporary acquisition of the land and outline how the assets loss will be compensated.</p>	EDCL  EDCL- PIU, Contractors	Included in the contract
Site Selection	Poor selection of project site for the substation sites, RoW transmission and distribution lines and be an environmental degradation threat that include the destruction of sensitive ecosystems such as wetlands or protected areas (refer to annex 19 of EDCL	<p>Avoid construction sites in or near sensitive ecosystems where Possible.</p> <p>Any activity that is located within the sensitive ecosystem or protected area, should ensure that any increase in pollution levels is as small as feasible, and amounts to a fraction of the applicable short-term and annual average air quality guidelines or standards as established in the project-specific environmental assessment. Do not select land that contravenes the regulations of the Government of Rwanda in relation to natural resources and sensitive ecosystems.</p> <p>Where there is no alternative for ROW in wetland ecosystems, ensure that existing water flow regimes and irrigation channels is maintained and/or re-established where they are disrupted due to works being carried out.</p>	EDCL EDCL- PIU, BRD	Included in the contract

## Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)

Project components/ Activities	Negative Impacts	Mitigation Measures	Responsibility	Cost Estimates (USD)
	exclusion list)			
Procurement (tendering, bidding and selection)	Poor recruitment of contractors without environmental and social consideration affect the implementation.	Solar companies should submit certificates of good working relationship with Enviro serve company which oversees e-waste management including recycling options in Rwanda. They should submit the waste management Plan for spent solar panels and batteries before being awarded contracts by EDCL.		
Plan Designs	<p>Poor designs of plans, inadequate equipment and machinery specification</p> <p>Inadequate and poor designs and plans including equipment and machinery can possibly cause environmental degradation and occupational hazards</p>	<p>Ensure during planning and design to incorporate environmental sound design concepts as appropriate;</p> <p>All designs, equipment and machineries including solar systems to be procured should include instructions on their environmental specifications and requirements;</p> <p>All instructions or planning for civil, mechanical, engineering and electrical specifications including technical specifications must have stringent environmental obligations in accordance with the World Bank Group guidelines (such as WBG EHS guidelines), international or local guidelines whichever emerges as stringent in terms of environmental and social requirements.</p> <p>To develop an OHS plan to serve as guide to address all OHS related issues</p> <p>Design should be done by considering the line routes and project locations where the environmental and social impact is the lowest (refer to annex 19 of excluded activities).</p>		

## Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)

Project components/ Activities	Negative Impacts	Mitigation Measures	Responsibility	Cost Estimates (USD)
	Poor planning of worksite waste management posing threat to environment and public health	Preliminary environmental and social assessment studies that include environmental impact assessment, planned mitigation measures, compensation measures as well as monitoring and follow up Programs	Contractors	Included in the contract
Technical assistance, policy and regulatory improvement	Poor planning and setting the regulations without considering environmental and social impact of the regulations. Unemployment due to the taxation increase on charcoal and decrease on the clean cooking stove due the promotion of environmental protection through energy efficiency.	<ul style="list-style-type: none"> <li>- Reviewing taxes of cook stoves equipment by putting in this sector the intensive that will make the cook stove affordable to the community.</li> <li>- The energy source/fuel to be used in the cook stove should be tested for the emissions and the biomass with lower emissions shall be used.</li> <li>- Reducing the tax of LPG (<i>Liquefied Petroleum Gas</i>) which will reduce the buying price to the community, which will help to reduce the pressure on the forest.</li> <li>- Increasing the tax on charcoal which is massively used by the community to reduce by the half the population who depends on firewood.</li> <li>- People who previously should be given the alternative and priority in the promoted fuel e.g.: Clean cooking stove</li> </ul>	REG RURA RSB MoE REMA	Included in Technical Assistance budget

## 5.2.2. Construction phase

Project components/ Activities	Negative Impacts	Mitigation Measures	Responsible	Cost Estimates (USD)
Construction of new access roads to or from existing road for transportation of the poles, transformers and other accessories	Loss of vegetation and potential soil erosion, siltation Fugitive dust may be emitted from construction works and stockpiles of materials including machinery as well as from truck traffic. This could cause health related impacts to the communities around and workers in the project site. Stockpile and construction waste, increased water use, generation of wastewater Noise pollution from construction machines and vehicles	<ul style="list-style-type: none"> <li>- Environmental guidelines as stipulated in the contract specifically: Implement soil erosion control measures such as protecting stockpiles through the use of silt fencing. Reduced slope angles should be used to minimize soil erosion during construction or to avoid surface run off and preventing siltation;</li> <li>- Additional plantation and embankment using removed topsoil is recommended near sensitive locations;</li> <li>- Conversion of access roads to new routes and roads</li> <li>- The dirt roads and exposed construction areas should be moisturized during the dry season to prevent or minimize the fugitive dust emissions.</li> <li>- Storage areas should be located outside of the habitation area Environmental and compliance monitoring by environmental officers Workers in the project site must be equipped with the necessary and required Personal Protective Equipment (PPE) prescribed by the construction industry</li> </ul>	EDCL  Construction Contractors, EDCL-PIU	Included  in contract;
	Accidents and hazards for both workers and general public from erection of steel poles concrete work. Injuries can result from trips and falls and other physical and mechanical hazards. Main accidents that happen may be coming from:	<ul style="list-style-type: none"> <li>- Ensure safe design of the network structures;</li> <li>- Provide provision to keep people away from the working site;</li> <li>- Establish a Health and Safety construction plan covering all activities in compliance with the best Health and Safety Working practices/conditions.</li> <li>- Provide insurance to workers.</li> </ul>		

Project components/ Activities	Negative Impacts	Mitigation Measures	Responsible	Cost Estimates (USD)
	<ul style="list-style-type: none"> <li>- Working at height on poles and structures</li> <li>- Live Power lines</li> <li>- Electric and magnetic (EMF)</li> <li>- Exposure to chemicals</li> </ul>	<ul style="list-style-type: none"> <li>- Provide adequate PPE for all workers and spare items for visitors.</li> <li>- Provide FIRST AID kits and have among the personnel persons having competencies in first aid assistance.</li> <li>- Testing structures for integrity prior to undertaking work;</li> <li>- Implementation of a fall protection program that includes training in climbing techniques and use of fall protection measures, inspection, maintenance, and replacement of fall protection equipment and rescue of fall-arrested workers, among others;</li> <li>- Establishment of criteria for use of 100 percent fall protection</li> <li>- Only allowing trained and certified workers to install, maintain, or repair electrical equipment;</li> <li>- Deactivating and properly grounding live power distribution lines before work is performed on, or in close proximity, to the lines;</li> <li>- Ensuring that live-wire work is conducted by trained workers with strict adherence to specific safety and insulation standards;</li> <li>- Workers should not approach an exposed energized or conductive part even if properly trained unless: The worker is properly insulated from the energized part with gloves or other approved insulation, or the energized part is properly insulated from the worker and any other conductive object or the worker is properly isolated and insulated from any other conductive object (live-line work);</li> </ul>		



Project components/ Activities	Negative Impacts	Mitigation Measures	Responsible	Cost Estimates (USD)
		<ul style="list-style-type: none"> <li>- Identification of potential exposure levels in the workplace, including surveys of exposure levels in new projects and the use of personal monitors during working activities;</li> <li>- Training of workers in the identification of occupational EMF levels and hazards;</li> <li>- Train personnel to apply pesticides used for wooden pole preservation, and ensure that personnel have received the necessary certifications, or equivalent training where such certifications are not required;</li> <li>- Respect post-treatment intervals to avoid operator exposure during treated wooden pole handling;</li> <li>- Ensure hygiene practices are followed to avoid exposure of family members to pesticides residues.</li> <li>- Contamination of soils, groundwater, or surface water resources, due to accidental spills during transfer, mixing, and storage of pesticides should be prevented by following the hazardous materials storage and handling recommendations presented in the General EHS Guidelines</li> </ul>		
	Loss of livelihoods such as crops, trees	<ul style="list-style-type: none"> <li>- compensation of assets to be damaged including crops and trees.</li> <li>- Compensation at full replacement cost.</li> </ul>		
Noise	Noise and vibrations from equipment operation noise from construction activity may be significant.	<ul style="list-style-type: none"> <li>- Transmission lines construction works will be carried out during daylight hours. If power outages are required, it may be necessary to carry out some works at night or weekends. In such cases, the local population will be informed sufficiently in advance through local media;</li> </ul>	EDCL  Construction	Included  in

Project components/ Activities	Negative Impacts	Mitigation Measures	Responsible	Cost Estimates (USD)
		<ul style="list-style-type: none"> <li>- All workers in the project site must be equipped with the necessary and required Personal Protective Equipment (PPE) prescribed by the construction industry but not limited to facilities to protect against noise impacts, safety helmets, boots, dust masks, gloves, overall, goggles, etc.</li> <li>- Reduce vehicle speeds (stick to recommended speeds) in populated areas;</li> <li>- For workers noise levels shall be kept below 80 dB (A), wherever possible. In case of exceeding this value, hearing protections must be provided to workers and warning signs must be installed;</li> <li>- Notify nearby residents and businesses at least 24 hours in advance if particularly noisy activities are anticipated.</li> <li>- Consistent to EHS guidelines for Electric power transmission and distribution this requires to locate rights-of-way away from human receptors to the extent possible and use of noise barriers or noise canceling acoustic devices should be considered as necessary.</li> <li>- Selecting equipment with lower sound power levels.</li> <li>- Limiting the hours of operation for specific pieces of equipment or operations, especially mobile sources operating through community areas.</li> <li>- Re-locating noise sources to less sensitive areas to take advantage of distance and shielding.</li> <li>- Reducing project traffic routing through community areas wherever possible</li> </ul>	<p>n Contractors</p>	<p>the contra ct</p>

Project components/ Activities	Negative Impacts	Mitigation Measures	Responsible	Cost Estimates (USD)
Health and safety	Accidents at workplace during construction from operating of machineries and equipment by workers	<ul style="list-style-type: none"> <li>- Development of an EHSP for the construction phase, in advance of construction activities</li> <li>- Development of EHSP for the construction phase (shall include Waste Management Plan), in advance of construction activities;</li> <li>- Implementation of health and safety workshops for construction workers</li> <li>- Hire only experienced workers for specific jobs, such as working at heights, handling large equipment and machinery, handling hazardous material, which required highly specialized training. Train workers accordingly in regard to working at heights, electrical safety, vehicular safety, handling of hazardous materials, PPE, use of first aid and rescue techniques, emergency response, poisonous snakes etc.</li> </ul>	EDCL, EUCL  Construction Contractor	Included in construction costs

Project components/ Activities	Negative Impacts	Mitigation Measures	Responsible	Cost Estimates (USD)
		<p>Provide first aid kits and fire extinguishers at all Project sites Forbid alcohol and other drugs at construction sites</p> <p>Limit occupational exposure to EMF (Electro Magnetic Field) by use of shielding materials, and train workers accordingly.</p> <p>The employer should ensure that qualified first-aid can be provided at all times. Appropriately equipped first-aid stations should be easily accessible throughout the place of work.</p> <p>All workers entering the construction site must be equipped with PPE including goggle, factory boots, overalls, gloves, dust masks, among others. The PPE should be those that meeting the international standards of PPE.</p>		

Project components/ Activities	Negative Impacts	Mitigation Measures	Responsible	Cost Estimates (USD)
	<p>Children dropping out the school to seek for the job, Children exploitation and abuse.</p> <p>Forced labour.</p> <p>Gender Based Violence.</p> <p>Risk of communicable diseases including sexual transmitted diseases and other infectious diseases among workers and the community.</p>	<p>The project will not use children under age as per the National Labor Law.</p> <p>The codes of conduct will be developed by the contractor/subcontractor with the commitment to avoid any child Exploitation and abuse, using children under age among others.</p> <p>All workers will have contract/Time sheet to make sure that they agree to the terms and conditions of the contract. The avoidance of forced labor will also be part of the codes of conduct.</p> <p>Women and men will have the equal opportunity to the employment and any form of Gender Based Violence will be avoided.</p> <p>Codes of conduct to be signed by the contractor/subcontractor and the workers themselves specifying that any form of GBV will not be tolerated.</p> <p>GRM for Workers in which there will be the grievance channel to address all issues related to GBV.</p> <ul style="list-style-type: none"> <li>- Conduct public awareness campaigns to educate the community about preventive measures, symptoms of diseases, and the importance of seeking medical care. Promote hygiene practices and healthy behaviors.</li> <li>- Promote personal hygiene practices, including handwashing, proper sanitation, and safe water practices.</li> <li>- Establish protocols for the isolation and quarantine of individuals diagnosed with communicable diseases.</li> <li>- Ensure access to affordable and timely healthcare services for individuals affected by communicable diseases.</li> <li>- Implement and enforce laws and regulations that support disease control</li> </ul>		

Project components/ Activities	Negative Impacts	Mitigation Measures	Responsible	Cost Estimates (USD)
		efforts.		
	Community Health and Safety at risk including the risk of electrocution	<ul style="list-style-type: none"> <li>- Ensure that traffic is not interfered by construction through proper traffic management;</li> <li>- Notification of the public on upcoming construction, in advance of construction period</li> <li>- Public education and outreach efforts to provide information about hazard awareness, upcoming construction activities, safety measures, reporting unsafe conditions and environmental impacts, in advance of construction period;</li> <li>- Inform population along public roads in advance in case of transporting heavy equipment;</li> <li>- Provide adequate security measures to prevent accidents and injury (e.g., keeping speed limits on public roads, grounding objects)</li> <li>- Provide adequate security to prevent public access to the substations, work sites, hazardous materials and waste</li> <li>- Use of signs, barriers (e.g., locks on doors, use of gates, use of steel posts surrounding transmission towers, particularly in urban areas), and education / public outreach to prevent public contact with potentially dangerous equipment and mark "no-entry" areas around transmission towers and substations;</li> </ul>		

Project components/ Activities	Negative Impacts	Mitigation Measures	Responsible	Cost Estimates (USD)
		<ul style="list-style-type: none"> <li>- Grounding conducting objects (e.g. fences or other metallic structures) installed near power lines, to prevent shock.</li> <li>- Ensure that all power lines are adequately insulated, minimizing risks associated with unintended contacts.</li> </ul>		
Traffic.	Risks from Traffic Disruption, Congestion and/or Road Accidents	<ul style="list-style-type: none"> <li>- Collaborate with local communities about traffic and pedestrian safety, in advance of construction period.</li> </ul>	Construction Contractors, ASCENT, Coordination Unit.	Included in the contract
Dust and Air Emission	Air Emissions and Ambient Air Quality)	<ul style="list-style-type: none"> <li>- Reduction of speed and limited movement of vehicles</li> <li>- Use dust-suppressing water on unpaved roads, e.g., spraying of water with watering trucks in advance of transportation activities;</li> <li>- Cover truck beds with tarps during material transport</li> <li>- Use dust-suppressing water spray during civil works, where necessary Store and handle material appropriately to limit dust (e.g., protect cement with tarpaulins)</li> <li>- Use equipment with dust suction devices in enclosed spaces during civil works, where necessary</li> </ul>	EDCL Construction Contractors,	
Cultural heritage demolition, cemeteries	Establishment of distribution lines can lead to unearthing genocide sites hence cause cultural strife.	<ul style="list-style-type: none"> <li>- Consultation should be undertaken with local authorities and communities to ensure that potential genocide memorial sites are avoided.</li> <li>- Accidental unearthing of such sites should be culturally handled in accordance with the cultural sites and requirements.</li> <li>- Avoid sitting infrastructure where people will be disturbed and where resettlement could be an issue.</li> </ul>	EDCL should make contacts with local authorities	

Project components/ Activities	Negative Impacts	Mitigation Measures	Responsible	Cost Estimates (USD)
		<ul style="list-style-type: none"> <li>- Chance find procedures attached to this document on annex 11 will be followed in any archeological or culture heritage property is found.</li> </ul>	and engage good collaborations.	
Excavation and construction may cause the damage and loss of culture properties.	Destruction of physical cultural property such as graves, found Archaeological Property among others	<ul style="list-style-type: none"> <li>- All necessary and adequate care shall be taken to minimize impact on cultural properties which includes cultural sites and remains, places of worship including temples, mosques, churches and shrines, etc., graveyards, monuments and any other important structures as identified during design and all properties / sites / remains notified. No work shall spillover to these properties, premises and precincts.</li> <li>- The Contractor will be responsible for familiarizing themselves with the “Chance Finds Procedures” in case culturally valuable materials are uncovered during excavation or any project activities, including, annex 11.</li> <li>- Stop work immediately following the discovery of any materials with possible archeological, historical, paleontological, or other cultural value, announce findings to project manager and notify relevant authorities;</li> <li>- Protect artifacts as well as possible using plastic covers, and implement measures to stabilize the area, if necessary, to properly protect artifacts;</li> <li>- Prevent and penalize any unauthorized access to the artifacts; and</li> <li>- Restart construction works only upon the authorization of the relevant authorities.</li> <li>- The Chance Finds Procedures have been prepared to remedy such issues;</li> </ul>	EDCL should make contacts with local authorities and engage good collaborations.	Included in the project cost.



Project components/ Activities	Negative Impacts	Mitigation Measures	Responsible	Cost Estimates (USD)
Destruction of existing infrastructures	Impact on existing infrastructures (water pipelines, existing power lines, telecommunications lines, fiber optic)	<ul style="list-style-type: none"> <li>- Destruction of the existing infrastructures should be avoided;</li> <li>- In case of transmission line or other infrastructures is damaged, the project will repair the damages and remove it in another appropriate site</li> </ul>	EDCL Contractor	Included in the contract
Soil and Water pollution	Harmful and dangerous/ Hazardous material	<ul style="list-style-type: none"> <li>- Regular maintenance of all vehicles and machines at regular service stations, if possible</li> <li>- Maintenance and re-fueling of the construction equipment only on sealed and enclosed areas;</li> <li>- Store all liquid materials (e.g., fuel, engine oil, etc.) and lubricants in locked tanks and on sealed and roofed areas;</li> <li>- Store construction material as bags of cement etc. in containers in order to avoid rinsing out</li> <li>- Provide proper sanitation facilities;</li> <li>- Design bunds around and oil collecting system beneath transformers to prevent contamination of soil and groundwater;</li> <li>- Remove contaminated soil if spills occur and handle as hazardous waste;</li> <li>- Collect contaminated spill materials and manage as hazardous waste;</li> <li>- Prior to final disposal, retired transformers and equipment containing PCB should be stored on a concrete pad with curbs sufficient to contain the liquid contents of these containers should they be spilled or leaked. The storage area should also have a roof to prevent precipitation from collecting in the storage area. Disposal should involve facilities capable of safely transporting and disposing of hazardous waste containing PCB.</li> </ul>	EDCL Contractor	Included in contract

Project components/ Activities	Negative Impacts	Mitigation Measures	Responsible	Cost Estimates (USD)
Risks from Waste	<p>Non-hazardous waste generated at construction and decommissioning sites includes excess fill materials from grading and excavation activities, scrap wood and metals, and small concrete spills. Other non-hazardous solid wastes include office wastes. Hazardous waste includes contaminated soils, which could potentially be encountered on-site due to previous land use activities, or small amounts of machinery maintenance materials, such as oily rags, used oil filters, and used oil, as well as spill cleanup materials from oil and fuel spills.</p>	<ul style="list-style-type: none"> <li>- Construction contractor will have to clarify with local authorities, where different kind of wastes may be disposed of</li> <li>- Development of Waste Management Plan within the contractor’s ESMP</li> <li>- Train workers in handling and disposal of recyclable, sanitary, solid, liquid and hazardous waste Segregate hazardous waste and store in suitable drums or containers in secure facilities (fitted with roofs, concreting, bunds etc.), and clearly identify hazardous waste;</li> <li>- Dispose of oil-contaminated soil in adequate storage facilities</li> <li>- Store scrap metal (iron, steel, copper, etc.) onsite for later recycling including material already stored onsite.</li> <li>- Establishing waste management priorities at the outset of activities based on an understanding of potential Environmental, Health, and Safety (EHS) risks and impacts and considering waste generation and its consequences;</li> <li>- Establishing a waste management hierarchy that considers prevention, reduction, reuse, recovery, recycling, removal and finally disposal of wastes.</li> <li>- Avoiding or minimizing the generation waste materials, as far as practicable;</li> <li>- Where waste generation cannot be avoided but has been minimized, recovering and reusing waste;</li> <li>- Where waste cannot be recovered or reused, treating, destroying, and disposing of it in an environmentally sound manner</li> </ul>	EDCL Contractor.	Included in the contract
Construction of Medium and High Voltage lines	<p>Avian and Bat Collisions and Electrocutions (Avian collisions with power lines can occur in large numbers if located within</p>	<ul style="list-style-type: none"> <li>- Aligning transmission corridors to avoid critical habitats;</li> <li>- Maintaining 1.5 meter (60-inch) spacing between energized components and grounded hardware or, where spacing is not feasible, covering energized parts and hardware;</li> </ul>	EDCL	Included in the contract

Project components/ Activities	Negative Impacts	Mitigation Measures	Responsible	Cost Estimates (USD)
	<p>daily flyways or migration corridors, or if groups are traveling at night or during low light conditions (e.g. dense fog). In addition, bird and bat collisions with power lines may result in power outages and fires)</p>	<ul style="list-style-type: none"> <li>- Considering the installation of underground transmission and distribution lines in sensitive areas (e.g. critical natural habitats).\</li> <li>- Considering the installation of underground transmission and distribution lines in sensitive areas (e.g. critical natural habitats);</li> <li>- Installing visibility enhancement objects such as marker balls, bird deterrents, or diverters</li> </ul>		
	<p><b>Aquatic Habitat Alteration</b> (Power transmission and distribution lines, and associated access roads and facilities, may require construction of corridors crossing aquatic habitats that may disrupt watercourses and wetlands, and require the removal of riparian vegetation.)</p>	<ul style="list-style-type: none"> <li>- To prevent and control impacts to aquatic habitats include: Site power transmission towers and substations to avoid critical aquatic habitat (e.g. watercourses, wetlands, and riparian areas;</li> <li>- Minimizing clearing and disruption to riparian vegetation.</li> <li>- Whenever possible, route transmission and distribution lines to avoid sensitive aquatic habitats such as river crossings and wetlands.</li> <li>- Schedule activities to avoid sensitive periods such as fish breeding or migration seasons.</li> <li>- Install silt fences, sediment basins, or other sediment control measures to prevent sediment-laden storm water from entering watercourses.</li> <li>- As soon as construction in a particular area is complete, stabilize the area by planting it with native vegetation to prevent erosion.</li> <li>- Design and implement a storm water management plan to control runoff and ensure that it doesn't carry sediment or other contaminants into watercourses.</li> <li>- Implement best practices for erosion control, including the use of erosion control mats or blankets, especially on slopes.</li> </ul>		

Project components/ Activities	Negative Impacts	Mitigation Measures	Responsible	Cost Estimates (USD)
		<ul style="list-style-type: none"> <li>- If vegetation removal is essential, ensure that it's minimized and restricted only to areas where construction activities will occur.</li> <li>- Once construction is completed, restore aquatic habitats that were temporarily disturbed. This could include re-establishing native vegetation.</li> <li>- Ensure that all hazardous materials, including fuels and lubricants for machinery, are stored well away from watercourses with appropriate containment measures. Also, have spill response measures in place.</li> <li>- Establish regular monitoring of water quality, especially turbidity levels, during construction to ensure mitigation measures are effective.</li> </ul>		
Social Impacts		<ul style="list-style-type: none"> <li>- Prioritize employment of local people for construction works (skilled and unskilled workers)</li> <li>- Improve recruitment of women for construction works</li> <li>- Health awareness workshops for workers by a health expert. Develop and implement a Grievance Redress Mechanism</li> </ul>	EDCL Contractor.	Included in contract
	Hazardous Materials polluting soil and water (They include insulating oils / gases (e.g. Polychlorinated Biphenyls [PCB] and sulphur hexafluoride [SF6], and fuels, in addition to chemicals or products for wood preservation for poles and associated wood construction material.)	<ul style="list-style-type: none"> <li>- Replacing existing transformers and other electrical equipment containing PCB, and ensuring appropriate storage, decontamination, and disposal of contaminated units;</li> <li>- Prior to final disposal, retired transformers and equipment containing PCB should be stored on a concrete pad with curbs sufficient to contain the liquid contents of these containers should they be spilled or leaked.</li> <li>- The storage area should also have a roof to prevent precipitation from collecting in the storage area.</li> <li>- Disposal should involve facilities capable of safely transporting and disposing of hazardous waste containing PCB.</li> </ul>		

Project components/ Activities	Negative Impacts	Mitigation Measures	Responsible	Cost Estimates (USD)
	<p>GBV (Gender based Violence) /SEA (Sexual Exploitation Abuse)/SH (Sexual Harassment)/VAC (violence against children)</p>	<p>Measures below can be included in a code of conduct signed by all workers and included as part of C ESMPs and training courses;</p> <ul style="list-style-type: none"> <li>- The contractor should attend and actively partake in training courses related to OHS, HIV/AIDS, GBV and VAC as requested by my employer.</li> <li>- Adhere to a zero-alcohol policy during work activities, and refrain from the use of illegal substances at all times.</li> <li>- Consent to a police background check.</li> <li>- Treat women, children (persons under the age of 18), and men with respect regardless of race, colour, language, religion, political or other opinion, national, ethnic or social origin, property, disability, birth or other status.</li> <li>- Not use language or behaviour towards women, children or men that is inappropriate, harassing, abusive, sexually provocative, demeaning or culturally inappropriate.</li> <li>- Not participate in sexual contact or activity with children—including grooming or contact through digital media.</li> <li>- Mistaken belief regarding the age of a child is not a defence.</li> <li>- Consent from the child is also not a defence or excuse.</li> <li>- Not engage in sexual harassment—for instance, making unwelcome sexual advances, requests for sexual favours, and other verbal or physical conduct, of a sexual nature, including subtle acts of such behaviour.</li> <li>- Consider reporting through the GRM (Grievance Redress Mechanism) or to my manager any suspected or actual GBV or VAC by a fellow worker, whether employed by my employer or not, or any breaches of this Code of Conduct.</li> </ul>	<p>EDCL Contractor; in the GBV Taskforce</p>	<p>Included in the contact</p>

Project components/ Activities	Negative Impacts	Mitigation Measures	Responsible	Cost Estimates (USD)
Construction of renewable-energy based mini-grid systems or the construction of production headquarters for both Solar home systems and Clean cooking	Habitat disruption and biodiversity loss caused by both off-grid and clean cooking infrastructure development and fire risk.	<ul style="list-style-type: none"> <li>- The construction of off-grid and clean cooking infrastructure should not take place or be done within the buffer zone of ecologically important ecosystems (e.g., wetlands, rivers, lakes or natural forests);</li> <li>- For the case of construction of renewable-energy based mini-grid systems, a comprehensive environmental and social impacts assessment study should be prepared prior implementation to ensure all identified negative impacts are well managed through comprehensive proposed mitigation measures. A baseline on the status of natural habitat/ vegetation cover and biodiversity should be provided prior implementation to mitigate the risk of causing the extinction of the variety of animals, plants, and other organisms that make up our natural world.</li> <li>- Fire extinguishers to be availed and regularly inspected to intervene in case of fire incident.</li> </ul>	BRD, financed companies	To be catered for by financed companies

**5.2.3. Operation phase**

Components/ Activities	Negative Impacts	Mitigation Measures	Responsible Inst	Cost Estimates (USD)
Operation and maintenance	Employee and Public Health are at risk of fire	<ul style="list-style-type: none"> <li>- Develop Environmental Health and Safety Plan (EHSP) and implement it.</li> <li>- Erect fire walls between or at new transformers foreseen in switchyard of s/s YTPC to prevent spreading of fire in case of an accident.</li> <li>- Store flammables away from ignition sources and oxidizing materials.</li> </ul>	EUCL	Maintenance cost

Components/ Activities	Negative Impacts	Mitigation Measures	Responsible Inst	Cost Estimates (USD)
		<ul style="list-style-type: none"> <li>- Provide bonding and grounding of, and between, containers and additional mechanical floor level ventilation if materials are being, or could be, dispensed in the storage area;</li> <li>- Where the flammable material is mainly comprised of dust, providing electrical grounding, spark detection, and, if needed, quenching systems</li> <li>- Defining and labelling fire hazards areas to warn of special rules (e.g., prohibition in use of smoking materials, cellular phones, or other potential spark generating equipment)</li> <li>- Providing specific worker training in handling of flammable materials, and in fire prevention or suppression</li> </ul>		
Electric and magnetic fields	Electric and magnetic fields	<ul style="list-style-type: none"> <li>- Shifts will be used to avoid long exposure to electromagnetic field during line and substations maintenance.</li> <li>- Evaluating potential exposure to the public against the reference levels developed by the International Commission on Non-Ionizing Radiation Protection (ICNIRP). Average and peak exposure levels should remain below the ICNIRP recommendation for General Public Exposure;</li> <li>- Considering siting new facilities so as to avoid or minimize exposure to the public. Installation of transmission lines or other high voltage equipment above or adjacent to residential properties or other locations intended for highly frequent human occupancy, (e.g., schools or offices), should be avoided;</li> <li>- If EMF levels are confirmed or expected to be above the recommended exposure limits, application of engineering techniques should be considered to reduce the EMF produced by power lines and substations. Examples of these techniques include Shielding with</li> </ul>	EUCL	Maintenance cost

Components/ Activities	Negative Impacts	Mitigation Measures	Responsible Inst	Cost Estimates (USD)
		specific metal alloys; Burying transmission lines; Increasing height of transmission towers; Modifications to size, spacing, and configuration of conductors		
Solid waste	Little if any solid waste will be generated which includes conductor and tree cuttings	<ul style="list-style-type: none"> <li>- All left over conductor cuttings to be disposed appropriately or be returned to the store for proper disposal.</li> <li>- Proper budgeting of materials to reduce wastage practice 3 Rs of waste management: reduce, reuse, recycle of materials;</li> <li>- Properly Manage storage, transfer, and disposal of transformer oils according to industry standards</li> </ul>	EUCL	Maintenance cost
	<ul style="list-style-type: none"> <li>- Bush/Vegetation clearance due to the maintenance of right of way.</li> <li>- Potential social adverse impacts include of electrocution, bite by snake or other insects, injury for workers and general public and risk of accidents to life.</li> <li>- Water and soil pollution and risk on biodiversity due to the</li> </ul>	<ul style="list-style-type: none"> <li>- Only vegetation and trees which cannot exceed 3m of height will be allowed to grow in the Right of Way in order to avoid electrical line disturbance, safety issues associated to the electricity and loss of immature trees.</li> <li>- All trees which were in the right of way will be compensated at full replacement cost to the owners.</li> <li>- Awareness on electricity to the local people and make sure that the installation is done by the competent technician.</li> <li>- Awareness on how to use electrical appliances and the materials to use for the electrical installation to the local people.</li> <li>- When in snake-prone areas, wear long pants, boots, and gloves.</li> <li>- The storage for creosote wooden pole should not be close to water course.</li> <li>- The storage should be fenced and run off from wooden poles collected in the same soak way pit to prevent it spreading to the neighboring soil</li> </ul>		



Components/ Activities	Negative Impacts	Mitigation Measures	Responsible Inst	Cost Estimates (USD)
	<p>disposal of used creosote treated wooden poles.</p> <ul style="list-style-type: none"> <li>- Potential environmental and social risks associated with generated E-waste (i.e., from the distribution, storage and final disposal of used batteries containing hazardous waste; and disposal/recycling of solar panels).</li> </ul>	<ul style="list-style-type: none"> <li>- Store used batteries in a cool, dry place until they can be properly disposed of.</li> <li>- Educate solar companies and system owners about harms associated with E-Waste and proper disposal procedures;</li> <li>- Promote effective E-waste handling procedures by separating E-waste from other household wastes to facilitate collection, treatment and recycling;</li> <li>- Solar companies and system owners should dispose their E-Waste to licensed E-waste collection centers or drop-off points;</li> <li>- Technicians/electronic engineers from solar system providers should always observe solar home system manual guidelines through repairs activities and ensure Occupational Health and Safety measures are well observed in the process to mitigate any accident or severe work related health issues;</li> <li>- The maintenance team will have the required PPE worn before starting the maintenance exercise. These include safety shoes, safety belt, helmet and overall among others;</li> <li>- Ensure compliance with local, national, and international regulations regarding the disposal of hazardous waste, including batteries;</li> <li>- All electronic waste will be collected and treated by EnviroServe Green Park Rwanda located in Bugesera Industrial Zone and all solar companies should be having a valid agreement with Enviroserve for E-Waste disposal and recycling;</li> <li>- Solar companies should be observing E-Waste management principles reflected in the REF- Environmental Code of Practice disclosed on the BRD’s website for compliance purposes.</li> </ul>		

Components/ Activities	Negative Impacts	Mitigation Measures	Responsible Inst	Cost Estimates (USD)
	<ul style="list-style-type: none"> <li>- Health and safety risks related, falling from height, being cuts from sharp objects among others.</li> <li>- Leachates from transformers contain PCBs that are harmful to the environment.</li> <li>- Environmental and social impacts of Clean cooking solutions may results from resource use inefficiency related to local production and use of clean cookstove solutions and new regulations on taxes as part of TA and these include:  Environmental and social risks associated with clean cooking in school (component3.e)</li> <li>- The technology chosen being LPG, there are risk of fire hazard, explosion and other health and safety issues during</li> </ul>	<ul style="list-style-type: none"> <li>- The maintenance team will have the required PPE worn before starting the maintenance exercise. These include safety shoes, safety belt, helmet and overall among others.</li> <li>- No Transformers containing PCBs will be used</li> <li>- Companies are required to provide required Personel Protective Equipment to their employees/technicians during the manufacturing process of cookstoves (e.g., Protective gloves, boots, welding goggles, and appropriate uniforms) to prevent incidents or at least reduce the severity of work related accidents;</li> <li>- Involve communities in the selection and implementation of clean cooking solutions;</li> <li>- Promote the local production and distribution of clean cooking technologies, which can stimulate local economies and create job opportunities;</li> <li>- Explore opportunities for carbon credits or offsetting mechanisms associated with the adoption of clean cooking solutions. This can provide financial incentives for individuals or organizations to invest in environmentally friendly technologies;</li> <li>- Advocate for and promote the adoption of clean and efficient cookstoves that use cleaner fuels, such as liquefied petroleum gas (LPG), biogas, or electric stoves. These stoves produce fewer emissions and are more energy-efficient than traditional open fires or inefficient stoves;</li> <li>- . Develop site specific environmental and social management plans, health and safety management plans,</li> <li>- Enforcing the use of PPEs during the construction of kitchens</li> </ul>		

Components/ Activities	Negative Impacts	Mitigation Measures	Responsible Inst	Cost Estimates (USD)
	<p>installation and operation.</p> <ul style="list-style-type: none"> <li>- Health and safety due to the construction of kitchen and installation of cooking facilities</li> </ul>	<ul style="list-style-type: none"> <li>- Training on the on the use and safety of the LPG technology</li> <li>- Allocating a safe and isolated facility for the storage of the LPG</li> </ul>		
<p>Manufacturing of clean cooking stoves and illegal dismantling of solar home system batteries</p>	<p>Fire risk are anticipated during the manufacturing of clean cooking stoves, especially for tier 3 stoves requiring welding to join various metal parts. The risk of fire outbreaks is also anticipated in case safety measures are not well observed during the storage of LPG cylinders (Tier 5).</p> <p>For off-grid, fire risks are anticipated in case households engage into doing additional installation on the purchased solar home system, hence overwhelming the system and causing over heating of the battery that could trigger explosion and fire risk. Illegal dismantling is also an other risk that could cause explosions if not appropriately done.</p>	<ul style="list-style-type: none"> <li>- No off-grid company is allowed to do battery dismantling unless they have an official authorization from the competent National Authority (In this case RURA is applicable for the provision of Battery dismantling permits);</li> <li>- Both Clean cooking and off-grid companies are required to have fire fighting systems (e.g., Smoke sensors, fire extinguishers, etc) put in place at their warehouse or manufacturing facility to mitigate the risk of fire outbreaks;</li> <li>- Workers at company level should be regularly trained on Occupational Health and Safety and fire fighting to ensure they are all experience with best practices that mitigate the risk of fire outbreak or at least are well equipped with fire fighting skills.</li> </ul>	<p>BRD, financed companies</p>	<p>To be included in clients/companies budget To be catered for by companies</p>

#### 5.2.4. Decommissioning

Components/ Activities	Negative Impacts	Mitigation Measures	Responsible Inst	Cost Estimates (USD)
Transformers, cables	Waste Debris from Equipment and Machines	<ul style="list-style-type: none"> <li>- Ensure all the machines and equipment are disposed in the right places, Explore available recycling opportunities</li> </ul>	EDCL	Included in decommissionin g cost
CFLs Poor disposal of used CFLs	<p>Likely to lead to ground and surface water contamination. CFLs contain mercury a hazardous heavy metal (substance) that is harmful to aquatic resources, soil resources and human population.</p> <p>Soil contamination is a likely adverse impact if the CFLs are dumped in an open dumping site without mitigation measures and controls. Soil contamination could impact on agriculture.</p>	<ul style="list-style-type: none"> <li>- Develop a waste management plan for the disposal of the CFL lamps.</li> <li>- Replacing existing transformers and other electrical equipment containing PCB, and ensuring appropriate storage, decontamination, and disposal of contaminated units;</li> <li>- Prior to final disposal, retired transformers and equipment containing PCB should be stored on a concrete pad with curbs sufficient to contain the liquid contents of these containers should they be spilled or leaked.</li> <li>- The storage area should also have a roof to prevent precipitation from collecting in the storage area.</li> <li>- Disposal should involve facilities capable of safely transporting and disposing of hazardous waste containing PCB.</li> </ul>	EDCL	Included  in decommissionin g cost
Disposal of obsolete batteries waste	<ul style="list-style-type: none"> <li>- Adequate waste receptacles and facilities should be provided at project sites/camp sites</li> </ul>	<ul style="list-style-type: none"> <li>- Ensure that all spent/obsolete batteries from the solar panels are recycled</li> </ul>	EDCL, BRD	

Components/ Activities	Negative Impacts	Mitigation Measures	Responsible Inst	Cost Estimates (USD)
Health and safety	Accidents during decommissioning including oil spills	- Apply the accidents reduction /mitigation impacts specified in the construction phase of the project	EDCL	Included in decommissionin g cost

### **5.3.Environmental and Social Monitoring**

This section sets out requirements for the monitoring of the environmental and social impacts of the ASCENT subprojects. Monitoring of environmental and social indicators will be mainstreamed into the overall monitoring and evaluation system for the project. In addition, monitoring of the implementation of this ESMF will be carried out by REMA and PIU E&S team.

The objective of monitoring is twofold;

1. To alert project authorities (i.e., EDCL primarily) by providing timely information about the success or otherwise of the environmental management process outlined in In subproject specific ESIA/ESMPs such a manner that changes can be made as required to ensure continuous improvement to ASCENT environmental management process (even beyond the project's life).
2. To make a final evaluation in order to determine whether the mitigation measures incorporated in the technical designs and the ESMP have been successful in such a way that the pre-project environmental and social condition has been restored, improved upon or is worse than before and to determine what further mitigation measures may be required.

#### **5.3.1. Monitoring of environmental and social indicators**

The goals of monitoring are to measure the success rate of the project, determine whether interventions have resulted in dealing with negative impacts, whether further interventions are needed, or monitoring is to be extended in some areas. Monitoring indicators will be very much dependent on specific project contexts.

#### **5.3.2. Monitoring of participation process**

The following are indicators for monitoring of the participation process involved in the project activities.

Number and percentage of affected households consulted during the planning stage;

- Levels of decision-making of affected people;
- Level of understanding of project impacts and mitigation;
- Effectiveness of local authorities to make decisions;
- Frequency and quality of public meetings;
- Degree of involvement of women or disadvantaged groups in discussions.

Monitoring of implementation of mitigation plans lists the recommended indicators for monitoring the implementation of mitigation plans.

#### **5.3.3. Evaluation of Results**

The evaluation of results of environmental and social mitigation can be carried out by comparing baseline data collected in the planning phases with targets and post-project situations.

A number of indicators would be used in order to determine the status of affected people and their environment (land being used compared to before, how many clean water sources than before, etc.). In

order to assess whether these goals are met, the EDCL- PIU Environmental and Social safeguard Specialists with technical support of the two environmental and social to be hired by EDCL will indicate in the EMP, parameters to be monitored, institute monitoring milestones and provide resources necessary to carry out the monitoring activities.

The following are some pertinent parameters and verifiable indicators/questions to be used to measure the ESMF process, mitigation plans and performance;

- Does the project have the E&S specialist?
- Does the project have the ESIA cleared by the RDB?
- Have the Civil Works from Contractors got considerable legal right to enforce the ESMP?
- At what rate are the civil works been monitored by EDCL and by the REMA?
- How many violations of the contractors/transporters have been recorded and at what rate are they occurring?
- How many RAPs have been fully executed before civil works?
- How many outstanding complaints and level where they are pending?
- How many recorded grievance cases have been settled within one year?

#### **5.3.4. Monitoring of ESMF/ESMP implementation**

In addition to the Project Reports and ESIA studies required under the Organic Law, an Annual Audit on ESMF/ESMP Implementation will be prepared by the EDCL. In addition, each large project that has been subject to an ESIA Report (or RAP etc.) will also be required to produce a social and environmental audit report.

Table 19 : Environmental and Social Monitoring for all project phase

**5.3.5. Monitoring during design and planning phase**

Activity / Impact	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)		When (Define the frequency / or continuous?)	Who (Is responsible for monitoring?)
			Method	Indicator		
Land acquisition and assets loss	Utilize the RPF/ESMF document available and develop RAP (Resettlement Action Plan), ESIA/ESMP  Implementation of RAP/ESIA/ESMP	Location of Project, RoW for distribution lines and access roads	Inspection of implementation of RAP/ESIA/ESMP  Valuation at full replacement cost	All compensation processes implemented and all PAPs with damaged assets paid and valuation done at full replacement cost.	Before construction begin and throughout construction activities	EDCL social and environmental safeguard specialists  EDCL- PIU social safeguard specialists Concerned district authorities
Site selection	Avoid whenever possible to select sites that contravenes the regulations of the Government of Rwanda in relation to natural resources and sensitive Ecosystems  Undertake detailed ESIA Report or Environmental Management Plan on selected site	Location of Project transmission and distribution lines.	Inspection of selected sites and possible alternatives	ESIA, ESMP approval certificate	During selection of construction sites and transmission line routes	EDCL design and planning directorate; Environmental and Social safeguard specialists Design consultant
Designs of	Ensure during planning and design to incorporate environmental sound design	Designs plans and machinery,	Checking the	Designs plans and electrical	Before	design and planning



Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)

Activity / Impact	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)		When (Define the frequency / or continuous?)	Who (Is responsible for monitoring?)
			Method	Indicator		
plans, equipment and machinery	concepts as appropriate and in compliance with WB EHS Guidelines.	equipment specification	design and plans and electrical equipment to be used	equipment which include environmental and social risk management specifications	Construction works begin	directorate; EDCL social and environmental safeguard specialists. Procurement Specialist
	All designs, equipment and machineries to be procured should include instructions on their environmental specifications and requirements.					
Specification	All instructions or planning for civil, mechanical, engineering and electrical specifications including technical specifications must have stringent environmental obligations in accordance with the World Bank EHS guidelines, international or local guidelines whichever emerges as stringent in terms of environmental and social requirements.				Before Tender is Advertised and Tender Documents dispatched to selected bidders	design and planning directorate; ASCENT – PIU Environmental Risk Management Specialists

**5.3.6. Monitoring during construction phase**

Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)

Activity / Impact	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)		When (Define the frequency/or continuous?)	Who (Is responsible for monitoring?)
			Method	Indicator		
<b>Soil and Water Pollution</b>	Regular maintenance of all vehicles and machines at regular service stations, if possible, maintenance and re-fueling of the construction equipment only on sealed and enclosed areas.	Construction sites at Project transmission and distribution lines.	Inspection of maintenance records;	All vehicles and machines adequately Maintained, No unsuitable areas used for maintenance and re- fueling.	Regularly during construction and operation phases	EDCL social and environmental safeguard specialists  ASCENT-PIU E&S team Supervision consultant
	Store all liquid materials (e.g. fuel, engine oil, etc.) and lubricants in locked tanks and on sealed and roofed areas.		Visual inspection of maintenance and re- fueling areas;	All materials adequately stored Adequate number of sanitation facilities separately for men and women; and in proper condition.		
	Store construction material as bags of cement etc. in containers in order to avoid rinsing out.					
	Train workers in appropriate sanitation practices		Inspection of training reports;	All workers trained accordingly		
	Train transporters and workers in spill prevention and control especially in handling of oil / fuel.		Visual inspection of records;			

Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)

Activity / Impact	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)		When (Define the frequency/or continuous?)	Who (Is responsible for monitoring?)	
			Method	Indicator			
	Design bunds around oil collecting system beneath transformers to prevent contamination of soil and groundwater.		Transformers fitted with bunds and oil collecting system	All transformers fitted with bunds and oil collecting System.			
	Provide proper equipment (as drip pans) and implement procedures to handle transformer oil Provide spill-control materials to drivers and workers, in order to clean up spills, if necessary	Construction sites at Project transmission and distribution lines.	Inspection of equipment	Equipment provided	Regularly during construction and operation phases	EDCL social and environmental safeguard specialists	
	Report and respond to spills promptly and train workers in how to report		Inspection of spill reports, and training records	Number of spill reports All workers trained accordingly			EDCL- PIU Environmental Risk Management specialists Supervision consultant
	Remove contaminated soil if spills occur and handle as hazardous waste		Inspection of spill reports and storage areas	All contaminated materials adequately			

Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)

Activity / Impact	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How(Is the parameter to be monitored?)		When (Define the frequency/or continuous?)	Who (Is responsible for monitoring?)
			Method	Indicator		
	Collect contaminated spill materials and manage as hazardous waste			stored		
<b>Waste Management</b>	Construction Contractor will have to clarify with local authorities, where different kind of wastes may be disposed of	Construction sites at Project transmission and distribution lines, and off grid part	Control of written agreement	Written agreement provided	In advance of construction works	EDCL E&S team  Supervision consultant
	Development of Waste Management Plan within the ESMP		Control of Waste Management Plan	Waste Management Plan developed		
	Implementation of a Waste Management System		Control of Waste Management System  Inspection of training records	Waste Management System implemented	Regularly during construction and operation and decommissioning.	
	Train workers in handling and disposal of recyclable, sanitary, solid, liquid and hazardous waste			All workers trained accordingly		
	Segregate hazardous waste and store in suitable drums or containers in secure facilities (fitted with roofs, concreting,	Construction sites (Project	Inspection/ Visual control	All hazardous materials and scrap metal stored in	Regularly during construction	EDCL social safeguard specialists

Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)

Activity / Impact	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)		When (Define the frequency/or continuous?)	Who (Is responsible for monitoring?)
			Method	Indicator		
	bunds etc.), and clearly identify hazardous waste Store used oil in suitable tanks and at proper areas at substation site including storage of already existing oil onsite Store scrap metal (iron, steel, copper, etc.) onsite for later recycling including material already stored onsite	transmission and distribution lines, and substations)	of storage areas at construction sites.	appropriate storage areas	phase	EDCL- PIU environmental safeguard specialists External expert
<b>Employee Health and Safety</b>	Development of an HSE (Health Safety and Environment) Policy for the construction phase, in advance of construction activities	Construction sites at Project transmission and distribution lines.	Inspection of relevant documents	HSE Policy developed	In advance of construction works.	EDCL social and environmental and Social Safeguard specialists, EDCL- PIU environmental safeguard specialists
	Development of an EHSP for the construction in advance of construction activities			EHSP developed		
	Installation of an HSE Management System (HSEMS) during the construction phase			HSE Management System implemented;	Regularly during construction and operation phase	
	Make sure that all workers have a health Insurance;			Inspection of workers'		

Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)

Activity / Impact	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)		When (Define the frequency/or continuous?)	Who (Is responsible for monitoring?)
			Method	Indicator		
	Provide proper sanitation facilities in adequate number;		health documents;	All workers have health insurance;		
	Provision of HIV /AIDS protection equipment for workers;		Visual inspection;	Adequate number of sanitation facilities and in proper condition;		
	Implementation of health and safety, workshops for construction workers;		Interviews and records	Workshops Implemented		
	Installation of warning signs “Danger of electrocution” at towers, substations etc.		Inspection of construction sites	warning signs available on sites and Protection equipment provided;		
	Provide workers with appropriate protective equipment (PPE) (dust, noise, thick gloves against snake bites etc.);		Visual inspection;	All workers provided with PPE;		
	Provide first aid kits and fire extinguishers at all Project sites and in all vehicles		Inspection of accident records	First aid kits and fire extinguishers provided;		

Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)

Activity / Impact	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)		When (Define the frequency/or continuous?)	Who (Is responsible for monitoring?)
			Method	Indicator		
			Interviews Visual inspection			
	Train workers in regard to working at heights, electrical safety, vehicular safety, handling of hazardous materials, PPE, use of first aid and rescue techniques, emergency response, poisonous snakes etc.	Construction sites at Project substation, transmission and distribution lines	Inspection of training records	All workers trained accordingly	Regularly during construction phase.	EDCL social and environmental safeguard specialists  EDCL- PIU environmental and social safeguard specialists
	Forbid alcohol and other drugs at construction sites		Inspection of incident records	No workers found under influence of alcohol or other drugs		
	Assure transfer of injured workers to hospitals in the case of serious accidents		Inspection of accident records	Workers transferred to hospital in case of serious accidents		
	Identify area emergency responders, hospitals, and clinics, and provide advance notice of Project activities	Area emergency responders	Interviews	Area emergency responders informed about Project activities	In advance of construction works	Supervision consultant

Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)

Activity / Impact	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)		When (Define the frequency/or continuous?)	Who (Is responsible for monitoring?)
			Method	Indicator		
	Implement programs for medical screening, health and safety monitoring, and reporting	Construction sites at Project substation, transmission and distribution lines	Inspection of records	H&S programs implemented	Regular during construction phase	
	Limit occupational exposure to EMF by use of shielding materials, and train workers accordingly		Interviews Inspection of training records	Shielding materials in place. All workers trained accordingly.		
	Record all accidents and incidents		Inspection of records	Recording implemented		
<b>Public Health and Safety</b>	Ensure that traffic is not interfered by construction through proper traffic management	Residents living near Project/subproject construction/rehabilitation activities	Inspection of complaints Interviews	No complaints from residents	Regularly during construction phase	EDCL social and environmental Risk Management specialists
	Notification of the public on upcoming construction			Public informed About upcoming construction	In advance of construction phase	



Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)

Activity / Impact	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)		When (Define the frequency/or continuous?)	Who (Is responsible for monitoring?)
			Method	Indicator		
	Public education and outreach efforts to provide information about hazard awareness, upcoming construction activities, safety measures, reporting unsafe conditions and environmental impacts, in advance of construction period	Residents living near Project/subproject construction/rehabilitation activities	Interviews Inspection of complaints	Public accordingly informed.  No complaints	In advance of construction and Regularly during construction phase	EDCL social and environmental Risk Management specialists
	Inform population along public roads in advance in case of transporting heavy Equipment	Residents along public roads	Inspection of complaints and accident records	No complaints from residents; no accidents	Regularly during construction phase	
	Provide adequate security measures to prevent accidents and injury (e.g. keeping speed limits on public roads, grounding objects)	Residents living near Project/subproject construction/rehabilitation activities				
	Provide adequate security to prevent public access to the substations, work sites, hazardous materials and waste	Residents living near Project construction/rehabilitation	Visual inspection of	Security measures implemented and No incident recorded		

Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)

Activity / Impact	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)		When (Define the frequency/or continuous?)	Who (Is responsible for monitoring?)
			Method	Indicator		
		activities	records			
Noise	Reduce vehicle speeds in populated areas	Residents living near subproject; Construction/rehabilitation activities	Inspection of complaints	No complaints from residents	Regularly during construction phase	EDCL social and environmental Risk Management specialists EDCL-PIU Social and environmental Risk Management specialists
	Allow truck movements only during daylight, but not between 7 pm and 6 am					
	Utilization of low sound power mechanical equipment like bulldozer, air compressor, concrete pumps, excavator, concrete mixer etc. whenever possible	Residents living near subproject construction/rehabilitation activities;	Visual inspection of complaints	Low sound equipment used. No complaints from residents		
	Regular maintenance and service of building machinery and other during construction Works		Inspection of maintenance records	Equipment regularly maintained		
Shut down or throttling down of noisy machinery to a minimum		Inspection of complaints	No complaints from residents	Regularly during	EDCL social and	

Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)

Activity / Impact	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)		When (Define the frequency/or continuous?)	Who (Is responsible for monitoring?)
			Method	Indicator		
	For workers noise levels shall be kept below 80 dB (A), wherever possible. In case of exceeding this value, hearing protections must be provided to workers and warning signs must be installed		Instrumental measurement in case of particularly noisy activities	Noise level below 80 dB (A); if noise levels higher than 80 dB (A): workers fitted with PPE and warning signs installed	construction phase	environmental Risk Management specialists  EDCL- PIU Social and environmental Risk Management specialists
	Notify nearby residents and businesses at least 24 hours in advance if particularly noisy activities are anticipated	Residents living near Project activities	Instrumental measurement in case of complaints Interviews	Residents informed in advance		
	Conduct noise-generating activities during normal work hours during the day	Construction sites at Project	Inspection of complaints	No complaints from Residents		
Air Quality	Reduction of speed and limited movement of Vehicles	Construction/ Rehabilitation sites of Project	Inspection of complaints	No complaints from residents	Regularly during construction phase	EDCL and EDCL-PIU environmental safeguard specialists  Supervision
	Maintain vehicles and construction machinery properly, as recommended by suppliers		Inspection of maintenance Records	Equipment regularly maintained		

Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)

Activity / Impact	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)		When (Define the frequency/or continuous?)	Who (Is responsible for monitoring?)
			Method	Indicator		
	Use dust-suppressing water on unpaved roads, e.g., spraying of water with watering trucks in advance of transportation activity	Unpaved roads used for transport	Inspection of complaints	No complaints from residents		
	Cover truck beds with tarps during material Transport					
	Use dust-suppressing water spray during civil works, where necessary					
	Use equipment with dust suction devices in enclosed spaces during civil works, where Necessary	Construction sites within distribution and transmission lines				
Store and handle material appropriately to limit dust (e.g. protect cement with tarpaulins)	Appropriate storage					
Avoid unnecessary idling of construction machines and vehicles	No unnecessary idling					
Burning of rubbish onsite must be strictly forbidden	No rubbish burnt					
Prioritize employment of local people for construction works	Construction sites near project	Visual, inspection	Percentage of local people employed	Regularly during construction	EDCL- PIU	

## Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)

Activity / Impact	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)		When (Define the frequency/or continuous?)	Who (Is responsible for monitoring?)
			Method	Indicator		
Social Impacts	Improve recruitment of women for construction works	substations, transmission and distribution lines	interviews	Percentage of women employed	phase	Supervision consultant
	Facilitate other economic opportunities for local communities	Residents living near substation		Other economic opportunities established		
	Develop and implement a Grievance Redress Mechanism	Construction sites within Project transmission and distribution lines.	Inspection of grievances	Percentage of grievances adequately treated	Regularly during construction phase	EDCL- PIU Supervision consultant
	Announce start and duration of works through media and signs to the public in advance of construction period	Residents living near HV and MV lines	Interviews	Public informed About construction works	In advance of construction phase	
	Timely compensation payment to all PAPs	Project Affected Parties	Asset inventory and valuation	Report on % of PAPs whom compensation was paid	Before construction activities	EDCL- PIU
	Prevention of GBV/SEA, disease transmission, impacts of labor influx,	Local residence and project workers	Inspection of complaints	No complaints from residents and workers concerning the parameter	During construction phase on	EDCL- PIU

Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)

Activity / Impact	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)		When (Define the frequency/or continuous?)	Who (Is responsible for monitoring?)
			Method	Indicator		
					quarterly basis	
	Prevention of child and forced labor	Project workers	Inspection of workers contract and site workers ID Cards	No under age workers All workers have the employment contract/time sheet	During construction phase on quarterly basis	EDCL- PIU
	Cultural heritage property	Construction/Rehabilitation sites of Project activities	Inspection of construction/rehabilitation sites.	ESMP inspection report	During construction phase on quarterly basis	EDCL- PIU
Traffic Management	Use of existing access roads to construction site	Residents living near HV and MV lines	Inspection of complaints	No complaints from residents	Regularly during construction phase	EDCL- PIU
	Keep to speed limits in public roads	Construction/Rehabilitation sites at project transmission lines	Inspection of complaints Visual inspection	No complaints from residents Speed limits, inspection requirements, operating rules	Regularly during construction Regularly during construction	Supervision consultant
	Establish rights-of-way, speed limits onsite, vehicle inspection requirements, operating rules and procedures before commencement of construction					

Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)

Activity / Impact	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)		When (Define the frequency/or continuous?)	Who (Is responsible for monitoring?)
			Method	Indicator		
				established		
	Maintain vehicles regularly and use manufacturer approved parts to minimize potentially serious accidents caused by equipment malfunction or premature failure	Construction/Rehabilitation sites of Project activities, Local communities	Inspection of maintenance records	Vehicles regularly maintained and approved parts used	Regularly during construction phase	EDCL social and environmental Risk Management specialists
	Minimize transport distances by using locally sourced materials, if possible		Visual inspection	Locally sourced material used, if possible		
	Collaborate with local communities and authorities to improve signage, visibility and overall safety of roads, particularly along stretches located near power lines construction or HPP rehabilitation.		Visual inspection Interviews	Improvement of overall safety of roads started		
	Collaborate with local communities about traffic and pedestrian safety	Local communities Emergency	Interviews	awareness program about traffic and pedestrian safety	In advance of construction	EDCL- PIU Social and environmental Risk Management specialists

Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)

Activity / Impact	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)		When (Define the frequency/or continuous?)	Who (Is responsible for monitoring?)
			Method	Indicator		
		responders		established	phase	
	Coordination with emergency responders			Coordination established		

**5.3.7. Monitoring during Operation and Maintenance**

Activity / Impact	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)		When (Define the frequency / or continuous?)	Who (Is responsible for monitoring?)
			Method	Indicator		
Employee Health and Safety	Develop Health and Safety Management Plan (HSMP) and implement HSMS for operation and maintenance of substations	(Transmission lines, substation stores and MV construction lines	Visual inspection	HSMP developed and HSMS implemented	Before the construction phase, and, on quarterly basis during operation	EDCL EDCL- PIU Environmental and social Risk Management team
	Erect fire walls between transformers foreseen in switchyard of ASCENT			Fire walls erected		



## Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)

Activity Impact	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)		When (Define the frequency / or continuous?)	Who (Is responsible for monitoring?)
			Method	Indicator		
	substation to prevent spreading of fire in case of an accident				and maintenance phase for the HSMS implementation	
Disposal of CFLs (Compact Fluorescent Lamps) Pollution of land (soil), river and other natural water sources.	Develop a waste disposal plan for disposal of the CFLs	Disposal area	Visual inspection	Availability of effective Waste disposal plan for CFL	During Operation and maintenance phase	EDCL EDCL- PIU Risk Management specialists REMA
Emissions and Effluent	Develop Environment Health and Safety Guidelines for Electric Power Transmission and Distribution specific to the project <sup>5</sup> in compliance with GIIP	Project level applied to project sites	Report analysis	Environment Health and Safety Guidelines for Electric Power Transmission and Distribution specific to the project developed	Planning phase	EDCL

<sup>5</sup> <https://www.ifc.org/content/dam/ifc/doc/2000/2007-electric-transmission-distribution-ehs-guidelines-en.pdf>

## Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)

Activity Impact	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)		When (Define the frequency / or continuous?)	Who (Is responsible for monitoring?)
			Method	Indicator		
Safety Procedures	Develop Safety rules at sites and display the safety dashboard report at substations	Construction sites	Visual Inspection	Safety rules available at sites and safety report dashboard available at construction sites especially at substations area	Construction and operation phase	EDCL
Energy efficiency	Energy use/demand report	Customer area and EUCL Energy loss report	interview	Energy used/ energy bill paid Energy loss report	Operation phase	EDCL EUCL
<i>Hazardous Material Handling</i>	Develop a <i>Hazardous Substance Management Plan</i>	Stores, substation/transformers area	Visual inspection	<i>Hazardous Substance Management Plan developed</i>	During Operation and maintenance phase	EDCL REMA
<i>Grounding System Integrity</i>	Earthing system to be provided at every electrical installation, transformers and substation for the system, infrastructure and customers asset protection (protect equipment, personnel, and structures from the dangers of electrical faults, lightning strikes, and static discharge)	substation/transformers and connected customers area	Visual inspection	<i>Earthing/ Grounding system available at electrical system point</i>	During construction, operation and maintenance phase	EDCL

## Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)

Activity Impact	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)		When (Define the frequency / or continuous?)	Who (Is responsible for monitoring?)
			Method	Indicator		
<i>Emergency Preparedness</i>	Develop Emergency Preparedness and Response Plan <sup>6</sup>  Signs for the Exit in case of emergency	Construction site Stores and substations	Visual inspection	<i>Emergency Preparedness and Response plan developed. Presence of safety signs including the escape plan and assembly points. Fire extinguishers available on sites.</i>	During construction, operation and maintenance phase	EDCL BRD
<i>Accident and Fatality Rates</i>	Incident reports	Construction site Stores and substations	Report analysis	<i>Frequency of accidents and fatalities</i>	During construction, operation and maintenance phase	EDCL BRD
<i>Equipment Status including construction</i>	Equipment status report	Project sites	Visual inspection and report analysis	<i>Equipment maintenance or replacement report</i>	During construction, operation and maintenance phase	EDCL EUCL

<sup>6</sup> For more information about Emergency Preparedness and response plan refer to <https://documents1.worldbank.org/curated/en/157871484635724258/pdf/112110-WP-Final-General-EHS-Guidelines.pdf>

Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)

Activity Impact	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How(Is th parameter to be monitored?)		When (Define the frequency / or continuous?)	Who (Is responsible for monitoring?)
			Method	Indicator		
<i>equipment and PPE</i>						
E-waste management related to component 3 (More specifically related to solar home systems)	Proper collection, storage and disposal of produced E-waste	To be monitored both at: <ul style="list-style-type: none"> <li>• Solar company,</li> <li>• Household level;</li> <li>• E-Waste recycling plant level (e.g., Enviroserve)</li> </ul>	Regular and random inspection at solar company, Household level and recycling plant	Inspection findings shared to the World Bank	Every quarter	BRD PIU

## VI. ESMF SCREENING PROCEDURE

### 6.1.subproject screening, with reference to the E&S screening tools

All subprojects and activities will need to be screened for potential environmental and social impacts. The project is expected to produce net benefits; however, certain project activities may have environmental and social impacts that will require mitigation. For this reason, this project has been rated as substantial risk under the World Bank ESS1. The screening will further ensure that subprojects that may have potential adverse impacts are studied in greater detail including need for subproject specific ESIA, and the due diligence will be also critical to assess the social and environmental impact of the sub-project. As part of the identification of sub-projects, the EDCL will prepare a sample screening checklist (the screening checklist provided as annex 2). The screening checklist will lead to the preparation of an ESIA or ESMP Report for review by Rwanda Development Board (RDB). The ESIA will be prepared by independent consultants registered under RAPEP, who will be paid by EDCL. The ASCENT's E&S team will offer guidance in the preparation of the screening forms and project reports. The project will prepare also the ESMPs consistent with WB ESF requirements, which will be prepared by EDCL and be approved by the WB. The contractors Environmental and Social Management Plan will be prepared by the contractors and be approved by the supervising firm.

### 6.2.Steps<sup>7</sup> of ESIA/ESMP preparation in Rwanda

#### 6.2.1. Project Brief Submission and Registration

As a first step in the ESIA/ESMP process, a developer<sup>8</sup> proposing to start a project shall notify Rwanda Development Board (RDB) in writing by submission of a Project Brief. The purpose of a Project Brief, which should be prepared as prescribed in this regulation, is to provide information on the proposed activity so as to enable RDB and Lead Agencies to establish whether or not the activity is likely to have significant impact on the environment, and thus determine the level of ESIA/ESMP necessary. The project brief submitted to RDB by a developer will be registered as the formal application for an ESIA/ESMP.

#### 6.2.2. Screening

Screening refers to the process a decision making on whether or not and at which level an ESIA is required. This is based on the Ministerial Order N° 001/ 2019 of 15/04/2019 discussed in the previous section. It is through screening a project is classified as either of impact level (IL) 1, 2 or 3. The responsibility for scoping shall be that of the developers (or their ESIA experts) in consultation with Lead Agencies and all relevant stakeholders. Scoping is intended to establish important issues to be addressed in the environmental impact and eliminate the irrelevant ones. After scoping, the RDB approves the terms of reference that would be used for carrying out the environmental and social impact Report.

#### 6.2.3. Baseline data collection and Analysis of Initial State

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<sup>7</sup> These steps are followed for all Environmental Assessment which the project briefs are submitted in the RDB (Rwanda Development Board like Environmental and Social Management Plan (ESMP))

<sup>8</sup> The developer means any individual, institution or company that is going to develop a particular project or activity in an given area (Owner). In this case of ASCENT the developer is EDCL (The project owner)

Baseline data describes status of existing biophysical and socio-economic environment at a location before intervention of the proposed project. Site-specific primary data on and around a proposed site should be collected by experts conducting the environmental and social impact Report to form a basis for future environmental and social monitoring.

#### **6.2.4. Impact prediction and analysis of alternatives**

Impact prediction is a way of forecasting the environmental and social consequences of a project and its alternatives. This action is principally a responsibility of an ESIA expert. For every project, possible alternatives should be identified, and environmental attributes compared. Alternatives should cover both project location and process technologies. Alternatives should then be ranked for selection of the most optimum environmental and socio-economic benefits to the community. Once alternatives have been analysed, a mitigation plan should be drawn up for the selected option and is supplemented with an Environmental and Social Management Plan (ESMP) to guide the developer. The ESMP details (a) the measures to be taken during the implementation and operation of a project to eliminate or offset adverse environmental and social impacts, or to reduce them to acceptable levels; and (b) the actions needed to implement these measures.

#### **6.2.5. ESIA Report**

An environmental and social impact Report culminates into preparation of a report by the ESIA experts. An ESIA report should provide clear information to the decision-maker on the different environmental scenarios without the project, with the project and with project alternatives. The developer is also required to produce an environment and social management plan (ESMP). Any modifications made by a developer to the ESIA report should be presented in form of an Environmental and Social Impact Report Addendum. All these three documents should then be submitted to RDB by the developer.

#### **6.2.6. Public hearing**

After completion of the ESIA report, the Environmental Law requires that the public must be informed and consulted on a proposed development. RDB may, if it deems necessary, conduct a public hearing before ESIA reports are appraised by its Technical Committee. Any stakeholders likely to be affected by the proposed project are entitled to have access to unclassified sections of the ESIA report and make oral or written comments to the RDB. The Rwanda Development Board shall consider public views when deciding whether or not to approve a proposed project.

#### **6.2.7. Decision-making**

During the decision-making and authorization phase, ESIA documents submitted to the Authority shall be reviewed by two decision-making committees: a Technical Committee and an Executive Committee constituted by the RDB. If the project is approved, the developer will be issued with an ESIA Certificate of Authorization, which permits implementation of the project in accordance with the mitigation measures in the ESIA Report and any additional approval conditions.

#### **6.2.8. Environmental and Social Monitoring**

Monitoring should be done during both construction and operation phases of a project. It is done not just to ensure that approval conditions are complied with but also to observe whether the predictions made in the ESIA reports are correct or not. Where impacts exceed levels predicted in the environmental impact Report,

corrective action should be taken. Monitoring also enables the RDB to review validity of predictions and conditions of implementation of the Environmental and Social Management Plan (ESMP). During implementation and operation of a project, monitoring is a responsibility of the developer and RDB.

### **6.3.Environmental and social documentation**

#### **6.3.1. Screening Checklist**

Based on this application, the proposal will be reviewed and selection for the next stage of evaluation undertaken. At this selection stage, a first level of environmental and social screening takes place on the basis of the screening checklist completed by EDCL.

The screening checklist will be reviewed using the Review Form, to be completed either by the district officer in charge of environment or the ASCENT's Environmental Risk Management Specialist. Where there are social impacts indicated, the form will have to be reviewed in addition by ASCENT's Social Risk Management Specialist. The form prompts the reviewer to verify the information provided by EDCL and confirm the best course of action. The reviewer must consider the nature and location of the subproject and the anticipated impacts, and based on his/her judgment, confirm or propose the best course of action. The sample screening checklist is provided in the Annex 2

#### **6.3.2. Terms of References for ESIA**

This ESMF has prepared ToRs for ESIA preparation based on the guidelines for the content of ESIA report provided by RDB and World Bank Environmental and Social Framework, ESS1 and this is discussed in the annex 4 of this document.

#### **6.3.3. Generic Environmental and Social Management Plan (ESMP)**

A generic ESMP provides guidance on procedures to be followed and standards to be met in implementing the ASCENT which should agree with national and the World Bank's Environmental and Social Framework. Institutional arrangements with clearly defined roles and responsibilities as well as monitoring protocols to be followed are presented to ensure that the required provisions are adhered to. The ESMP in this ESMF was prepared considering the activities of the proposed subprojects and activities and their impact mitigation measures were subdivided into four phases including activities in Planning Phase, Construction Phase, Operation Phase and decommissioning phase. The details about the generic ESMP is found in Annex 3 of this ESMF.and was presented to reflect World Bank ESF as provided by the ESS1 on Assessment and Management of Environmental and Social Risks and Impacts. .

#### **6.3.4. Environmental Auditing in Rwanda**

##### **6.3.4.1.General principles for Environmental auditing**

##### **i) Requirements for an environmental audit**

An environmental audit should focus on clearly defined and documented subject matter. The party (or parties) responsible for this subject matter should also be clearly identified and documented. The audit should only be undertaken if, after consultation with the client, it is the lead auditor's opinion that:

- a) there is sufficient and appropriate information about the subject matter of the audit;
- b) there are adequate resources to support the audit process; and
- c) there is adequate cooperation from the auditee.

**ii) Objectives and scope**

Environmental audit should be based on objectives clearly defined by the client. The scope is determined by the lead auditor in consultation with the client and REMA/RDB to meet these objectives. The scope describes the extent and boundaries of the audit. The objectives and scope should be communicated to the auditee prior to the auditing.

**iii) Objectivity, independence and competence**

To ensure the objectivity of the audit process and its findings and any conclusions, the members of the audit team should be independent of the activities they audit. They should be objective, and free from bias and conflict of interest throughout the process. The use of external or internal audit team members is at the discretion of the client. An audit team member chosen from within the organization should not be accountable to those directly responsible for the subject matter being audited. The audit team members should possess an appropriate combination of knowledge, skills and experience to carry out audit responsibilities. There are merits and demerits in using either internal or external auditors. The use of internal auditors ensures: better ownership and raise awareness; less strain on resources; good knowledge of the organization; development of some environmental expertise; and less cost for EA. On the other hand, use of external auditors means: less ownership; need for extra resources; provide independent view; provide additional environmental expertise; and cost more money. If the organization has the qualified personnel they should conduct the audit with an external auditor providing advice and support. The consultant (external auditor) can help to prepare checklist or manual and help train auditors. The use of employees ensures environmental problems remain within company's sphere. External auditors bring 'fresh eyes' and objectivity. The ideal thing is for an internal (self –audit) audit but due to the credibility problems which is resolved by an external auditor, it may be advisable to have a combination of the two for balance. Regular self-audit reports and evidence can help to ease the task of external auditors and also is a means of continuous environmental checks to ensure good environmental management within a facility.

The article 6 of the Ministerial Order No 001/2021 of 08/02/2021 establishing the list of projects that must undergo environmental audit, instructions and procedures for conducting environmental audit states that Upon reception of the terms of reference, the developer selects experts from the list of experts published, in accordance with relevant legislation to conduct the environmental audit. The selected experts provided for this Paragraph above of this Article must not have direct or indirect interests in that project.

**iv) Terms of reference for the Environmental Audit**

The article 5 of the Ministerial Order No 001/2021 of 08/02/2021 establishing the list of projects that must undergo environmental audit, instructions and procedures for conducting environmental audit states that Upon reception of the brief description of the project and its analysis, the Authority submits to the developer



the terms of reference for the environmental audit. However, the Authority may develop terms of reference for projects, facilities, works or activities basing on audit findings.

**v) Due professional care**

In the execution of an environmental audit, auditors should use the care, diligence, skill and judgment expected of any auditor in similar circumstances. The relationship between the audit team members and the client should be one of confidentiality and discretion. The audit team members should not disclose any information or documents obtained during the audit, and the final report, to any third party, without the consent of the client unless required by law.

**vi) Systematic Procedures**

Environmental audits should be conducted in accordance with these general principles and any other guidelines developed for a particular type of EA. For consistency and reliability, EA should be conducted according to well-defined methodologies and systematic procedures.

**vii) Audit Criteria, evidence and findings**

It is essential to determine the audit criteria early in the EA process. These criteria at an appropriate level of detail should be agreed between the lead auditor and the client, and then communicated to the auditee. Appropriate information should be collected, analysed, interpreted and documents used as audit evidence in an examination and evaluation process to determine what audit criteria are met. Audit evidence should be of such quality and quantity that a competent environmental auditor working independently of each other would reach similar audit findings evaluating the same audit evidence against the same audit criteria.

**viii) Reliability of audit findings and conclusions**

The EA process should be designed to provide the desired level of confidence in the reliability of the audit findings and any conclusions. Audit evidence collected will inevitably be only a sample of the information available, because EA is conducted during a limited period of time and with limited resources. There is therefore an element of uncertainty inherent in all EAs and all users of the EA results should be aware of this uncertainty. The environmental auditor should consider these limitations when planning, carrying out and making audit conclusions.

**ix) Reporting**

The audit findings should be communicated to the client in a written report. It is important for the auditee to receive a copy of the audit report. Photographs and other visual evidence may be attached. Audit related information that may be in audit reports, includes, but is not limited to:

- (i) the identification of the organization audited and of the client;
- (ii) the agreed objectives and scope of the audit;
- (iii) the agreed criteria against which the audit was conducted;

- (iv) the period covered by the audit and the date(s) the audit was conducted;
- (v) the identification of the audit team members;
- (vi) the identification of the auditee’s representatives participating in the audit;
- (vii) a summary of the audit process including any obstacles encountered;
- (viii) the audit findings
- (ix) Corrective action plan
- (x) the audit conclusion and recommendations;
- (xi) a statement of the confidential nature of the contents; and
- (xii) the distribution list for the audit report. The lead auditor in consultation with the clients and REMA/RDB should determine which of these items listed above together with any additional items, will be included in the report. Recommendations for corrective measures are provided by the auditors after consultation with the client or auditee. This is because corrective measures have to be realistic (e.g. affordable, available, etc) to the client.

#### 6.3.4.2. List of works, activities and projects that must undergo the Environmental Audit

Environmental audit is conducted on existing projects or facilities and based on project description or design and baseline information generated during the environmental impact assessment process. However, for activities, projects and facilities for which no environmental impact assessment was conducted prior to their commencement, the environmental audit is based on the description and background information generated in the scoping process. The list of works, activities and projects that must undergo environmental audit is provided in the annex of the Ministerial Order No 001/2021 of 08/02/2021 establishing the list of projects that must undergo environmental audit, instructions and procedures for conducting environmental audit. The annex 11 classifies the hydro-dams, hydropower plants and electrical lines of high and medium voltage in the projects that must undergo the Environmental Audit. The Authority may request an environmental audit on projects which are not provided for in Paragraph 3 of this Article basing on routine inspection recommendations.

#### 6.3.4.3. Environmental Audit Procedure

The activities that constitute Environmental Audit procedure are chronologically summarised by Figure below. The EA procedure is presented in the three phases as pre-audit activities, on-site activities and post-audit activities for an effective EA process.

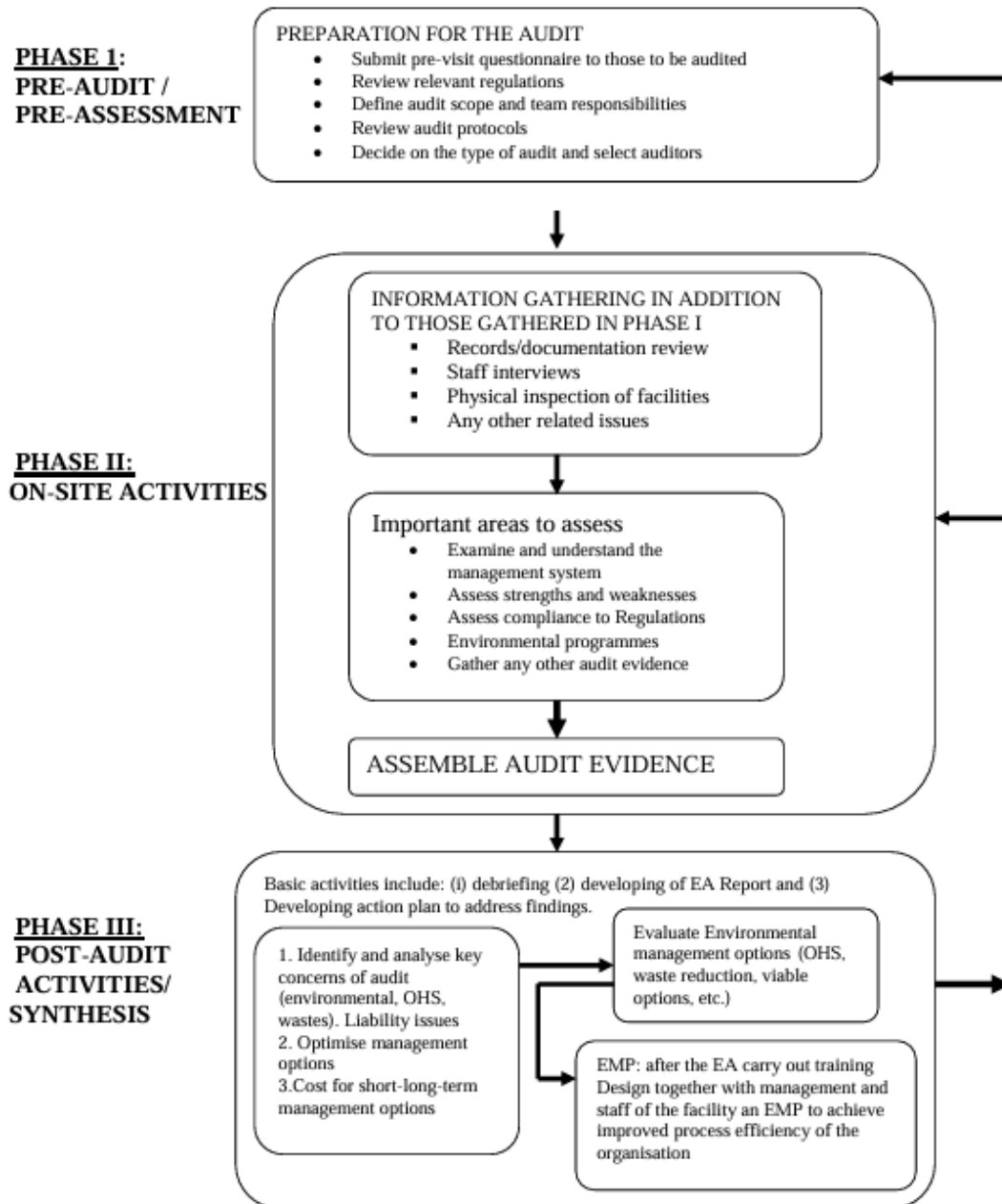


Figure 29: General Environmental Audit Flowchart (source: REMA Environmental Audit Guidelines, 2009)

The audit report should:

- Highlight both the positive and the negative.
- Identify inefficiencies within current practice.
- Be clear and concise.
- Minimize subjective statements.
- Specify obvious deficiencies and indicate priorities for improvement.

- Suggest the potential cost effective improvements.
- Seek agreement with site management.
- Bear in mind potential user of the report.

The draft report should be presented before the senior management and various points should be thoroughly discussed. The management should put forward their views. The participation of the management and their acceptance of various observations and recommendations make the task of implementation meaningful.

#### 6.3.4.4. Environmental Audit procedures under ASCENT

ASCENT implementation will include also the rehabilitation and upgrade of different substations which were constructed before the 08/04/2005 - ORGANIC LAW N° 04/2005 determining the modalities of protection, conservation and promotion of environment in Rwanda. Those substations were constructed without the preparation of the Environmental Impact Assessment due to the absence of that regulation governing the EIA in Rwanda at that time. For all of those falling in that category, the Environmental and Social Audit will be done to assess the Environmental and Social Compliance associated with the procedures and provide the recommendation and corrective action plan. As the procedures of Environmental and Social Audit in Rwanda, EDCL will prepare the brief description of these activities that are going to be rehabilitated which do not have the environmental clearance certificate, and submit that report to the Authority in charge of environmental audit (REMA) which will help in the preparation of the ToRs (Terms of Reference) to be followed during the Environmental and Social Audit preparation by the E&S Expert to be chosen within RAPEP. After receiving the ToRs from REMA (the ToRs are prepared by REMA), EDCL will choose the Environmental Assessment Expert mainly the firm of Experts from the list of the E&S Experts under RAPEP who will prepare the Environmental and Social Audit as the law on Environmental Audit stipulates. The Environmental and Social Audit will take into consideration the inputs from consulted stakeholders and the recommendation should be informed to the EDCL before being submitted to REMA for EDCL to also provide its concerns as the implementing Agency. The report which will be submitted to REMA will contain the recommendation agreed with EDCL, and REMA will assess if the recommendation provided are enough to address all the E&S impacts identified. After REMA assesses the compliance of the report to the audit findings and is satisfied with the measures elaborated, will provide the Environmental Audit Certificate with the condition of approval which will constitute the basis for the monitoring and evaluation of Environmental Audit recommendations.

#### **6.4. Review and clearance of the environmental and social instruments**

ASCENT subproject activities will need to be reviewed for potential environmental and social impacts. The project is expected to produce net benefits. However, certain project activities may have environmental and social impacts that will require mitigation. For this reason, this project has been classified Substantial risk under the World Bank ESS1. The subprojects of this project concerning the substations, electrical lines of high and medium voltage are categorized among the projects which must undergo ESIA process before their implementation.

All ESSs instruments to be prepared should comply with the World Bank ESF, Ministerial order 001//2019 of 15/04/2019 discussed above and Law 48/2018 of 13/08/2018 on Environment in Rwanda. The documents will be prepared either by Independent consultant or PIU E&S team. They will be reviewed by the project Risk Management team, the World Bank and finally be submitted to RDB for review and approval. However, some documents like RAP and other documents that may be required by the Bank but not demanded by RDB will only be submitted to and cleared by the Bank only. All ESIA and ESMP will be subject to RDB approval and evidenced by clearance certificate.

## **6.5. Associated Facilities**

Associated Facilities” means facilities or activities that are not funded as part of the project and, in the judgment of the Bank, are: (a) directly and significantly related to the project; and (b) carried out, or planned to be carried out, contemporaneously with the project; and (c) necessary for the project to be viable and would not have been constructed, expanded or conducted if the project did not exist. As of now, no associated facility has been identified. the associated facilities under this project will be identified during the ESIA/ESMP preparation of the subprojects/activities. Associated Facilities once identified, they will meet the requirements of the ESSs, to the extent that EDCL has control or influence over such Associated Facilities

## **6.6. Grievance Redress Mechanism (GRM)**

### **6.6.1. Introduction**

A grievance mechanism has been developed for potential use by all interested stakeholders. The aim of the grievance mechanism is to achieve mutually agreed resolution of grievances raised by such stakeholders. This grievance mechanism ensures that complaints and grievances are addressed in good faith and through a transparent and impartial process, but one which is culturally acceptable.

Grievances raised by stakeholders need to be managed through a transparent process, readily acceptable to all segments of affected communities and other stakeholders, at no cost and without retribution. The grievance mechanism should be appropriate to the scale of impacts and risks presented by a project and beneficial for both the project and stakeholders, especially PAPs.

The types of grievances stakeholders may raise include, but are not limited to:

- i. Negative impacts on communities, which may include, but not be limited to financial loss, physical harm and nuisance from construction or operational activities;
- ii. Health and safety risks;
- iii. Negative impacts on the environment such as pollution of water ways, soil, and air;
- iv. Relocation of utilities, and
- v. Unacceptable behavior by staff or employees.

It is critical that stakeholders understand that all grievances lodged, regardless of the project phase or activity being implemented, will follow one single mechanism. The mechanism must not impede access to other judicial or administrative remedies.

### **6.6.2. Objectives of Grievance Redress Mechanism (GRM)**

The GRM works within existing legal and cultural frameworks, providing an additional opportunity to resolve grievances at the local, project level. The key objectives of the GRM are:

- i. Record, categorize and prioritize the grievances;
- ii. Settle the grievances via consultation with all stakeholders (and inform those stakeholders of the solutions);
- iii. Forward any unresolved cases to the relevant authority.

It is vital that appropriate signage is erected at the sites of all works providing the public with updated project information and summarising the GRM process, including contact details of the relevant Project Contact Person within the project implementation unit. Anyone shall be able to lodge a complaint and the methods (forms, in person, telephone, forms written in Kinyarwanda) should not inhibit the lodgement of any complaint.

### **6.6.3. Grievance Redress process**

#### **6.6.4. Project Level Grievance Redress Mechanism: Grievance Redress Committee (GRC)**

As the GRM works within existing legal and cultural frameworks, it is organized in such a way that the Grievance Redress Committee (GRC) will comprise of local community representative, PAPs representative, local authority representative at village and cell levels, Contractor and Supervising firm representative. Members of GRC are presented below with their roles and responsibilities. A total of 1986 GRCs will be established within the whole project area.

Many projects related grievances are site-specific. Often, they are related to impacts generated during construction such as noise, dust, vibration, contamination, workers dispute etc. Most of the time, they can be resolved easily on site with the contractor commitment to implement the ESMP and proper supervision by the implementing agencies and administrative District officials. Other grievances are more sensitive especially when they are about land boundaries, or misunderstandings between affected households and the Contractor regarding access arrangements, properties accidentally damaged by construction activities, accidents on sites among others. All these grievances and claims must be resolved as soon as they are received.

The grievance procedure at project level will be simple and administered at the extent possible at the local levels to facilitate access, flexibility and ensure transparency. All the grievances will be channelled via the Grievance Resolution Committees specifically established for the project at Cell, Sector and District level. Stakeholders will be allowed to use any means easily accessible to them to voice their concerns and complaints such as filling a grievance form, sending an email, using phone etc. Complaints will be filled in a Grievance Register that will be distributed to GRC free of charge, this register will be available to the hierarchical level for verification of the complaint and an investigation will be carried out by the hierarchical committee members to verify its authenticity. Thereafter a resolution approach will be selected based on the findings. The decisions of the action to be taken will be communicated to all involved parties mainly in written form.

All measures will be undertaken to ensure that the grievance is solved amicably between the concerned parties. If the grievance is not solved at Cell level, Sector or District level, the courts of law will be the last

resort. Efficiency in solving of the grievances will be of paramount importance. The selection of members for the sub-project grievance committee will be at the discretion of the PAPs to decide based on information provided by the PIUs.

In practice, some complaints are expected. This is on the assumption that all proposed works are within the public land where the farmer have many types of crops and trees; this will be specifically on component one, increasing access to grid electricity during grid connection for households, commercial and industrial consumers, and public institutions.

However, some complaints are likely to be associated with construction of medium voltage lines impacts. Most are received directly on site by the Contractor's Site Manager/Engineer who will mandatory be responsible to resolve these issues on site. The Contractor will inform and Grievance Committee (GRC) of these complaints and their outcomes, and of others not satisfactorily resolved that the Grievance Committee should take over. The GC will log these in the Complaints Register and inform the Project Implementation Unit.

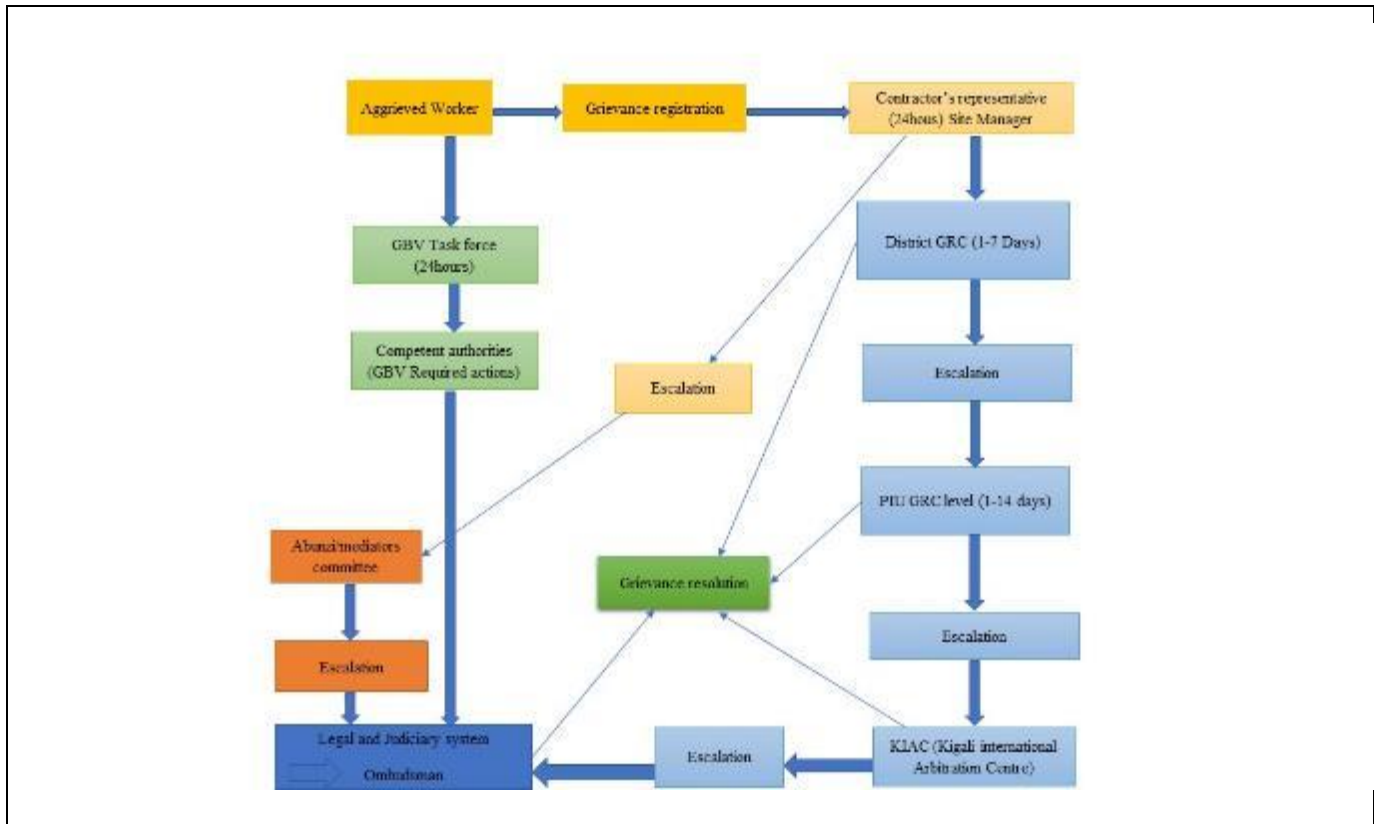
At each level of the project GRC, complaints will be solved within a period of 1-2 weeks or otherwise handed to the next level. Once at the judiciary level, due process as mandated by the law will be followed depending on what the courts will require.

Through citizen engagement meetings the PAPs will be informed of the different grievance mechanisms in place for them to lodge their complaints and dissatisfactions.

#### **6.6.5. Workers Grievance Redress Mechanism**

Provisions in law N° 66/2018 of 30/08/2018 regulating labor in Rwanda will be applied for Grievance Redress Mechanism (GRM) for workers. A GRM shall be established under the EDCL-PIU to address workers complaints arising during the project implementation of all sub-components, including substation rehabilitation. Project direct workers will be informed about the grievance redress mechanism during meetings at the time of the induction and where training will be provided where required, this will follow the same procedure as described in the approved REG manual of procedure for grievance management. Contracted workers will be informed about grievance redress mechanism through meetings at workplaces as well as notices to be made available at the workplace. The Grievance Redress Committees (GRCs) to be established as mentioned earlier will also handle the arising grievances. The process pertaining to how to go about grievances handling are documented for further reference. The worker's GRCs will be established based on below structure and will be followed by all contractors throughout the project implementation.

*Figure 30 31: Structure of the Workers Grievance Redress Mechanism*



The workers GRC shall be composed at Site level by the contractor representative, the supervising firm representative, and the workers representative at site level while the GRM at District level shall be composed of Labor inspector at District level as advisor, Project Liaison Officer, Workers representative, contractor representative, the supervising firm representative, and at PIU Level, the committee will be composed of the Social and Environmental Risk Management Specialists, Project Coordinator, Human Resource Specialist under PIU, and contractor representative, the supervising firm representative and workers representative. The EDCL- PIU will require contractors to develop and implement a grievance mechanism for their workforce including sub-contractors, prior to the start of design stage. The construction contractors will prepare their labor management procedure before the start of civil works, which will also include detailed description of the workers grievance mechanism.

The workers grievance mechanism will include:

- A procedure to receive grievances such as comment/complaint form, suggestion boxes, email, a telephone hotline;
- stipulated timeframes to respond to grievances;
- A register to record and track the timely resolution of grievances;
- A responsible department to receive, record and track resolution of grievances.

The Supervision firm’s Risk Management staff will monitor the contractors’ recording and resolution of grievances, and report these to the EDCL- PIU in their monthly progress reports. The process will be monitored by the GRM Focal Point, the Risk Management specialists will be responsible for the project GRM. The direct workers grievance mechanism will be described in staff induction trainings, which will be provided to the new recruited project workers. The mechanism will be based on the following principles:



- The process will be transparent and allow workers to express their concerns and file grievances;
- There will be no discrimination against those who express grievances, and any grievances will be treated confidentially;
- Anonymous grievances will be treated equally as other grievances, whose origin is known;
- Management will treat grievances seriously and take timely and appropriate action in response.

Information about the existence of the grievance mechanism will be readily available to all project workers (direct and contracted) through notice displaying boards, the presence of “suggestion boxes”, and other means of communication as required.

#### **6.6.6. Grievance Channel for Gender-Based Violence**

As Gender-Based Violence, Sexual Exploitation and Abuse or Sexual Harassment requires timely access to quality, multi-sectoral services and involves confidentiality and informed consent of the GBV victim. To this end, MININFRA will develop a GBV Action Plan that will include an Accountability and Response Framework, and this will form part of the project C-ESMP. The GBV Action Plan will identify service providers in the project areas with minimum package of services (health, psychosocial, legal/security, safe house/shelter, and livelihood). The GBV Action Plan will also provide enough details to allow for the development of a localized referral pathways, will establish procedures of handling cases as part of the service providers mapping. The bidding documents will clearly define GBV requirements. During implementation phase, separate facilities for women and men will be recommended to all contractors with indication signage.

#### **6.6.7. Primary supply workers**

Where a significant risk of child labor or serious safety issues in relation to primary suppliers has been identified, the procedure for monitoring and reporting on primary supply workers will involve various measures that have been put in place to prevent and control them such as establishment of child labour prevention committees from the District to the Cell level. In the event of identification of child labour cases, it will be reported to concerned authorities. The labour law also provides for penal and administrative penalties in case of non-compliance with labour law provisions. In instances where local suppliers would be engaged, contractors shall be required to carry out due diligence procedure to identify if there are significant risks that the suppliers are exploiting child or forced labor or exposing worker to serious safety issues. In other hand where foreign suppliers would be contracted, contractors will be required to inquire during their procurement process whether the supplier has been accused or sanctioned for any of these issues and their corporate requirements related to child labor, forced labor, and safety. If there are any risks related to child and forced labor, and safety identified, in case of occurrence, the sanctions stipulated by Rwanda labour law will be applied.

#### **6.6.8. Contractor management**

The EDCL-PIU will use the Bank’s 2018 Standard Procurement Documents for solicitations and contracts, and these include labor and occupational, health and safety requirements.

As part of the process to select design and build contractors who will engage contracted workers, the EDCL-PIU and/or the supervision consultant may review the following information:

- Information in public records, for example, corporate registers and public documents relating to violations of applicable labor law, including reports from labor inspectorates and other enforcement bodies in the Districts where the project will be being implemented;
- Business licenses, registrations, permits, and approvals;
- Documents relating to a labor management system, including OHS issues, for example, labor the prepared management procedures;
- Identification of labor management, safety, and health personnel, their qualifications, and certifications;
- Workers' certifications/permits/training to perform contracted work;
- Records of safety and health violations, and responses;
- Accident and fatality records and notifications to hierarchical authorities;
- Records of legally required worker benefits and proof of workers' enrolment in the related programs;
- Worker payroll records, including hours worked and pay received;
- Identification of safety committee members and records of meetings; and
- Copies of previous contracts with contractors and suppliers, showing inclusion of provisions and terms reflecting ESS2.

The contracts with selected contractors will include provisions related to labor and occupational health and safety, as provided in the World Bank Standard Procurement Documents 2018 and law N°62/2018 of 25/08/2018 governing Public Procurement in Rwanda and AfDB OS5–Labour conditions, health and safety. The Supervision Consultant will manage and monitor the performance of Contractors in relation to contracted workers, focusing on compliance by contractors with their contractual agreements (obligations, representations, and warranties). This may include periodic audits, inspections, and/or spot checks of project locations or work sites and/or of labor management records and reports compiled by contractors. Contractors' labor management records and reports may include: (a) a representative sample of employment contracts or arrangements between third parties and contracted workers; (b) records relating to grievances received and their resolution; (c) reports relating to safety inspections, including fatalities and incidents and implementation of corrective actions; (d) records relating to incidents of noncompliance with national law; and (e) records of training provided for contracted workers to explain labor and working conditions and OHS for the project.

#### **6.6.9. Judiciary Level Grievance Redress Mechanism**

The project level process will not impede PAPs access to the legal system. Local communities have existing traditional and cultural grievance redress mechanisms (Abunzi committees) established and regulated by law no 37/2016 of 08/09/2016 determining organization, jurisdiction, and competence and functioning of Abunzi committee. These are established at cell and Sector level to solve community-based conflicts and grievances their regulatory body being the Ministry of Justice. This mechanism cannot be overlooked by the project. The population can choose to use this channel instead of the project GRC. The escalation at this

level leads to the court process. At any time, the complainant may take the matter to the appropriate legal or judicial authority as per Rwanda National Legal procedure.

Figure 3233: Grievance Redress Process for the implementation of ASCENT

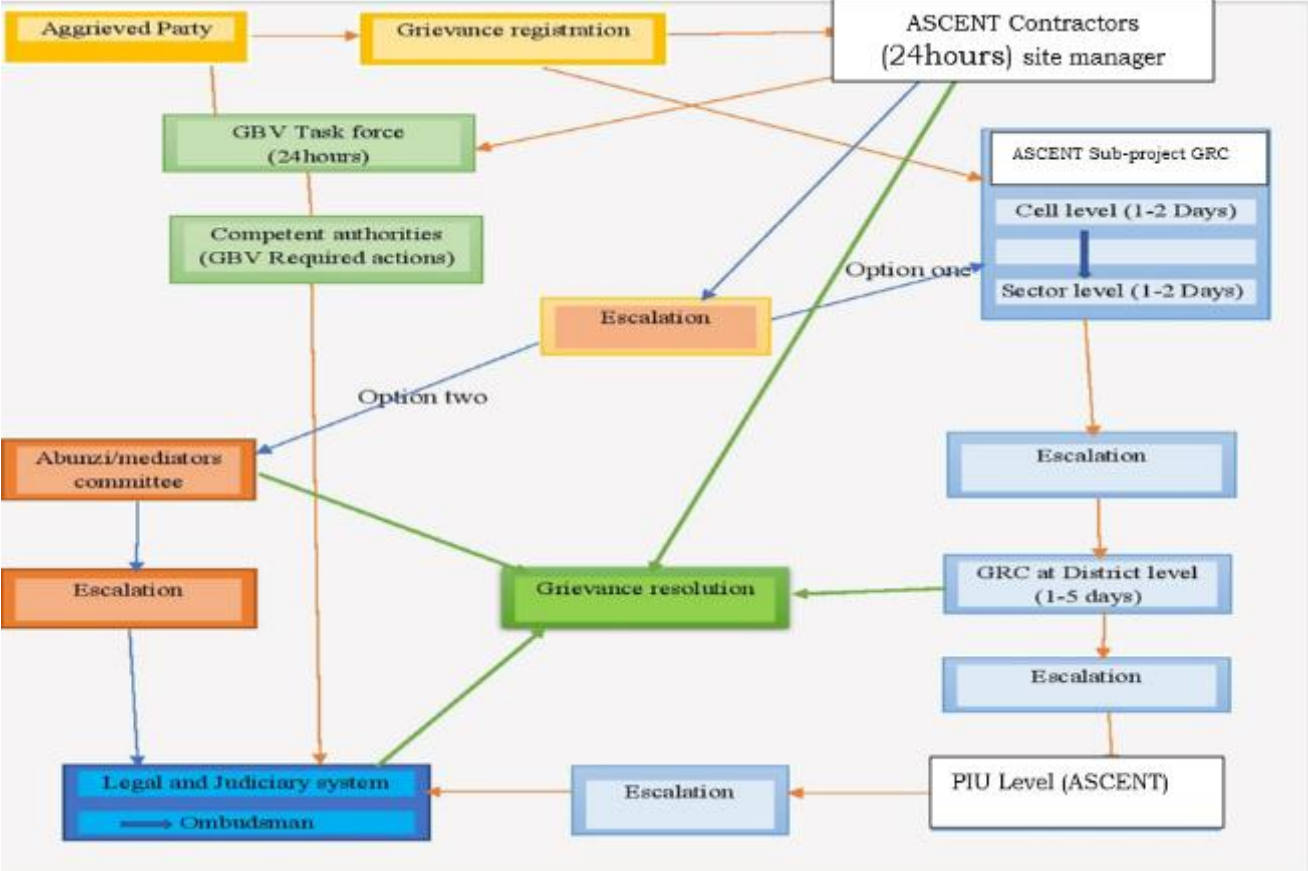


Table 20 : Process, stage and timeframe for grievance resolution

Stage	Process	Duration
1a	<p>Since most of complaints during the execution of works involves directly the contractor, at first the Aggrieved Party (AP) will take his/her grievance to the contractor representative or site Manager of the relevant subproject who will endeavour to resolve it immediately. The contractor representative or site Manager will inform the District Electricity and Maintenance officer or the appointed focal project at the district level. Where AP is not satisfied, the complaint will be transferred to the Sub-project Grievance Committee (GC) at cell level. For complaints that were satisfactorily resolved by the Contractor, he/she will inform the GC and the GC will log the grievance and the actions that were taken.</p> <p>There is also a possibility that the AP directly takes his/her complainants directly to the GRC without going to the Contractor or</p>	1-2 weeks

Stage	Process	Duration
	Site Manager first. In this case, the GRC will solve it working with the Contractor or Site Manager.	
1b	The AP may choose to escalate the grievance to the Abunzi Mediation Committee <sup>9</sup> especially if she/he is not directly linked to the sub-project.	Not fixed
2	On receipt of the complaint, the GRC at cell level will endeavour to resolve it immediately. In case the GRC at cell level fail to solve the complaint, it will be escalated to the GRC at Sector level. If unsuccessful, the GRC or the complainant then notifies District Officials.	1-2 weeks at Cell level  1-2 weeks at Sector level
3	The District Officials where the project activities are being implemented, he/she will endeavour to address and resolve the complaint and inform the aggrieved party. The District Authority will refer the complaint to the Project Implementation Unit (ASCENT) with other unresolved grievances for their consideration.	1 – 2 weeks
4	If it remains unresolved or the complainant is dissatisfied with the outcome proposed by the PIU, he/she is free to refer the matter to the court of law.	1 – 2 weeks
5	If the issue remains unresolved through the courts, then the ultimate step will be for the ombudsman. The decisions at this level are final.	Not fixed
6	The dimension represented in purple is strictly for GBV related matters. The AP will approach directly the GBV task force to ensure her/his anonymity and safety. However, in case the complaint was addressed first to the contractor’s Site Manager, the latter is required to immediately refer it to the task force. The GBV task force will work with competent authorities to ensure the proposed official structure for GBV has respected to guarantee the victim the real justice and required medical care.	Not fixed

<sup>9</sup> The word Abunzi can be translated as ‘those who reconcile’ or ‘those who bring together’ (from verb kunga). In the traditional Rwanda, Abunzi were men known within their communities for personal integrity and were asked to intervene in the event of conflict. Each conflicting party would choose a person considered trustworthy, known as a problem-solver, and who was unlikely to alienate either party, the result is a set of Home-Grown Solutions - culturally owned practices translated into sustainable development programs.

Table 21 : Proposed Members of GRC and their roles under ASCENT

No	Member of GRC	Roles and responsibilities
1	President (PAPs representative)	<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 s/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>
3	Village leader	<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>
4	Cell executive secretary	<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 and facilitates a proper Resettlement Plan</li> </ul>
5	Women and youth representatives	<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>
6	Contractor representative	<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 endeavour 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> </ul>

No	Member of GRC	Roles and responsibilities
		- Attend community meetings, respond and react to PAPs complaints raised concerning the contractor.
7	Supervising firm representative	<ul style="list-style-type: none"> <li>- Represent client (EDCL);</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 ASCENT from community;</li> <li>- Report on monthly basis the progress of GRM process.</li> </ul>

Table 2223: Proposed members of the GBV taskforce under ASCENT

Institution	Staff position
PIU National level (ASCENT)	Environmental and Social Safeguard Specialists
PIU (District level)	Gender Monitoring Officer, Environmental and Social Risk Management Specialist
Contractor	Human Resources Officer, Social Risk Management Specialist
Supervising firm	Social Risk Management Specialist
NGO in GBV prevention and advocacy	Designated representative

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 site characteristics.

The project will plan to facilitate any other person external to the project to communicate with the project, to provide or request for information or file a complaint. These arrangements are provided in the table below.

To communicate with the project stakeholders by sending their recommendations, claims, and observations are summarized in the following table.

Table 24: Other methods of communication with the stakeholders

Methods	Description
<b>Project webpage</b>	The ESF documents will be disclosed in the implementing agencies of the project – a specific webpage will be prepared for ASCENT containing project description, implementing arrangements and ESF documents

Methods	Description
	including to communicate with the team, and the email, phone of contact of the concerned PIU Environmental Specialist or Social Risk Management Specialist.
<b>Community project Displaying board</b>	In a community selection point or the Administrative District, a Displaying board with project information, timeline, and information of the works, contractor, announcements will be placed and box for comments/suggestions will be placed with a lock so only the environmental or social Risk Management can open and respond to any messages. Any complaint from a third party can be filed using this method.
<b>E-mail, Telephone, instant message or other media</b>	All contacts of the environmental and social Risk Management of PIU at National or District Energy Project liaison officer will be made public to be used by any stakeholder or third party willing to ask for information, provide suggestion or file a complaint.

#### **6.6.10. Grievance Logbook**

The GRM Committee will ensure that each complaint has an individual reference number and is appropriately tracked, and recorded actions are completed.

The log will contain record of the person responsible for an individual complaint, and records dates for the following events:

- i. Date the complaint was reported;
- ii. Date the Grievance Log was added onto the project database;
- iii. Date information on proposed corrective action sent to complainant (if appropriate);
- iv. The date the complaint was closed out; and
- v. Date response was sent to complainant.

#### **6.6.11. World Bank Grievance Redress Service (GRS)**

Communities and individuals who believe that they are adversely affected by a World Bank (WB) supported project may submit complaints to existing project-level grievance redress mechanisms or the WB's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may submit their complaint to the WB's independent Inspection Panel which determines whether harm occurred, or could occur, as a result of WB non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and Bank Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank's corporate Grievance Redress Service (GRS), please visit <http://www.worldbank.org/en/projects-operations/products-and-services/grievance-redress-service>.

For information on how to submit complaints to the World Bank Inspection Panel, please visit [www.inspectionpanel.org](http://www.inspectionpanel.org).

### **6.7. Monitoring of Complaints**

The monitoring of complaints will be done by administrative districts and PIU at REG on regular basis. The monitoring team will be responsible for:

- i. Providing the sub-project Resettlement and Compensation Committee with a Monthly report detailing the number and status of complaints;
- ii. Any outstanding issues to be addressed; and
- iii. Quarterly reports, including analysis of the type of complaints, levels of complaints, actions to reduce complaints and initiator of such action.

### **6.8. Resettlement Action Plans**

Due to the fact that the Environmental and Social Standard 5 (Land Acquisition, Restrictions on Land Use and Involuntary Resettlement) has been triggered, an abbreviated or Resettlement Action Plan will be prepared in parallel with ESIA/ESMP, which the project will follow in order to restore livelihood and ensure full compensation for loss of asset and livelihood through a consultative and mutually agreeable process where applicable.

### **6.9. Remuneration of the committees**

The Grievance Redress Committees that will be elected will work in the framework of local authorities based at village level where they work as *Inyangamugayo* (*those who detest dishonesty*), they do not have the salary, but a communication and transport allowance fee will be given to them on monthly basis REG Environmental and Social Risk Management staff will ensure their capacity building.

### **6.10. Capacity building of the committees**

After election of GRC members but before operational, GRC members at cell level shall be trained to build their capacity on Grievance handling. The Project Environmental and Social Risk Management Specialist together with the local government officials especially Sector Land Manager will ensure that the GRC are trained about the GRM and will make a regular monitoring and follow up on its implementation. They will be trained before any project activities start to make sure that all grievances are recorded and handled within the specified times.

The training will cover the following modules:

- Member of GRCs at all levels and their responsibilities, GRM process, and their role in handling complaints/grievances.
- Frequently raised grievances related to the project.
- Eligibility criteria.
- Timeframe for grievances resolution.
- Gender Based violence.
- Asset inventory and Expropriation process.



**6.11. Inclusion of ESHS terms and conditions into subproject bids and contracts;**

The inclusion of Environmental, Social, Health, and Safety (ESHS) terms and conditions in subproject bids and contracts is essential to ensure that contractors and subcontractors adhere to specific environmental, social, and safety standards throughout the project. This inclusion helps manage risks, promote sustainability, and ensure compliance with regulatory requirements. The Environmental and Social Risk Management component together with the health and safety provisions will be well captured in the bids and the contracts for successful implementation. The contractor will be given all available Risk Management documents including the ESMF, RPF, GAP, ESCP, LMP and SEP in order to constitute the base of environmental and Social Risk Management, Health and Safety inclusion into the implementation activities. The Project Environmental and Social Risk Management staff will be consulted in all bids/ tender documents preparation and contract negotiations meetings in order to make sure that nothing is left neglected or forgotten.

**6.12. Monitoring and Supervision of Subprojects and reporting**

Monitoring and supervision of subprojects are crucial elements in ensuring the successful implementation, compliance, and performance of various tasks and activities within a larger project. The following points will be taken into considerations for monitoring and supervising subprojects: the monitoring of the subprojects will be carried out by the project management team on a daily basis. While the contractor will be reporting regularly to the supervising firm, the later will have also the duty to report to the client regularly. Monthly monitoring and annual evaluations will be conducted to determine whether the monitoring and mitigation measures proposed in the ESIA/ESMPs for the subproject components will be implemented effectively by the project implementing agencies.

The reports should cover environmental and social compliance, project progress, and environmental performance. Along with the monitoring parameters mentioned below, these reports should provide information about the implementation status of the Project ES instruments (ESMF, LMP, ESIA, RAPs, ESMPs etc.) for both construction and operation phases. They should also include details about the progress of EHS mitigation and protection measures, challenges faced, how they were dealt with, and proposed solutions for the future. Additionally, the reports may encompass additional mitigation measures that may be necessary, instances of non-compliance with relevant environmental permits, and any complaints received from residents, NGOs, and others, as well as the actions taken to address them.

The contractors, consultants, supervising firm, and operators will provide reports to their respective project implementing units. These reports will be submitted monthly, quarterly, annually, and include an overall project report upon completion of the civil works. The implementing units will review the reports, assess their relevance, and grant approval. Similarly, the implementing agency will submit reports to the World Bank for review and comments on a quarterly basis. The PIU must also adhere to the reporting procedures outlined in the Environmental and Social Commitment Plan (ESCP) document regarding material measures and actions. The World Bank will review the reports and verify their accuracy through periodic site visits. The project implementing unit will be responsible for monitoring and ensuring compliance with the Environmental and Social Management Framework (ESMF) and subproject Environmental and Social Management Plans (ESMPs). This includes monitoring the implementation of site-specific measures for

each sub-project during project implementation. The project implementing unit will report their findings in writing to the World Bank based upon project ESCP reporting requirements. In the event of incidents and accidents, the contractor/subcontractor will report immediately not later than 48 hours after learning of the incident or accident, and the PIU will provide a subsequent report to the Bank within a timeframe acceptable to the Bank. Both the implementing agency and the Contractor and the supervising firm share the responsibility of reporting and investigating such incidents. The Contractor is obliged to inform the project manager and local authorities promptly within 24 hours of the occurrence of an accident. If the project manager is unavailable, the Contractor must inform the implementing agency about the accident. The PIU will establish and maintain a database that will contain environmental and social data for all sub-projects, including monitoring data.

A comprehensive monitoring parameters and details on reporting arrangements will be described in each subproject ESIA/ ESMP and will be site-specific.

The following general parameters will be monitored:

- Drinking water quality given to workers
- Water quality of wetlands and streams where drains are discharged.
- Disturbance to the biodiversity in priority conservation areas
- Soil contamination on sites
- Noise quality and air pollution
- Debris and waste disposal
- Occupational Health and Safety
- The number of trees cut and planted.
- Number of affected houses/public areas with the works (damages caused to entrances, gardens, schools, etc)
- Number of claims by affected people.
- Compliance with ESMP and relevant national environmental laws/ regulations and or WB requirements
- Number of accident/ miss incident
- Environmental performance and compliance with the ESF documents prepared for the project.

## VII. PROJECT ENVIRONMENTAL AND SOCIAL CAPACITY ASSESSMENT, TRAINING RESPONSIBILITIES, AND IMPLEMENTATION ARRANGEMENT.

### 7.1. Capacity assessment

The capacity assessment conducted at the administrative district level in the implementation of environmental and social impacts management shows that a district has two departments in the environmental and social impact management. These are the one stop centre and the department of environment and natural resources management. However, the department of social protection sometimes intervenes in the management of social risks related to construction project implementation such as conflict redress mechanisms, and gender and inclusion. In the case of electricity access, the staff in charge of electricity (District Electricity Engineer) and land valuator are more involved. The PIU has E&S team with solid background in WB safeguards policies implementation and are now working for EAQIP/EDCL PIU. Moreover, the EDCL has the experienced environmental and social safeguards staff who are now working in the planning department and, Distribution and Access Department (DAD) implementing in-house projects. However, there is a need to train the existing safeguards staff on the WB ESF to boost their knowledge and skills but also to enable them to train the remaining staff of the PIU and administrative District staff on the safeguard requirements.

### 7.2. Capacity development

Effective implementation of the Environment and Social Management Framework requires technical capacity in the human resource base of implementing institutions as well as logistical facilitation. Implementers (Project PIU and Districts Liaison Officers) need to understand inherent social and environmental issues and values and be able to clearly identify indicators of these. Even with the existence of policies and laws such as the new Environment Law (2018), evidence on the ground still indicates that there are significant shortcomings in the abilities of local and district level stakeholders to correctly monitor, mitigate and manage environmental performance of development projects. It is important for EDCL PIU staff, District Environmentalists, Districts Liaison Officers and Electricity Engineers to get the appropriate training on safeguards policies including WB ESSs and National environmental law and policy, which will help them ensure that the project complies with Rwandese and WB environmental and social standards and policies, and that the project adheres to this ESMF. Enough understanding of the mechanisms for implementing the ESMF will need to be provided to the various stakeholders implementing the sub-projects. This will be important to help the teams appreciate their role in providing supervision, monitoring and evaluation including environmental reporting on the project activities. The PIU should carefully analyze the project scope, their availability to the project activities and their capacity for the successful implementation of the project and its ESMF. The project will recruit more additional Risk Management specialists' (as in the provided ASCENT structure, figure 30) staff additional to the 6 existing in the EAQIP.

*Table 25: Capacity Building Plan*

<b>CAPACITY SUPPORT</b>		
<b>Subjects</b>	<b>Timeframe</b>	<b>Responsible</b>
<p>The following types of training will be provided to the relevant target groups, such as PIU staff, stakeholder community, grievance redress committees, project workers, consultants, contractors, sub-contractors:</p> <ul style="list-style-type: none"> <li>- Orientation training to staff of REG-EDCL/EAQIP, PIU and BRD on the World Bank ESF and its implementation modality (screening, scoping etc.)</li> <li>- Labor Management Plan and related procedures,</li> <li>- Cultural heritage management</li> <li>- Traffic and road safety,</li> <li>- Management of environmental and social Risk Management during project implementation</li> <li>- Gender-Based Violence (GBV) and Sexual Exploitation and Abuse (SEA)</li> <li>- Grievance redress mechanism and reporting</li> <li>- Occupational Health and Safety, community health and safety, (including emergency prevention, preparedness and response arrangements),</li> <li>- Waste management</li> <li>- Environmental and Social Impacts Assessment of the Projects (ESIA) and RAP</li> <li>- Climate change, environmental pollution control, and Social Risk management</li> <li>- Environmental and Social Audit for Projects</li> </ul>	<p>Annual training plan shall be submitted to the Association for approval to guide training and capacity building. All staff must complete the trainings and refreshers on the timeframes specified in the annual plan.</p>	<p>REG-EDCL/EAQIP, BRD, external consultants</p>

CAPACITY SUPPORT		
Subjects	Timeframe	Responsible
- The PCU and PIU will develop and implement training and awareness for Project workers and the community on occupational health and safety including on emergency prevention and preparedness, as well as on consultation and capacity building of local communities regarding GBV, SEA/SH and STD.	Prior to implementation and throughout the Project Implementation.	EDCL Risk Management team, contractors, supervisor, BRD.

### 7.3. Implementation Arrangement

#### A. Institutional and Implementation Arrangements

The project will utilize the implementation arrangements of the on-going EAQIP (P172594) and Renewable Energy Fund (REF; P160699) and will be jointly implemented by EDCL and BRD. As under EAQIP, EDCL will cover all grid-related components (components 1 and 2), the institutional clean cooking program (subcomponent 3e), and the overall program coordination, while BRD will implement the off-grid and clean cooking programs and will develop a new PUE RBF along similar lines (subcomponents 3a, 3b, 3c, and 3d). Further, EDCL will implement Component 4a and BRD will implement Component 4b. EDCL's implementation of Component 2 will draw on EUCL's technical expertise, as needed. This will be done by seconding relevant EUCL staff to EDCL for the duration of the assignment. If required, a service level agreement could be signed between EDCL and EUCL. Using the same implementation arrangements that are efficiently working under EAQIP will eliminate duplication of effort and transaction costs for the GoR, enhance the efficiency of implementation, strengthen the capacity of the Government institutions, and help streamline development partner coordination of the program. The project will utilize the existing PCU, that was created for the implementation of the RUEAP program, under which the EAQIP project is being implemented. The PCU will be resourced and strengthened appropriately to take into account the increasing workload.

The EDCL PCU (Project Coordination Unit), will continue to provide overall leadership for the RUEAP program, under which ASCENT will be implemented. The ASCENT project will utilize the existing PCU structure of EAQIP, where the PCU is headed by a Program Manager who reports directly to the managing director of EDCL. The Program Manager has the overall responsibility for (a) program implementation management and coordination and (b) program monitoring and evaluation (M&E) and reporting. An additional Project Coordinator will be recruited to co-manage the ASCENT project and will report to the Program Manager. Similarly, four project managers will be recruited to manage the different components. The current structure will also be reinforced by recruitment of additional project dedicated human resources, in functions deemed necessary to support the Program Manager to ensure adequate capacity to handle the increased financing and components, such as procurement, financial management, Risk Management, gender, contract management, and any other function that is deemed to require high-level leadership. † Similarly, the project will also draw upon the resources from EDCL departments for implementation support. Table 25 presents the existing departments of EDCL that will be engaged for the implementation of different components of the program, including technical, operational, procurement, financial

management (FM), planning, and legal components. The project will also, where necessary, strengthen the PCU appropriately by working with seconded relevant staff within the existing EDCL structure, who will provide support to ensure effective implementation of the program.

Table 26: *Propo Implementation Arrangement within EDCL*

<b>EDCL Department</b>	<b>Program Component/Activity</b>
RUEAP and DAD (Directorate of Access and Distribution)	Component 1: Grid electrification Component 2: Subcomponents pertaining to the improvement of the reliability and strength of the distribution network
RUEAP and Generation and Transmission	Component 2: Rehabilitation of the Ntaruka HPP and transmission-related subcomponents
RUEAP and Off grid and Alternative Energies Department	Component 3: Off-grid electrification and clean cooking (technical aspects of implementation)
RUEAP	Support day-to-day implementation of procurement processes for the program, under the supervision of the senior procurement specialist(s) in the PCU
RUEAP	Support day-to-day FM of the program, under the supervision of the senior FM specialist(s) in the PCU
RUEAP	Support day-to-day contract management for the program, under the supervision of the senior contract management specialist(s) in the PCU
RUEAP and Planning department	Support overall planning and implementation of the program
RUEAP	Support human resources related tasks of the program
Information Technology (IT)	Support IT related tasks of the program
Monitoring and Evaluation	Conduct Monitoring and Evaluation for the program

*Note:* a. Some of the subcomponents under Component 2 may also require the engagement of relevant departments of EUCL. This would require a Project Implementation Support Agreement between EDCL and EUCL.

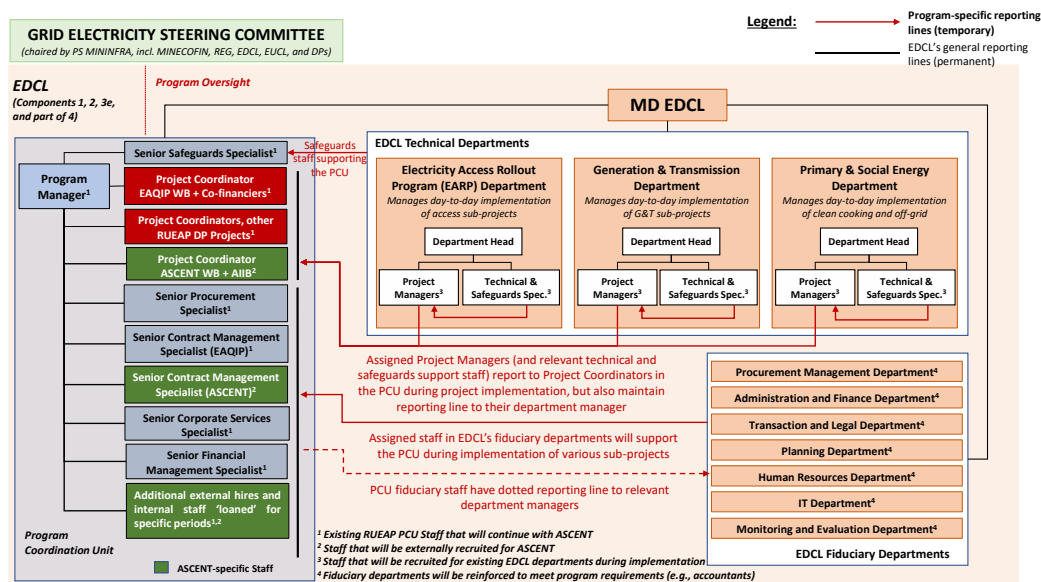
The new Project managers, who will be appointed to support the implementation of ASCENT, will report to the ASCENT project coordinator. The project managers will continue to be supported by relevant specialists from the EDCL structure. Given the scale of the program, additional resources will be recruited by EDCL for the PCU and supported by the program.

For fiduciary responsibilities, as in the case with EAQIP, the project will draw resources from the existing fiduciary departments of EDCL including Planning, Procurement Management, Administration and Finance, and Transaction and Legal, with additional staffing supported by the project as needed. The staff appointed by the heads of these departments will continue to work on the electrification program, while maintaining dual reporting lines—to their respective fiduciary specialists within the PCU (for example

senior procurement specialist, senior contract management specialist, and senior FM specialist) as well as to the respective department heads.

Two Steering Committees that have been established at the RUEAP Program Level during the implementation of EAQIP, the Grid Electricity Steering Committee and Off-Grid, Clean Cooking, and PUE Steering Committee, will continue to provide high-level government oversight and strategic guidance to the EDCL-PCU for components 1, 2, 3e, 4a and to the BRD-PIU for subcomponents 3a, 3b, 3c, 3d, and 4b respectively. The Grid Electricity Steering Committee is chaired by the permanent secretary (PS) of MININFRA and its members include PS-MINECOFIN, CEO-REG, MD-EDCL, MD-EUCL, and Program Manager, who is the Committee Secretary. The Off-Grid and Clean Cooking Steering Committee is also chaired by PS-MININFRA and includes PS-MINECOFIN, CEO-REG, CEO-BRD, MD-EDCL, representatives from the Ministry of Environment, Rwanda Standards Board (RSB), and Local Administrative Entities Development Agency (LODA), and the Program Manager. The Development Partners will continue their role as observers in both Steering Committees. The Steering Committees will meet at least once every semester, or as needed, during project implementation to review implementation progress, discuss emerging challenges, and identify mitigating measures.

Figure 34: Detailed Program Implementation Arrangements for Components 1, 2, 3e, and Component 4a



**The BRD will be the leading implementing agent for component 3, to be co-implemented with EDCL.** For the off-grid electrification and clean cooking subcomponents under part 3, the BRD will take the lead in implementation while EDCL will be responsible for the verification of the RBF, including monitoring of the markets, and adequate functioning of the OMIS system, the Eligibility Tool, solar home system subsidies, and any update/new tool development required for the implementation of the clean cooking component.

The process flow is illustrated in figure 31. BRD will receive applications from interested private sector firms for both off-grid access and clean cooking (under separate windows), appraise and approve eligible firms, with EDCL being providing technical advice in the evaluation process as well as coordination with RSB on required testing's. For the clean cooking window, EDCL will lead the call for cooking technologies and

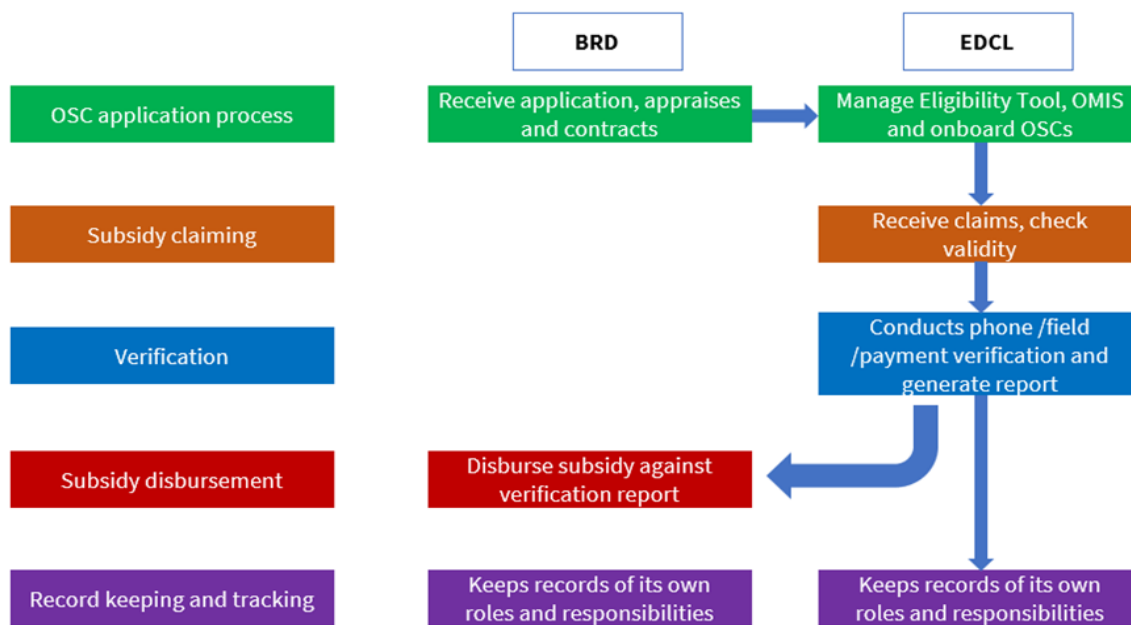
will coordinate with the RSB for testing. As the eligible firms expand operations across target consumers, they will be able to submit claims for disbursement under RBF to BRD. The claims will be verified through a statistically relevant sample and the verification report will be approved by BRD and the World Bank before subsidies are disbursed. A Service Level Agreement will be signed between BRD and EDCL. BRD will also implement the Environment and Social Management System (ESMS) since it has an adequate established ESMS under its REF.

The Operations Manual for Subcomponent 3a, Increasing Off-Grid Electricity Access, can be found here: [https://www.brd.rw/wp-content/uploads/2022/11/REF\\_Window\\_5\\_Operations\\_Manual.pdf](https://www.brd.rw/wp-content/uploads/2022/11/REF_Window_5_Operations_Manual.pdf)

The Operations Manual for Subcomponent 3b, Increase Access to Clean Cooking Solutions, can be found here: [https://www.reg.rw/fileadmin/user\\_upload/ASCENT\\_CC-RBF\\_OM\\_-\\_Ver\\_0306-04-2022.pdf](https://www.reg.rw/fileadmin/user_upload/ASCENT_CC-RBF_OM_-_Ver_0306-04-2022.pdf)

Figure 35: Coordination between BRD and EDCL under

**Component 3**



In terms of the Environment and Social Management System (ESMS) for subcomponents 3a-d, the BRD has an adequate established ESMS under its REF that will apply to these components.

**B. Results Monitoring and Evaluation Arrangements**

As in the case of EAQIP, M&E of project implementation progress and results indicators, as well as progress toward achievement of the PDO, will be the responsibility of both EDCL PCU and the BRD PIU. The two implementing agencies shall ensure adequate M&E staffing to support M&E activities. The two implementation units will continue to be responsible for the collection, verification, and collation of information, integration of the M&E reports, and submission to the World Bank both the quarterly and annual progress reports. The implementing agencies will leverage their existing database for each



component of the project to periodically monitor the progress of implementation, outputs, and results, with systems for regular data gathering and processing of information required to monitor the main performance indicators and intermediary indicators as defined in the Results Framework.

The EDCL PCU and the BRD PIU will also collect gender-disaggregated data and reports from other participating entities of the program and present progress in achieving the key and intermediate indicators to the World Bank in the project quarterly and annual progress reports. The implementing agencies and the SWG secretariat will be responsible for integrating the results from the program into overall sector performance indicators and preparing sector reports for the biannual SWG Joint Sector Performance Review discussions.

### **7.3.1. Environmental and Social management Unit under ASCENT**

The project will have an Environmental and Social Management Unit composed of:

- a. National Team
- b. District team
- c. Contractor team
- d. Supervision team

The PIU will have an Environmental and Social Management Unit composed of a Senior Environmental and Social Safeguards specialist, other Environmental and Social Safeguards staff Specialist as described in the figure below about the ASCENT Structure., that are responsible for overseeing and coordinating all activities associated with ESMF, manage all activities related to database, logistics, and interaction with other departments of Implementing Agencies. The responsibilities will be as follows:

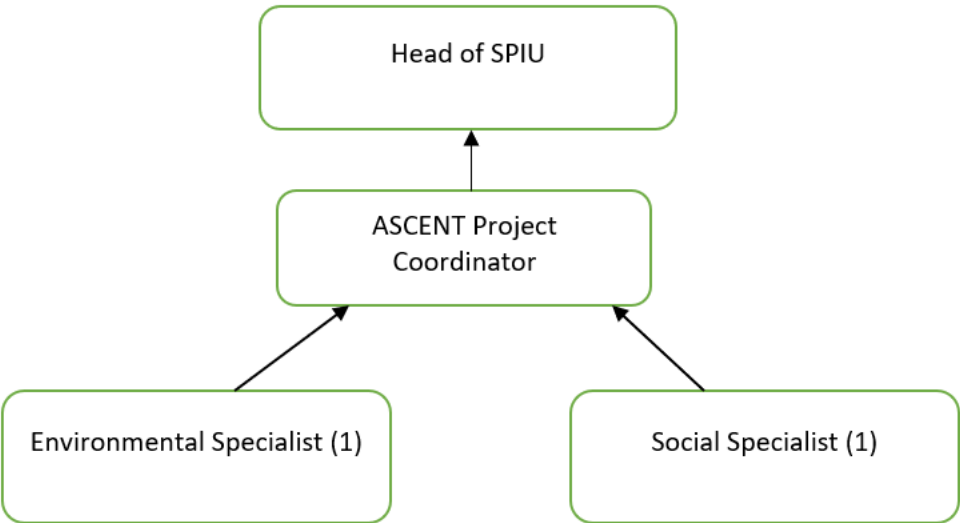
- i. The implementation of ESMF activities will be directly managed by the Environmental and Social staff based in both EDCL and BRD.
- ii. For all components, Districts have Project Liaison Officers who work closely with the Branch Technical Engineer based at REG District Branch.

In addition to the existing 1 Senior Environmental and Social Safeguards Specialist, 1 Environmental safeguards Specialist, 1 Social Safeguards Specialist and 1 Gender Specialist, ASCENT will recruit additional 2 Environmental risk management specialist, 2 Social risk management Specialists and 1 Project Health and Safety Specialist. District based Project Liaison Officer will support the District in monitoring effectiveness of ESMF, represent and periodically report to PIUs issues and concerns related to Stakeholders.

For effective implementation of the component 3 under ASCENT project, BRD is committed to hire 2 Environmental and Social Specialists that will facilitate the operationalization of sub-component 3a,3b, 3c and 3d. These 2 specialists will be directly reporting to the ASCENT Project Coordinator and will be working on ensuring that each financed activity under ASCENT is effectively monitored to enforce compliance around the project set standards. Regular reporting will be shared to the World Bank E&S team through the project coordinator.

Below are clarifications on the project staff composition and work flow for both BRD and EDCL:

**For BRD:**



With reference to the ASCENT ESCP, BRD will be having one environmental and one social specialist responsible for implementing all requirements reflected in the ESCP. The 2 staffs will ensure the Component 3 of the project (More specifically, sub-component 3a,3b,3c and 3d) are compliant with both National and World Bank Environmental and Social Standards.

The two staffs will be directly reporting to the ASCENT Project Coordinator and will mainly play a crucial role in preparing and submit to the Association, regular monitoring reports of the environmental and social, health and safety (ESHS) performance of the Project, including but not limited to the implementation of the ESCP, status of preparation and implementation of E&S instruments required under the ESCP, stakeholder engagement activities, incidents and accidents, capacity building programs conducted, and environmental activities planned for the next reporting period.

The BRD’s SPIU Coordinator will be ensuring the overall responsibility of overseeing the performance of the project, including assessing the effectiveness of the Project Coordinator throughout the project implementation process. The SPIU Coordinator will also provide support during high level negotiation discussion and will ensure the project gets the required support or advocacy from BRD’s Management.

For more clarity, the Environmental and Social specialist under ASCENT Project will be responsible of the following:

- Ensure that the Project is carried out in accordance with the Project’s ESMF, World Bank Environmental and Social Standards (ESSs) and the approved Environmental and Social Commitment Plan (ESCP);
- Prepare and submit to the Association, regular monitoring reports of the environmental, health and safety (ESHS) performance of the Project, including but not limited to the implementation of the ESCP, status of preparation and implementation of E&S instruments required under the ESCP, stakeholder engagement activities, incidents and accidents, capacity building programs conducted, and environmental activities planned for the next reporting period;
- Develop Root Cause Analysis reports (RCA) in the case of occurred project incident/accident and prepare a Safeguard Corrective Action Plan to be cleared by the association for effective incident/accident management;

- Ensure implementing partners observe the relevant aspects of the ESCP and the relevant management tools, including OHS, site rehabilitation, reporting requirements and Labor Management Procedures among others;
- Prepare, adopt and implement Labour Management Procedures (LMP) consistent with both National legislation and the World Bank ESS2;
- Conduct environmental Screening and produce a brief environmental risk assessment report for each project requesting financing from ASCENT Project;
- Coordinate and work with off-grid solar companies, clean cooking companies, PFIs, clients, and local authorities in assessing Environmental risks and impacts associated to the project, and designing appropriate mitigation measures for managing all environmental issues including E-waste management;
- Conduct capacity building needs assessment and administer Environmental risk management training to project beneficiaries/borrowers, PFIs, and other stakeholders to ensure that the clients understand and comply with National Environmental regulations, BRD's E&S Policy, and World Bank Environmental and Social Standards;
- Support in building BRD's internal E&S capacity through preparing training materials on Environmental risk management to strengthen internal E&S awareness and compliance;
- Develop and update the Project environmental management tools (e.g., ESMF, ESCP, BRD's ESMS, etc.) to align with the Project's set standards;
- Carry out quarterly environmental monitoring visits to track the compliance level of projects financed under ASCENT to assess the implementation status of recommended environmental mitigation measures reflected in signed agreements and share them to financiers/World Bank on quarterly basis. Monitoring and reporting activities will be continuous until project closure and will represent around 60% to 70% of the workload;
- Contribute to the development and updating of BRD's Environmental and Social Policies;
- Provide support to PFIs in preparing and implementing environmental and Social Management Systems (ESMS) as per National and Financiers requirements;
- Review Environmental and Social Risk Management Instruments prepared by consultants and ensure such instruments are integrated into the bidding documents and all BRD's financed operations;
- Prepare and share on a monthly basis a summary environmental compliance status report of the ASCENT Project to the BRD's enterprise risk management division and present findings or any faced challenge in the portfolio monitoring meeting.

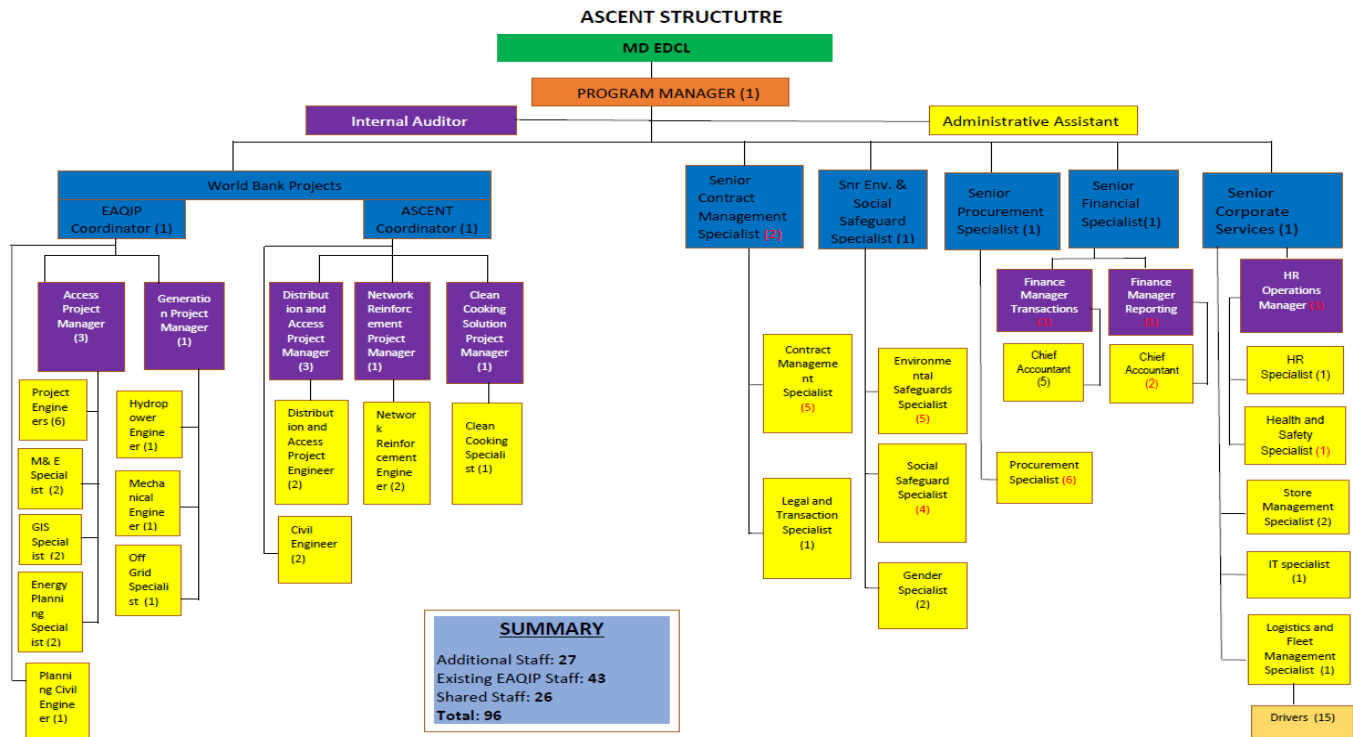


Figure 36: ASCENT Structure

The Environmental and Social Management Unit at the EDCL PIU and the Project Liaison Officer at the District level will supervise the implementation of all resettlement activities. Furthermore, the E&S risk management team will ensure that all stakeholder engagement aspects are a permanent item on all high-level management agendas and that all actions arising from management decisions are implemented. They will play a critical role as internal change agent for environmental/social and stakeholder-related matters in the PIU. This becomes important if environmental/social and stakeholder risks identified needs to be escalated for higher-level decision-making to identify a resolution. The E&S team is required to remain actively involved with the ESIA and ESMP process implementation in order to identify potential risks or opportunities and ensure that the necessary administrative support is provided. Moreover, grievances submitted as a result of project implementation, temporarily land acquisition/resettlement processes need to be addressed under the GRM scheme. Responsibilities of the E&S team are detailed in sections below:

**7.3.2. E&S Safeguard team and expropriation staff currently existing at EDCL**

The team is composed of Environmental and Social Safeguards<sup>10</sup> Specialists based in the EDCL including those recruited under RUEAP. EDCL has 2 Environmentalist 4 Social Safeguards Specialists and 1 Health and Safety specialist on its permanent structure. In addition to those, it has also different E&S staff specifically recruited under RUEAP (Rwanda Universal Energy Access Program) distributed as follows:

<sup>10</sup> In EDCL the Environmental and Social Safeguards Specialist is equivalent to Environmental and Social Risk Management Specialist

- EAQIP: 1 Senior Environmental and Social Safeguards Specialist, 1 Social Safeguards Specialist, 1 Environmental Safeguards Specialist and 1 Gender Specialist.
- TSRLMCP: 2 Environmental and Social Safeguards Specialist, 1 Social Safeguards Specialist and 1 Gender Specialist.

The E&S team works closely with the existing 15 expropriation staff for speeding up the PAPs payments and other required documents when needed. EDCL also has the project Liaison officers that are based at the district, who work on a regular basis with the local population and local authorities to make sure that all matters pertaining to Environmental, Social, Health and safety are handled within the reasonable time. The E&S team's main role is to:

- i. Oversee all environmental safeguarding aspects of project activities implemented under the Accelerating Sustainable and Clean Energy Access Transformation Project;
- ii. Lead the development of guidelines/manuals and trainings materials for contractors to support implementation of the ESMF and other safeguard instruments;
- iii. Ensure satisfactory implementation of the ESMF through frequent visits to project sites;
- iv. Assess closely the effectiveness of the GRM and regularly communicate with GRCs
- v. Ensure capacity building is provided to the GRCs through trainings,
- vi. Update RPF and other E&S risk management instruments as required and recommend on necessary changes;
- vii. Report on quarterly and annual basis the progress of ESMF and associated instruments to the WB and other development partners and facilitate external environmental audits if required.

### **7.3.3. Project Liaison Officer at the District level**

Those are EDCL staff based at every administrative District supporting the PIU in fulfilling safeguard obligations. The District Project Liaison officer and Branch Technical Engineer staff will oversee and monitor project's aspects related to environment, social, health and safety. The main responsibilities will include but not limited to:

- (i) Support PIU Environmental and Social Management in assessing the effectiveness of ESMF and associated documents as prepared;
- (ii) Carryout regular site visits and take records of grievances logged by contractor and grievance committee and ensure complaints/grievances are handled following GRM;
- (iii) Establish and maintain effective working relationships with safeguarding experts working for contractor and supervisor;
- (iv) Liaise with District Administration Officials, supervising firm and contractors' E&S risk management team to ensure that stakeholder ESMF requirements/protocols are understood;
- (v) Carryout regular stakeholder's consultation, risk and impact assessment and propose mitigation measures for emerging issues;
- (vi) Collect necessary data related to ESMF and other associated documents;
- (vii) Collect necessary data related to off grid for the users;
- (viii) Arrange field visits as required by the PIU;
- (ix) Report the implementation status of ESMF and prepared ESMP;

(x) Represent EDCL in all field activities including meetings with stakeholders at the district level.

#### **7.3.4. E&S Risk management by EPC (Engineering, Procurement and Construction) Contractors under ASCENT**

The EPC contractors will have the role of implementing the prepared E&S risk management instruments including Environmental and Social Impact Assessment and Resettlement Action Plan. The EPC contractor will prepare the Contractor Environmental and Social Management Plan (C-ESMP) and Contractor Environmental Health and Safety Plan (C-EHSP) to be implemented during the construction phase. The EPC contractor will have to sign the codes of conduct that will show his commitment to the implementation of mitigation measures regarding labour influx, child and forced labour, children exploitation and abuse, Gender Based Violence, Sexual Harassment among others. The contractor/ Subcontractor will have different E&S risk management staff to implement the E&S related tasks on every day duty, including Environmental and Social Risk Management Staff and, Health and Safety Staff. The contractor will keep everyday record on Health and Safety, PPE availability and use, ensure first aid kit availability and First Aid training among others. The E&S Risk Management staff under the EPC contractor will be in charge of the following:

- Keeping the record on environmental and social risk management implementation activities.
- Daily E&S supervision
- E&S training to the field work and construction contractor management team.
- Public awareness campaign in the construction area
- GRM refresher training to the GRCs of different levels and records keeping
- GRM reporting
- E&S and HSE reporting.
- Identify potential risks to the project and implement strategies to mitigate these risks.
- Maintain accurate and comprehensive documentation, including progress reports, change orders, and other relevant project records.
- Address and resolve challenges or issues that may arise during the course of construction or implementation.
- Ensure compliance with local, regional, and national regulations and building codes governing the project.
- Maintain open and effective communication with project stakeholders, including the client, project manager, and subcontractors.

#### **7.3.5. E&S Risk management by EDCL inhouse team under ASCENT**

EDCL has been from a long time implementing different project using its inhouse team under the department of Distribution and Access Directorate. ESCENT is also considering to use the inhouse team and the scope where they will be used will be later determined. Under ASCENT, where the inhouse team will be used, the Environmentalist, the social safeguards staff and Health and Safety staff in EDCL will be used to manage Environmental and social Risk within the project area. EDCL has the 2 experienced Environmentalists, 4 Social Safeguards Specialists, 1Health and Safety Specialist who will be working on daily basis on these subprojects that would be implemented by inhouse team of EDCL under Distribution and Access department. They will be supported by the Expropriation Manager in EDCL, 15 Expropriation staff and Project Liaison Officer based at district level. At Site level, Each construction team will have the

Site Health and safety technician who will work hand in hand with the Health and Safety Specialists and the E&S team already described in this section.

### **7.3.6. Supervising firm**

The supervising firm will be responsible for overseeing and managing various aspects of a project to ensure its successful completion. The Supervising firm will have the Environmental Risk Management Specialist, The Social Risk Management Specialist and Health and Safety specialist to oversee on daily basis, the Environmental, Social Health and Safety compliance as set out in the Risk management instruments. Here are common roles and responsibilities associated with a supervising firm:

- Review and approve the Contractor Environmental and Social Management Plans (C-ESMP) and Contractor Environmental Health and Safety Plan (C-EHSP) to be prepared by the contractors.
- Carry out regular ESMP and EHSP compliance inspection and provide the recommendation for improvement.
- Include E&S inputs in a monthly progress report to be submitted to the client (EDCL) on a regular basis.
- Provide the standalone E&S quarterly report on the implementation of C\_ESMP and C-EHSP to EDCL.
- Develop project plans, schedules, and budgets. Coordinate with different stakeholders to ensure alignment with project goals.
- Monitor and enforce quality standards throughout the project. Conduct inspections and reviews to ensure that work meets specified criteria.
- Manage contracts and agreements between parties involved in the project. Ensure compliance with contractual terms and conditions.
- Monitor project finances and expenditures. Control costs to ensure the project stays within budgetary constraints.
- Identify and assess potential risks to the project. Develop strategies to mitigate risks and address unforeseen challenges.
- Monitor project timelines and milestones. Take corrective actions to keep the project on schedule.
- Maintain clear and open communication with all project stakeholders, including clients, contractors, and team members.
- Provide regular updates and progress reports to clients and other stakeholders. Report on key performance indicators and project milestones.
- Ensure that the project complies with relevant laws, regulations, and industry standards. Obtain necessary permits and approvals.
- Oversee safety protocols and ensure compliance with health and safety regulations. Address environmental concerns and promote sustainable practices.
- Provide training and development opportunities for project team members. Ensure that team members have the necessary skills to perform their roles.
- Maintain comprehensive project documentation, including contracts, correspondence, and reports. Ensure that records are accurate and accessible.
- Preparation of Environmental and Social Risk Management Completion Report at the end of the project implementation.

### **7.3.7. Preparation of ESIA and ESMP**

The preparation of ESIA and ESMP is governed by law 48/2018 of 18/08/2018 on environment and the Ministerial order N0: 001/2019 of 15/04/2019 providing the list of the project that should prepare the full Environmental Impact Assessment, Partial Environmental Impact Assessment and projects that are not subject to the Environmental Impact Assessment. According to the law and Ministerial order stated above, the Environmental and Social Impact Assessment (ESIA) is carried out by the EIA Expert registered under the RAPEP (Rwanda Association of Professional Environmental Practitioners) who should not be an employee of the developer (here it means the institution that owns the project that needs the ESIA). The cost for the preparation of the ESIA is born by the developer, in this case the developer is EDCL. The preparation of ESMP also follows the same procedures as ESIA and will be all prepared by EDCL through the independent E&S Expert from RAPEP.

### **7.3.8. Roles and responsibilities of community verifiers**

Community verifiers will consist of local authorities, community grievance redress committees and local community at large. . Their main responsibilities in terms of monitoring labor and working conditions will consist of the following:

- To ensure that no underage children are being employed on the project and raise a red flag where there is suspicion.
- Ensure that there is no discrimination and no corruption in hiring workers and alert relevant authorities and the PCU/PIU in particular where this kind of practice is suspected of further investigation.
- Closely monitor the level of community health and safety and inform relevant authorities where there is violation for immediate actions.
- Ensure that no GBV and sexual/verbal harassment behaviors in the project and inform relevant authorities for further professional intervention and response.
- To report to any contractor or sub-contractor who might not be fulfilling his contractual obligations vis a vis worker such as delays in payment of wages, noncompliance to working hours, etc.

### **7.4.Roles and Responsibilities of Rwanda Energy Group, EDCL-PIU**

The ESMP/ESIA will address with specific details how the environmental and social impacts and their designed mitigation measures are to be monitored during implementation (construction/rehabilitation works) and operation (including maintenance stages). EDCL with the technical support of EDCL-PIU has the responsibility to successfully manage, mitigate or monitor any adverse impacts caused by their activities under this project during construction phase while during operation responsibilities to manage and maintain fall under EUCL responsibilities. EDCL assisted by EDCL-PIU environmental and social safeguard specialists' team will monitor the implementation of the approved ESMP and technical designs.

### **7.5.Roles and Responsibilities of BRD**



BRD will administer and disburse funds to companies/ contractors for component 3 of the project while EDCL will be the technical counterpart. All environmental and social responsibilities, specifically for sub-component 3a, 3b,3c, and 3d will be ensured by the two Environmental and Social Specialists to be hired under ASCENT Project by BRD and the implementation of this ESMF and the approved ESCP will be done by the same team.

### **7.6.Rwanda Environment Management Authority**

Rwanda Environment Management Authority (REMA) was established to act as the implementation organ of environment-related policies and laws. REMA will provide advice on E&S compliance based on E&S National regulations and will monitor the implementation and provide recommendation to be considered for improvement. REMA as the authority also reserve the right to enforce the compliance and act accordingly in case of non-compliance to E&S national regulations. Mandated by law, REMA has a responsibility to organize the EA procedure by guiding the EA process, reviewing EA reports based on the terms of reference (ToR) and taking decisions on the EA reports and the audited projects, activities or programs. ACSENT has different substation which will require to prepare the Environmental and Social Audit prior to their commencement, and their project brief will be submitted to REMA to pass through the Environmental Audit process. REMA, at any time during monitoring, reserves the right to tell the project to prepare the Environmental Audit due to the inefficiency or non-compliance within the process.

### **7.7.ASCENT**

The ASCENT Environment and Social Risk Management Specialists and external qualified environmental and social consultants will screen the design (using all drawings, specifications for workmanship and materials, screening checklist and review forms in Annex 2) for rehabilitation and new works, and along the proposed transmission and distribution lines, that all planning, building and environmental laws and requirements are complied with, and to identify any adverse potential and social environmental impacts of the designs.

EDCL E&S staff and ASCENT environmental and social Risk Management staff to be recruited will work with the team of EDCL engineers to ensure that any adverse environmental impacts identified will be mitigated in the designs, before they are finalized. Some mitigation measures would be adjustments to the technical drawings, while others may require incorporation/adjustment of clauses to contract conditions or specifications for goods and workmanship. The EDCL engineers will also be provided with adequate training in environmental best practice aspects and management procedures related to design of distribution lines, effective mitigation and monitoring measures and reporting.

Where land acquisition that leads to resettlement is expected, such as at the distribution and access to electrical lines, the Social Risk Management Specialist will use the Resettlement Policy Framework for this project, to guide and manage external consultants to prepare on behalf of EDCL, the appropriate Resettlement Action Plans (RAPs), one for each affected site in accordance with the sub-project.

EDCL and ASCENT social and environmental Risk Management specialists using external qualified consultants will prepare an Environmental and Social Management Plan (ESMP) to accompany the final

designs (including complete set of contract documents) which will include details of all mitigation measures, including RAPs or ARAP, which will be sent to the World Bank for review and clearance.

Only after clearance of the ESIA/ESMP can tenders be launched to select contractors to carry-out the works. RDB may require certain revisions to the ESIA before granting its clearance. Additionally, for sites affected by resettlement activities that lead to impacts on affected people requiring them to lose assets, construction works will commence after the PAPs are paid for their assets. The RAPs will be reviewed for compliance with the disclosed RPF. The Project will have the Project Implementation Manual (PIM) which will include the E&S requirements into the Project Implementation Manual. At the minimum, the Manual will describe:

- The roles of Environment and Social (E&S) specialists
- The minimum E&S clauses to be included in the Terms of Reference and tender documents.
- Incorporation of E&S indicators into Monitoring and Evaluation system
- Audit requirement at completion and Completion timeline

## 7.8. Anticipated challenges based on lessons learnt from on-going projects (WB and other DPs)

### 7.8.1. Anticipated project challenges

The resettlement impacts present different challenges which should be handled fully so that the project be implemented smoothly. With respect to previous project implementation the main challenges included relocation issues, compensation payment delays, encroachment, disclosures meeting participation, contractors delaying starting which affect the relevancy of the RAP (Resettlement Action Plan), certified valuers using not updated asset prices and contractors using not enough skilled E&S Risk Management staffs. All challenges were addressed in the previous project but also, they served as a lesson learnt for this project to be implemented with least challenges due to the preparedness at hand. The table below illustrates the challenge, which is anticipated, the reason that would contribute to the defect and the way to overcome the challenge which should be used for effective preparedness and timely project implementation.

Table 272829: Anticipated challenges

Challenge	Reason	How the challenge will be addressed
Relocation issues	<p>PAPs with family conflicts will pose a serious issue to the project involving physical relocation.</p> <p>Some other social issues like asset which were given like a collateral also may delay the relocation process.</p> <p>PAPs which are not on board due to different reason especially when they are not in the country and deny giving the power of attorney.</p>	<ul style="list-style-type: none"> <li>- Engage fully local authorities and community court known as ABUNZI to handle family and social issues involving litigation to be resolved in advance.</li> <li>- To use public treasury account for compensation to people who are not on board during the required time as stipulated in the expropriation law 32/2015 of 11/6/20015.</li> </ul>

Challenge	Reason	How the challenge will be addressed
Compensation payment delays	<p>PAPs with family conflicts will pose a serious issue to the project involving physical relocation.</p> <p>Some other social issues like asset which were given like a collateral also may delay the relocation process.</p> <p>PAPs which are not on board due to different reason especially when they are not in the country and deny giving the power of attorney.</p> <p>PAPs who do not have the land titles`</p> <p>PAPs without the Bank account</p> <p>PAPs without National ID</p>	<ul style="list-style-type: none"> <li>- Engage fully local authorities and community court known as ABUNZI to handle family and social issues involving litigation to be resolved in advance.</li> <li>- To use public treasury account for compensation to people who are not on board during the required time as stipulated in the expropriation law 32/2015 of 11/6/20015.</li> <li>- Work closely with Local Government Officials to deliver the required document for compensation on time and the District One Stop Center role will be crucial.</li> </ul>
Encroachment	<p>PAPs who can build houses in the Right of Way with intention to be compensated for their houses after the cut-off date is proclaimed.</p>	<ul style="list-style-type: none"> <li>- To work closely with local Government Officials for timely information transmission.</li> <li>- Contractor staffs on board should regular check the irregular activities in the line routes.</li> <li>- To establish Grievance Redress Committees at all cell levels and make sure that they are trained for timely reporting.</li> <li>- To announce the cut-off date to all concerned PAPs using UMUGANDA (Community works) and community assemblies' meetings.</li> </ul>
Disclosures meeting participation	<p>PAPs who are not available during the public disclosure and hence do not raise their issues on time due to different reason such as people who are not in localities during the disclosure time, people who were not informed of the disclosure</p>	<ul style="list-style-type: none"> <li>- Work closely with Local Government Officials and GRC for mobilization to attend, and the relevancy of the meeting.</li> <li>- Prepare in advance the disclosure and be communicated publicly in different meetings assembling public.</li> </ul>

Challenge	Reason	How the challenge will be addressed
	activity, People who neglected the attending due to their mindset.	
Contractors delaying starting which affects the relevance of the RAP	Some contractors may delay starting the works or may even fail to deliver and quit without any single activity as the case experienced by RESSP for Overseas Infrastructure Alliance (India) Private Limited which completely failed to deliver and this resulted in the contract termination after two years of delay.	<ul style="list-style-type: none"> <li>- Procurement should consider the past performance of the contractor within the country for the same duties where possible.</li> </ul>
Certified valuers using not updated asset prices	Valuers who use the prices which are not up to date and result in over valuation or under valuation of assets because the prices that are set by IRPV are updated annually and based on real market value.	<ul style="list-style-type: none"> <li>- Regular inspection of valuers during asset inventory exercises and be ready to notice any inconsistency in the valuation on time.</li> <li>- To work closely with IRPV to handle the insolvent valuers.</li> </ul>
contractors using not enough skilled E&S staff	Contractors who make internal recruitment and recruit inexperienced staff due to different reason including the reason that experienced worker are expensive, hence they fail to perform the E&S duties properly.	<ul style="list-style-type: none"> <li>- EDCL should make sure that every safeguard staff's CV is approved by the project for competitiveness.</li> </ul>
<b>Community Relations and Stakeholder Management:</b>	Engaging with local communities and managing stakeholder expectations is essential. Opposition from the community or stakeholders can lead to project delays, legal disputes, or reputational damage.	<ul style="list-style-type: none"> <li>- Open communication to the stakeholders and valuing their concerns on time and targeting their priority areas in the electrification will help to overcome this</li> </ul>
<b>Environmental Impact and Sustainability</b>	Electricity construction projects must adhere to environmental regulations, and failure to do so can result in legal issues and public backlash. Managing the environmental impact and incorporating sustainable practices can be challenging but is increasingly important.	<ul style="list-style-type: none"> <li>- Timely preparation of E&amp;S compliance documents and make sure that they are given to the contractors during the bidding documents.</li> </ul>

### 7.9.ESMF Implementation Activities and allocated Budget

The total budget for the ESMF implementation is estimated at US\$ 705,000.00, considering existing current norms and expert estimates for proposed activities. The estimated total budget is highly influenced by the number of connections and MV lines that would require a full or partial environmental assessment to be undertaken before and during the subproject's implementation. The budget for the implementation of the project environmental and social enhancement measures will be detailed while preparing ESIA's or ESMPs for ASCENT subprojects. The budget stands open for revision and improvement as and when needed by REG/EDCL.

The ESMPs are site-specific and will be prepared at each subproject site in consultation with ASCENT Environmental and Social Risk Management Specialists. The ESIA will be prepared by the ESIA experts following the ESIA guidelines in Rwanda. Actions to be undertaken before and during the project implementation include (1) Training and capacity building for the project PIU; (2) Training and capacity building for Project Liaison Officers, contractor staff and supervisor staff, including the supporting staff, PAPs and local communities; (4) Preparation of ESIA for subprojects with that conditions; (5) Preparation of ESMP for subprojects, (6) Implementation of Environmental and Social Management Plan (ESMP); (7) Monitoring and evaluation of ESMPs; (8) Implementation of grievance redress mechanism and (9) preparation of Environmental Audits. The cost associated with these activities is shown in Table below.

Table 30: Indicative Budget for the ESMF implementation

No	Activity to be undertaken	Number (Districts)	Unit cost (USD\$)	Unit cost (USD\$)
1	Training and capacity building for the project PIU	27	LS	10,000
2	Training and capacity building for District Environment Officers, District Electricity Engineers, contractor staff and supervisor staff, including the supporting staff	27	LS	15,000
3	Tranings of contractor staffs, consultation meetings with PAPs and local communities	27	LS	20,000
4	Preparation of ESIA for the projects	27	LS	100,000
5	Preparation of ESMP for different subprojects	27	LS	110,000
6	Implementation of Environmental and Social Management Plan (ESMP)	27	LS	240,000
7	Monitoring and evaluation of ESMPs	27	LS	30,000
8	Implementation of grievance redress mechanism	27	LS	30,000
9	Preparation of Environmental Audits	-	LS	150,000
	<b>Total</b>			<b>705,000</b>

LS: Lump Sum

## VIII. PUBLIC CONSULTATION AND DISCLOSURE

### 8.1. Disclosure of the ESMF

The ESMF serves as the project's umbrella for the environmental and social management document, setting out the strategy to screening process that will ensure capturing all the project's environmental and social issues. Disclosure of ESMF should conform to the Public Communications Policy of the WB, Disclosure and Exchange of Information, which requires that the ESMF document for WB projects be accessible to the interested parties and the general public. As soon as the client (MININFRA) receives the cleared ESMF from the development partners, it should initiate the process of public hearings which includes the disclosure of the ESMF document, arrangement of communication with stakeholders and conduct public hearings. At the same time, the bidding commission shall include a draft check list for ESMPs in the bidding packages and add a provision specifying that if new information arises out of (may occur in parallel) public hearings for the ESMPs to be updated, without effect on the budget of contracted companies (it is extremely rare occasion when changes in ESMPs checklists on the basis of public hearings require a significant budget increase which can put bidders at risk). After the successful contractor is selected, the contractor prepares site specific ESMP with due account of the contractor's equipment, technology, status of the facility, etc. This document shall be included in the first monitoring report on the sub-project.

### 8.2. Public Consultation

The public consultation for this ESMF was carried out in 27 administrative districts within the four provinces of Rwanda (Eastern, Western, Northern and Southern) and different relevant institutions from 14<sup>th</sup> August 2023 to 28<sup>th</sup> August 2023 and the result of public consultation showed that this project is urgently needed by the population but also some issues were raised concerning the delay in compensation payment. All stakeholders consulted promised to support the project as indicated in Annex 5 (Public consultation outcomes).

Public participation and community consultation will continue to be an integral part of social and environmental assessment process of the project. Consultation is used as a tool to inform project 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 project as well as the needs of the population likely to be impacted. This participatory process helps in reducing the public resistance to change and enabled the participation of the local people in the decision-making process. Initial Public consultation has been carried out with administrative districts within the project area, key institutions involved in project implementation and land acquisition. Further consultation is planned during the preparation and implementation of Resettlement Action Plans. The objectives of those consultations are to minimize probable adverse impacts of the project and to achieve speedy implementation of the project through bringing in awareness among the community on the benefits of the project.

### 8.3. Project Stakeholders

Key stakeholders have been identified and initial discussions held with decision making bodies, key stakeholders, sector institutions and specialist experts were made on the very concepts and nature of the

proposed project, giving emphasis on levels of public participation, role of key stakeholders and joint contributions of these actors to the success of the project. In addition, the scope of the proposed project and possible means of maximizing local communities' social, economic and environmental benefits from the project implementation were underlined. Key stakeholders identified for consultation during preparation of this ESMF include but not limited to the following:

**At the national level:**

- Ministry of Environment (MoE);
- Ministry of Infrastructure (MININFRA);
- Rwanda Environment Management Authority (REMA);
- Rwanda Development Board (RDB);
- Rwanda Land Use and Management Authority (RLUMA)

**At the local level:**

- Local Government Officials (Districts and Sectors);
- REG District Branch managers and
- Potential Project Affected People (PAPs).

The list of consulted people is attached in annex 9 of this ESMF and consulted people can be found in the attendance lists shared separately to this report.

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

During the Public consultation, the E&S team 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 project and by using the key guiding questionnaires, the E&S team was able to guide discussions and obtain relevant information on the likely impacts of the project activities.

#### **8.5. Feedback from initial consultation from stakeholders**

Initial one-to-one consultation and meeting were held with government or private institutions, academicians and researchers, concerned administrative districts officials, Administrative Sector level and few numbers of members of local communities, the detailed consultation outcome is available on annex 5 of Itinerary of Stakeholder Consultations and outcome of this ESMF.

*Table 31 : Summary of the feedback from stakeholders' consultation*

No	Stakeholder	Issues raised	Response provided
1	Rwanda Environment management Authority (REMA)	Has the Ministry of Infrastructure budgeted for Resettlement Impacts?	Once the project designs are completed and required land and other assets known, the Ministry will request for the compensation from Ministry of Finance and Economic Planning to secure the compensation fees.

No	Stakeholder	Issues raised	Response provided
		What will be done to ensure that the project does not adversely affect the environment?	The project is preparing this ESMF to foresee all environmental and social impacts so that to develop the required mitigation measures. The projects will carry out ESIA for a detailed environmental and social impacts mitigation.
		What is the mechanism put in place to ensure that People are compensated on time	The Ministry has agreed with DPs that construction works will start after compensation of affected People.
2	Rwanda Land Management and Land Use Authority	How is the ministry planning to work with administrative districts especially land Bureau?	The concerned administrative districts are fully involved in project preparation and implementation and the administrative districts will be in charge of Resettlement process.
		How land under ROW will be used after implementation of the project?	The land use under RoW will be used referencing on the Guidelines No 01/GL/EL-EWS/RURA/2015
4	District Land Bureaus (District One stop Centres)	Will all project components be implemented in the same time?	Project components will be implemented in the same time as this is urgently needed to achieve NST1 target on time.
		How will you mitigate or avoid Environmental and social impacts related to the project?	To mitigate these issues, the ESIA for each project will be prepared in accordance with National environmental regulations and WB ESF requirements detailing all mitigation.
4	Sector Level officials (SLM and Executive Secretaries)	What do you think on expropriation and compensation for this project?	This project will make difference to other project as the consultation was started at early stage and your views will be incorporated in the preparation of this project and you will be informed on the further process of the project.
		How should this project support vulnerable people?	For vulnerable people who might be affected by the project, they suggest that these people must be compensated and suggested that a family member or relative to vulnerable people must be prioritized during job recruitment, and this will be detailed in ESIA which will be prepared.



No	Stakeholder	Issues raised	Response provided
5	Local Community including farmers organization	We have heard even experienced some projects that do not compensate affected assets or delay in providing compensation.	The REG-EDCL PIU will work closely with the administrative districts and ensure that all compensations are made before engineering works start.
		Some of us will be affected by the project. Which compensation mode do you prefer? (compensation in cash or compensation in kind).	The consultation meeting will be organized during RAP and ESIA preparation and all concerned PAPs will choose the compensation methods to be applied.
		Will our cooperatives benefit from this project	Your organizations/cooperative will be able to increase their productivity due to the availability of the electricity and the service delivery to your customers will be improved because you will work many hours as you want for achieving your organizational goals.

## **CONCLUSION AND RECOMMENDATIONS**

This Environmental and Social Management Framework (ESMF) has been prepared in order to guide project planners, implementers and other stakeholders to identify and mitigate environmental and social impacts in the Context of Accelerating Sustainable and Clean Energy Access Transformation Project. The ESMF provides project implementers with an environmental and social screening process that will enable them to identify, assess and mitigate potential environmental and social sub-projects' impacts, in accordance with the Government of Rwanda, African Development Bank ISS and the World Bank Environmental and Social Framework and EHS guidelines. The implementation of the project will have the environmental and social impacts that should be mitigated following the ESMF guidelines. Successful implementation of this ESMF will depend to a large extent on the active participation of different key stakeholders (MININFRA, REMA, RDB, REG, EDCL, RUEAP PIU, Districts, Private operators, academician and researchers, Home Solar Systems Companies and local communities). To be successful it is recommended that:

- Environmental and Social awareness and education for the key stakeholders and affected communities must be an integral part of the ESMF implementation.
- EDCL PIU staff, District Environmentalist, District Electricity Engineers and Sector land managers should be adequately trained to implement the screening process, and where required to help develop and to implement appropriate Environmental and Social Management and Monitoring Plans. They should be empowered to adequately administer the ESMF and should be given the necessary support and resources to ensure effective implementation.
- This ESMF should be regularly updated to respond to changing local and environmental conditions and should go through the national approval processes, reviewed and approved. It should also incorporate lessons learned from implementing various Components of the project activities.

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**ANNEXES***Annex 1: General Sub-Project Information*

<b>INSTITUTIONAL AND ADMINISTRATIVE INFORMATION</b>				
Country				
Sub-project Title				
Sub-project area and Scope				
Institutional arrangements (Name and contacts)	World Bank (Project Team Leader)	Project Management	MININFRA (Recipient)	
Implementation arrangements (Name and contacts)	Safeguard Supervision	Local Supervision (District Electricity Engineer or Environmentalist)	Construction Supervision	Contractor
<b>SITE DESCRIPTION</b>				
Name of facility/site				
Describe the location				
Who is the land lot owner?				
Describe the geographical, physical, biological, geological, hydro-graphical and socio-economic context				
Indicative need construction Materials				
<b>LEGAL FRAMEWORK</b>				
Identify national and regional legal framework and permits applicable to the project				
Identify when / where the public hearings took place				

Annex 2: Checklist for Environmental and Social Screening form

**A. ENVIRONMENTAL SCREENING FORM**

- 1. **Sub-project** **Name:**  
.....
  - 2. **Location (Village, Cell, Sector, Secondary City):** .....
  - 3. **Component/sub-project:** .....
  - 4. **Number of people benefiting the sub-project:** .....
  - 5. **Contact** **person's**  
**name**.....
  - 6. **Mobile Telephone Number**.....
  - 7. **General Description of the sub project:-**
    - i. Sub-project objectives: .....
    - .....
    - .....
    - .....
    - .....
    - .....
    - .....
    - .....
    - .....
    - .....
    - .....
  - ii. Subproject activities  
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8. **Baseline Description of affected Environment**
  - i. Description of physical chemical environment (soil, air, water, etc.)  
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ii. Description of Biological Environment (habitats and Communities, Flora etc):

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iii. Description of Socio-economic Environment e.g. historical sites, aesthetic aspects, public health facilities, infrastructure

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9. Identification of Negative Environmental Impacts

Aspects	Yes	No	Scale of Impact			Remarks
			High	Medium	Low	
● Loss of top soil?						
● Negative effects on flora and fauna and their habitats?						
● Negative effects on wetlands?						
● Negative effects on vegetation?						
● Destruction of trees and vegetation						
● Impact on fish or other wildlife migration?						
● Drainage congestion in project area?						
● Water logging in project areas?						
● Negative effects on surface water quality, quantities or flow?						
● Negative effects on soil stability and compactness?						
● Negative effects in irrigation and canals?						
● Increased noise due to day-to-day construction activities?						
● Increased wind-blown dust from materials areas e.g. fine aggregate storage?						

<ul style="list-style-type: none"> <li>● Degradation or disturbance of historical or culturally important sites (places of worship, burial sites, monuments etc.)?</li> </ul>						
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10. Possible environmental impacts of the sub-project

Environmental Impacts	Mitigation Measures

11. The Environment and Social Management Plan (ESMP) to be taken during implementation of the subproject.

Recommendations:

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.....

.....

B. SOCIAL SCREENING FORM

12. Socio-economic information

What assets would be affected due to sub-project intervention? Fill in Yes of No as appropriate

- Land .....
- Physical structure (dwell in or commercial) .....
- Trees/crops .....
- Natural resources (water bodies/forests/ponds) .....
- Others

(specify).....

- .....
  - .....
- .....

13. Land



- Land ownership: Is the land public or private? .....
- Type of land : Agricultural/homestead/pond/natural vegetation

Other (specify):  
 .....

- Does the sub-project require additional land permanently or on a temporary basis?
- In case of land acquisition, will there be physical or economic displacement of people?
- What would be the total number of affected families .....

14. Will the project implementation result into loss of access to the following? (Fill in **Yes** or **No** as appropriate)

- Land
- House
- Public services (water, electricity, public latrines, etc.)
- Others ( specify)

15. **Structure (residential or business)**

- Total number of residential structures that would be affected .....
- Total number of commercial/business structures that would be affected .....
- Ownership types of the structures to be affected: Please specify among: Private with land title/Private without land title/Tenant .....

16. **Trees and Crops**

- Is there any tree or plant that may be affected? Fill in **Yes** or **No** as appropriate: .....
- Total estimated number by size .....
- Is there any social forestry/plantation project that would be affected? Fill in **Yes** or **No** as appropriate: .....
- Are there any fruit-bearing trees that would be affected? Fill in **Yes** or **No** as appropriate: .....
- Are there any agricultural lands/crops to be included in the subproject footprint: Fill in **Yes** or **No** as appropriate: .....
- If yes, please provide relevant information regarding type of production on the land to be affected, estimated quantity of crop(s) and estimated market value
- Is there any community resource property that might be affected? E.g. open space, wetland etc. Fill in **Yes** or **No** as appropriate: .....
- If yes please describe the community dependency of the resources that would be affected.....

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 .....  
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17. **Beneficiaries**

- Who are the beneficiaries?  
.....
- How would they benefit from the subproject? Fill in **Yes** or **No** as appropriate:
  - Access to infrastructure and services? .....
  - Access to services? .....
  - Source of income generation? .....
  - Are the people/residents ready to cooperate with the project? .....
  - Please provide explanatory notes below

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 .....  
 .....

18. **Possible social impacts of the sub-project**

Social Impacts	Mitigation Measures (Identify relevant ESTC)

C. DETERMINATION OF ENVIRONMENTAL AND SOCIAL RISK MANAGEMENT INSTRUMENT TO BE PREPARED

#	Characteristics	Types of the E&S instruments to be prepared
1	The characteristics of the subproject fall under the projects listed under Ministerial Order N0: 001/2019 of 15/04/2019 establishing the list of projects that must undergo environmental impact assessment, instructions, requirements and procedures to conduct environmental impact assessment. The activities fall under ANNEXE I	full environmental and Social Impact Assessment (ESIA) is Required

2	The characteristics of the subproject fall under the projects listed under Ministerial Order N0: 001/2019 of 15/04/2019 establishing the list of projects that must undergo environmental impact assessment, instructions, requirements and procedures to conduct environmental impact assessment. The activities fall under ANNEXE II	undergo a partial environmental impact assessment (ESMP)
3	Activities, projects and facilities for which no environmental impact assessment was conducted prior to their Commencement; Existing activities, projects or facilities and based on project description or design and baseline information generated during the environmental impact assessment process. The activities in the 2 paragraph above of this section should include in the <b>annex to ministerial order no 001/2021 of 08/02/2021 establishing the list of projects that must undergo environmental audit, instructions and procedures for conducting environmental audit or when requested by the authority to conduct Environmental Audit.</b>	Environmental and social Audit (ESA)
4	The project components or activities that give rise to displacement, land acquisition, the scope and scale of land acquisition and impacts on structures and other fixed assets or any project-imposed restrictions on use of, or access to, land or natural resources;	Resettlement Action Plan (RAP) or Baseline Valuation Report (BVR) depending on the level of impacts.

**Recommendations:**

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**Prepared by:** ....., **Signature:** .....**Date and time:** .....

**Approved by:** ....., **Signature:** ....., **Date and time:** .....

### Annex 3 : *Suggested ToRs Environmental and Social Management Plan (ESMP)*

An ESMP consists of the set of mitigation, monitoring, and institutional measures to be taken during implementation and operation of a project to eliminate adverse environmental and social risks and impacts, offset them, or reduce them to acceptable levels. The ESMP also includes the measures and actions needed to implement these measures. The contractor will (a) identify the set of responses to potentially adverse impacts; (b) determine requirements for ensuring that those responses are made effectively and in a timely manner; and (c) describe the means for meeting those requirements.

The content of the ESMP will include the following:

#### (a) Project Description and Components

This section provides a summary of project objectives, features, location and status, including an up-to-date description and delineation of the proposed project and its key components and provides information on its geographical, environmental and socio-economic and temporal context. It should include information on whether and how the project is part of a wider development programme. Based on the screening and the initial scoping process, provide information on potentially significant social and environmental issues, risks and impacts that may have been identified.

#### (b) Principal Activities

Preparation of the Environmental and Social Management Plan (ESMP) of the project will include the activities before, during and after the project implementation period. :

##### Mitigation

The ESMP will identify measures and actions in accordance with the mitigation hierarchy that reduce potentially adverse environmental and social impacts to acceptable levels. The plan will include compensatory measures, if applicable. Specifically, the ESMP will:

- i identify and summarize all anticipated adverse environmental and social impacts (including those involving involuntary resettlement);
- ii describes--with technical details--each mitigation measure, including the type of impact to which it relates and the conditions under which it is required (e.g., continuously or in the event of contingencies), together with designs, equipment descriptions, and operating procedures, as appropriate;
- iii estimates any potential environmental and social impacts of these measures; and
- iv takes into account, and is consistent with, other mitigation plans required for the project (e.g., for involuntary resettlement or cultural heritage).

#### (c) Monitoring

The ESMP identifies monitoring objectives and specifies the type of monitoring, with linkages to the impacts assessed in the environmental and social assessment and the mitigation measures described in the ESMP. Specifically, the monitoring section of the ESMP will provide:

- a) a specific description, and technical details, of monitoring measures, including the parameters to be measured, methods to be used, sampling locations, frequency of measurements, detection limits (where appropriate), and definition of thresholds that will signal the need for corrective actions; and
- b) a monitoring and reporting procedures to (i) ensure early detection of conditions that necessitate particular mitigation measures, and (ii) furnish information on the progress and results of mitigation.

#### (d) Capacity development and training

- a) To support timely and effective implementation of environmental and social project components and mitigation measures, the ESMP will draw on the environmental and social assessment of the existence, role, and capability of responsible parties on site or at the agency and ministry level.
- b) Specifically, the ESMP will provide a specific description of institutional arrangements, identifying which party is responsible for carrying out the mitigation and monitoring measures (e.g. for operation, supervision, enforcement, monitoring of implementation, remedial action, financing, reporting, and staff training).
- c) To strengthen environmental and social management capability in the agencies responsible for implementation, the ESMP will recommend the establishment or expansion of the parties responsible, the training of staff and any additional measures that may be necessary to support implementation of mitigation measures and any other recommendations of the environmental and social assessment.

*(f) Implementation schedule and cost estimates*

For all three aspects (mitigation, monitoring, and capacity development), the ESMP should provide

- a) an implementation schedule for measures that must be carried out as part of the project, showing phasing and coordination with overall project implementation plans; and
- b) the capital and recurrent cost estimates and sources of funds for implementing the ESMP. These figures are also integrated into the total project cost tables.

*(g) Integration of ESMP with project*

The Contractor's decision to proceed with a project, and the Bank's decision to support it, are predicted in the expectation that the ESMP (either stand alone or as incorporated into the ESIA) will be executed effectively. Consequently, each of the measures and actions to be implemented will be clearly specified, including the individual mitigation and monitoring measures and actions and the institutional responsibilities relating to each, and the costs of so doing will be integrated into the project's overall planning, design, budget, and implementation.

Table below is a matrix to be filled out for each subproject that will have a separate ESMP according its impact level.

Subproject Activity	Potential Environmental or Social Impacts	Proposed Mitigation Measures	Responsibility (including enforcement and coordination)	Monitoring Requirements (including supervision)	Time Frame or Schedule	Cost Estimate

#### *Annex 4: Terms of Reference for Environmental and Social Impact Assessment*

These Terms of Reference (TOR) are applicable to development projects involving Energy development projects. The ToRs outline the aspects of an Environmental and Social Impact Assessment (ESIA) which when thoroughly addressed will provide a comprehensive evaluation of the sites, in terms of predicted environmental impacts, needed mitigation strategies, potentially viable alternatives to the development proposed and all related legislation.

**Planned Areas:** Issues such as slope stability, impact on drainage patterns, property etc. should be examined. The path of the corridor cleared of vegetation for transmission and distribution lines, substations upgrade, or rehabilitation should be the major focus of this exercise.

**Rivers/ Riverine Areas:** Issues such as erosion and siltation, macro invertebrate habitat destruction, disrupting of regular flow of the river and the possible impact of upstream activities on the area ecosystems e.g. wetlands etc.

**Distinct Terrestrial Forest Types:** Issues relating to the specific growth form of the vegetation, the carrying capacity, the successional stage of the forest and the projected level of disturbance which the forest can withstand.

#### **Sites located within and adjacent to areas listed as protected or having protected species:**

The main issue(s) of concern will be in part determined by the local legislation as well as Government of Rwanda (GoR) responsibilities under applicable international conventions. The impact of the development on the specific sensitivities of the protected area should be highlighted. Mitigation of impacts should assess if the post mitigation status would be acceptable in the protected area context. Alternative sites should be rigorously evaluated. Socio–Economic issues such as land acquisition and impact of these conveyances on commerce in the community should be closely examined.

#### **The Environmental Impact Assessment should:**

- 1) Provide a complete description of the corridor proposed for development. This should include a description of the main elements of the development, highlighting areas to be reserved for construction, the creation of verges and other green areas.
- Identify the major environmental and social issues of concern through the presentation of baseline data which should include social and cultural considerations. Assess public perception of the proposed development.
  - Outline the Legislations and Regulations relevant to the project.
  - Predict the likely impacts of the development on the described environment, including direct, indirect and cumulative impacts, and indicate their relative importance to the design of the development's facilities.
  - Identify mitigation action to be taken to minimize adverse impacts and quantify associated costs.
  - Design a Monitoring Plan which should ensure that the mitigation plan is adhered to.
  - Describe the alternatives to the project that could be considered at that site

To ensure that a thorough Environmental and Social Impact Assessment is carried out, it is expected that the following tasks be undertaken:

### 1. Executive summary

- Concisely discusses significant findings and recommended actions.

### 2. Legal and institutional framework

- Analyses the legal and institutional framework for the project, within which the environmental and social assessment is carried out, including the issues set out in ESS1, paragraph 264.
- Compare the Borrower's existing environmental and social framework and the ESSs and identify the gaps between them.
- Identifies and assesses the environmental and social requirements of any co-financiers.
- Outline the pertinent regulations and standards governing environmental quality, safety and health, protection of sensitive areas, protection of endangered species, siting and land use control at the national and local levels. The examination of the legislation should include at minimum, legislation such as the land law, Environmental protection and conservation law, expropriation law, the Public Health Act, the urban Planning Act, Building Codes and Standards, Development Orders and Plans and the appropriate international convention/protocol/treaty where applicable.

### 3. Description of the subproject

- Concisely describes the proposed subproject and its geographic, environmental, social, and temporal context, including any offsite investments that may be required (e.g., dedicated pipelines, access roads, power supply, water supply, housing, and raw material and product storage facilities), as well as the project's primary suppliers.
- Through consideration of the details of the project, indicates the need for any plan to meet the requirements of ESS 1 through 10.
- Includes a map of sufficient detail, showing the project site and the area that may be affected by the project's direct, indirect, and cumulative impacts.

### 4. Baseline data

- Sets out in detail the baseline data that is relevant to decisions about project location, design, operation, or mitigation measures. This should include a discussion of the accuracy, reliability, and sources of the data as well as information about dates surrounding project identification, planning and implementation.
- Identifies and estimates the extent and quality of available data, key data gaps, and uncertainties associated with predictions;
- Based on current information, assesses the scope of the area to be studied and describes relevant physical, biological, and socioeconomic conditions, including any changes anticipated before the project commences.
- Takes into account current and proposed development activities within the project area but not directly connected to the project.

The baseline will be analysed based on the physical, biological and Socio-economic and cultural constraints as follows:

- Physical environment
- Biological environment
- Socio-economic and cultural constraints.

It is expected that methodologies employed to obtain baseline and other data be clearly detailed.

Baseline data should include:

#### (A) Physical

- A detailed description of the existing **geology** and **hydrology**. Special emphasis should be placed on storm water run-off, and drainage patterns. Any slope stability issues that could arise should be thoroughly explored.
- **Water quality** of any existing rivers, ponds, streams or coastal waters in the vicinity of the corridor or substation. Quality Indicators should include but not necessarily be limited to suspended solids, turbidity, oil and grease.
- Climatic conditions and air quality in the area of influence including particulate matter wind speed and direction, precipitation, relative humidity and ambient temperatures,
- Obvious sources of pollution existing and extent of contamination.

#### (B) Biological

- Present a detailed description of the flora and fauna (aquatic and terrestrial) in the proposed corridor of influence, with special emphasis on rare, endemic, protected or endangered species. Migratory species should also be considered. There may be the need to incorporate microorganisms to obtain an accurate baseline assessment. Generally, species dependence, niche specificity, community structure and diversity ought to be considered.

#### (C) Socio-economic & cultural

- Present and projected population; present and proposed land use; planned development activities, issues relating to squatting and relocation, community structure, employment, distribution of income, goods and services; recreation; public health and safety;
- Cultural peculiarities, aspirations and attitudes should be explored. The historical importance of the area should also be examined. While this analysis is being conducted, it is expected that an assessment of public perception of the proposed development be conducted. This assessment may vary with community structure and may take multiple forms such as public meetings or questionnaires.

### 5. Identification of Potential Environmental and Social Impacts

Considers all relevant environmental and social risks and impacts of the project. This will include the environmental and social risks and impacts specifically identified in ESS2 – 8, and any other



environmental and social risks and impacts arising as a consequence of the specific nature and context of the project, including the risks and impacts identified in ESS1, paragraph 28.

Identify potential impacts as they relate to, (but are not restricted by) the following:

- public health and safety, risk assessment, change in drainage pattern flooding potential and aesthetics;
- landscape impacts of excavation and construction;
- loss of natural features, habitats and species by construction and operation;
- noise, air pollution, pollution of potable, coastal, surface and ground water - Socio-economic and cultural impacts;
- Loss of land and assets due new transmission lines construction and operation;
- Distinguish between significant positive and negative impacts, direct and indirect, long term and immediate impacts;
- Identify, avoidable reversible and irreversible impacts.

## 6. Environmental and Social Management Plan/ Mitigation measures

- Identifies mitigation measures and significant residual negative impacts that cannot be mitigated and, to the extent possible, assesses the acceptability of those residual negative impacts.
- Identifies differentiated measures so that adverse impacts do not fall disproportionately on the disadvantaged or vulnerable.
- Assesses the feasibility of mitigating the environmental and social impacts; the capital and recurrent costs of proposed mitigation measures, and their suitability under local conditions; the institutional, training, and monitoring requirements for the proposed mitigation measures.
- Specifies issues that do not require further attention, providing the basis for this determination.

Design a plan to monitor implementation of mitigation or compensation measures and project impacts during and post construction and decommissioning of the power lines. **An Environmental and Social Management Plan** for the long-term operations of the development should also be prepared.

An outline **monitoring** programme should be included in the EIA, and a detailed version submitted to RDB's e-portal system for review and approval and prior to the commencement of the development. At the minimum the monitoring programme and report should include:

- The activity being monitored, and the parameters chosen to effectively carry out the exercise.
- The methodology to be employed and the frequency of monitoring.
- The sites and project components being monitored. These may in instances, be predetermined by the EDCL and should incorporate a control site where no impact from the development is expected.

## 7. Analysis of alternatives

- systematically compares feasible alternatives to the proposed project site, technology, design, and operation--including the "without project" situation--in terms of their potential environmental and social impacts;
- assesses the alternatives' feasibility of mitigating the environmental and social impacts; the capital and recurrent costs of alternative mitigation measures, and their suitability under local conditions; the institutional, training, and monitoring requirements for the alternative mitigation measures.
- For each of the alternatives, quantifies the environmental and social impacts to the extent possible, and attaches economic values where feasible.

## **8. Design measures**

- sets out the basis for selecting the particular project design proposed and specifies the applicable ESHGs or if the ESHGs are determined to be inapplicable, justifies recommended emission levels and approaches to pollution prevention and abatement that are consistent with GIIP.

## **9. Key measures and actions for the Environmental and Social Commitment Plan (ESCP)**

- Summarizes key measures and actions and the timeframe required for the project to meet the requirements of the ESSs. This will be used in developing the Environmental and Social Commitment Plan (ESCP).

## **10. Appendices**

- List of the individuals or organizations that prepared or contributed to the environmental and social assessment.
- References—setting out the written materials both published and unpublished, that have been used.
- Record of meetings, consultations and surveys with stakeholders, including those with affected people and other interested parties. The record specifies the means of such stakeholder engagement that were used to obtain the views of affected people and other interested parties.
- Tables presenting the relevant data referred to or summarized in the main text.
- List of associated reports or plans.
- Terms of reference;

## Annex 5 : Itinerary of Stakeholder Consultations and outcome

Dates	District	Sector	Cell	Stakeholder group or Consulted person and Position	Venue Key characteristic s	Observation or Points raised by stakeholders	Suggestions from stakeholders and how they are considered by the project (proposed action)	Preferred notification means (e-mail, phone, radio, letter)	Specific needs by stakeholders
August 17, 2023	Rubavu	Rugerero	Murambi	V/Mayor FED MURAMBI Executive secretary Local People	High level local authorities, local population, female and males contributed	The district staff appreciated the project proposed and suggested that the remaining areas not covered by RUEAP be the main focus in the new electrification project.  The areas with overpopulation not yet connected like Gihonga cell/ Gasenyi center in Busasamana sector should be considered.  The information about compensation on the project being implemented should be shared with district so that they can handle different relevant claims	The district administration through its electrical engineer should collaborate with REG planning department to make sure that they focus where there is a need more than the other.  They will always be the consultation meetings before the implementation of any project so that what is being done to the beneficiaries (they service they are receiving) should be done considering the district priority.	e-mail, phone, letter	Urgent need of electricity in Nyamyumba Village, Gihonga cell of Busasamana sector where the center called Gasenyi which is overpopulated is still without electricity
August 18, 2023	Nyabihu	Mukamirama	Rubaya	Ag Director of OSC	High level local authorities,	The project is appreciated and any help for its	The district priority sites to be connected, will be handed over to EDCL Planning so that	e-mail, phone, letter	Different villages close to volcano park with

Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)

Dates	District	Sector	Cell	Stakeholder group or Consulted person and Position	Venue Key characteristic s	Observation or Points raised by stakeholders	Suggestions from stakeholders and how they are considered by the project (proposed action)	Preferred notification means (e-mail, phone, radio, letter)	Specific needs by stakeholders
				District Electrical engineer  District environmental officer  District land valuator  Sector Executive secretaries  Sector Land managers	female and males contributed	implementation will be rendered.  Community mobilization will be carried out for a smooth asset inventory and valuation. The local authorities will help the valuer to avoid any delay and inconsistency in valuation.  The district staff presented the priority areas that urgently need electricity and suggested that this should be the basis for planning on electrification within the district.  The district electrical engineer raised a concern about old lines and voltage drops and that there are different villages near the volcano park which are	they can be taken into consideration.  They will always be consulted before the implementation of any project so that what is being done to them (they service they are receiving) should be done considering the district priority.  Concerning villages under off grid even though the sun rays there are weak to make use of the Solar home systems, the EDCL E&S team advised the district to address this issue officially to REG so that it can be handled as a special case.  About the old lines, there will be a component of rehabilitation and upgrade from single phase to three phases that will address the issue of voltage drop.		insufficient sunlight who were put in off grid by NEP.

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Dates	District	Sector	Cell	Stakeholder group or Consulted person and Position	Venue Key characteristic s	Observation or Points raised by stakeholders	Suggestions from stakeholders and how they are considered by the project (proposed action)	Preferred notification means (e-mail, phone, radio, letter)	Specific needs by stakeholders
						considered under off grid by NEP, even though the sun rays there are very weak to operationalize the solar home system.			
August 21, 2023	NGORORERO	Ngororerero	Kazabe	The mayor V/Mayor FED Director of OSC District Electrical engineer District environmental officer District land valuator	High level local authorities, female and males contributed	The project was appreciated by the mayor and promised any support that can be needed for its successful implementation.  The main points raised concerned the expropriation delays and areas without electricity by then.  The local authorities will help the valuer to avoid any delay and inconsistency in valuation.  The district staff presented the priority areas that urgently need electricity	The district priority sites to be connected, will be handed over to EDCL Planning so that they can be taken into consideration.  They will always be consulted before the implementation of any project so that what is being done to them (they service they are receiving) should be done considering the district priority. Concerning the expropriation, the local authorities committed to help people secure the required documents for compensation early on time.	e-mail, phone, letter	The special request was that ASCENT should cover the area left out by EAQIP current EPC

## Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)

Dates	District	Sector	Cell	Stakeholder group or Consulted person and Position	Venue or Key characteristics	Observation or Points raised by stakeholders	Suggestions from stakeholders and how they are considered by the project (proposed action)	Preferred notification means (e-mail, phone, radio, letter)	Specific needs by stakeholders
				Sector Executive secretaries		and suggested that this should be the basis for planning on electrification within the district.			
August 22, 2023	Rutsiro	Gihango	Congo- Nil	V/Mayor ED Director of OSC District Electrical engineer District environmental officer District land valuator Sector Executive secretaries	High level local authorities, private sector, local population, female and males contributed	The project is appreciated. The compensation should be handled efficiently. The district will help to speed up the compensation process and will be the public awareness campaign after the project effectiveness and when all the lots are identified and marked. The encroachment after the cut-off date will be avoided to the extent possible. When is the project expected to get started?	The valuation process will involve the local government officials as per Rwandan expropriation law. The involvement of the district will make the job easy. The project appraisal is expected in September 2023.	e-mail, phone, letter	Electrify the area planned for hotel construction near the lake Kivu. Shift from single phase to three phase to boost socio-economic activities within commercial centres.

Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)

Dates	District	Sector	Cell	Stakeholder group or Consulted person and Position	Venue Key characteristic s	Observation or Points raised by stakeholders	Suggestions from stakeholders and how they are considered by the project (proposed action)	Preferred notification means (e-mail, phone, radio, letter)	Specific needs by stakeholders
				Sector Land managers  Private Sector  Local population					
August, 23, 2023	Karongi	Rubenge ra	Gacaca	The Mayor , Director of OSC District Electrical engineer Sector Executive secretaries Sector Land managers SAIP Staff	High level local authorities, SAIP/RAB community Development officers staff, female and males contributed by giving ideas	Considerable delays in compensation payments; Some cases of expropriation are also pending; Delays are generally due to errors not because of lack of funds but due to errors in account numbers; There is no problem with assets valuation. The district staff presented the priority areas that urgently need electricity and suggested that this	Local authorities will work hand in hand with SACCOs (bank) in order to avoid errors in accounts numbers. Local authorities should help the local population to secure the required document for a file to be complete. Local government officials should have a permanent eye on hired certified valuator for the quality of valuation but also they should speed up the activity of signing the forms within their offices so that	e-mail, phone, letter	To increase transformers in the irrigation areas for water pumping purposes and to the post-harvest facilities for efficient production.

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Dates	District	Sector	Cell	Stakeholder group or Consulted person and Position	Venue Key characteristic s	Observation or Points raised by stakeholders	Suggestions from stakeholders and how they are considered by the project (proposed action)	Preferred notification means (e-mail, phone, radio, letter)	Specific needs by stakeholders
						<p>should be the basis for planning on electrification within the district.</p> <p>Delayed people due to their cause like not having all required documents should not stop the project to move on</p> <p>The project should consider employing local people for their economic development.</p>	<p>they can be transferred to EDCL for payment</p> <p>Compensation payments should be done before the commencement of project works.</p> <p>Local people who are physically capable will be given the priority for employment.</p>		
August, 23, 2023	Nyamasheke	Kagano	Ninzi	V/Mayor ED Director of OSC REG Branch Manager District director of planning	High level local authorities, private sector, local population, female, and males contributed	Due to the big pace of development we are undergoing, everyone needs access to electricity ever. Anything that you will need will be granted from the district as the main stakeholder. However, any planning on new sites to be connected should consider the priority from district.	The Project team appreciated the effort of the district engagement and told the meeting attendant that the sites as prioritized by the district will be handed over to EDCL planning department for their consideration. However, after the project effectiveness, the project team	e-mail, phone, letter	People who do electrical installation services to be trained by REG on the safety of the installation to protect the houses from short circuit



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Dates	District	Sector	Cell	Stakeholder group or person consulted and Position	Venue or Key characteristics	Observation or Points raised by stakeholders	Suggestions from stakeholders and how they are considered by the project (proposed action)	Preferred notification means (e-mail, phone, radio, letter)	Specific needs by stakeholders
				District Electrical engineer  District environmental officer  Sector Land managers  ES-Sectors	and provided their ideas	The contractor should pay his workers on time. Always contractor do not pay labours on time.  How will your project protect workers from accidents?	will also consult the district to update the data.  The project will use World bank environmental health and social guidelines to comply with occupational health and safety and Labor Management Procedure (LMP) is being prepared so that detail concerning worker right should be captured and monitored for effective implementation.		
August, 25, 2023	Rusizi	Kamembe	Cyangugu	V/Mayor ED  Director of OSC  District Electrical engineer	High level local authorities, private sector, local population, female, and males contributed	The delay in compensation is an issue. REG should find a way to address all outstanding issues related to expropriation.  There is an issue of poverty to local people, there is likelihood that they will not have the fund to purchase the cash power and make	REG has inventoried all old cases from district, and all have undergone the valuation, there payment is being done.  Client who wants cash power, they get it free of charge and they pay 50% as they consume until the debt is finished.	e-mail, phone, letter	The need to strengthen the network in Bugarama center of Bugarama sector which frequently suffers from power shortage.

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				District environmental officer  District land valuator  Sector Executive secretaries  Sector Land managers		installation. Can the project help them in terms of installing their houses?			
August, 25, 2023	RUSIZI	Bugaramana	Akabagoyi	Local community	Akabagoyi cell of Bugaramana sector	The community appreciated this project, and they are waiting impatiently the starting. They said that they are expecting a lot from this project, like getting casual jobs, but also it will help them in the employment creation like welding, using mill, haircut saloon but also, they are fed up of	The district priority sites to be connected, will be handed over to EDCL Planning so that they can be taken into consideration. They will always be consulted before the implementation of any project so that what is being done to them (they service they are receiving)	e-mail, phone, letter	

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Dates	District	Sector	Cell	Stakeholder group or Consulted person and Position	Venue or Key characteristic s	Observation or Points raised by stakeholders	Suggestions from stakeholders and how they are considered by the project (proposed action)	Preferred notification means (e-mail, phone, radio, letter)	Specific needs by stakeholders
						darkness caused by the lack of electricity access	should be done considering the district priority		
16/08/2023	Rwamagana	Kigabiro	Cyanya	Dir./OSC, EME, District environment officer, EUCL-Rwamagana Branch, SLM, public servants and local community	Among 14 consulted stakeholders, 7 are females and other 7 are males	Issues of electricity shortage mainly due to the old MV line being overloaded by a high number of connections.	Timely fair compensation for PAPs damaged properties and assets.  Unemployment issues among local residents, the local authority proposes to provide job opportunities to local population during project implementation.  The District suggests that EDCL should think about full expropriation of the land for the Right of Way (RoW) for power lines and own the land title instead of only compensating the assets/crops on the land as a means of stopping landowners who after getting compensation for	e-mail, letter, phone, face-to-face discussions	Need for electricity in different areas (e.g: Cyarukamba Cell in Munyiginya Sector,)

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Dates	District	Sector	Cell	Stakeholder group or Consulted person and Position	Venue Key characteristic s	Observation or Points raised by stakeholders	Suggestions from stakeholders and how they are considered by the project (proposed action)	Preferred notification means (e-mail, phone, radio, letter)	Specific needs by stakeholders
							their properties damaged above the land, carry out forbidden activities like house construction under the power lines.		
17-18/08/2023	Kayonza	Munyinya	Cyimbazi	District authority, Dir./OSC, EME, District environment officer, EUCL-Kayonza Branch, ES/Sector, SLM, Public servants, Faith Based Organizations (i.e Bethesida Holly Church), Business	In total, 14 Stakeholders have been consulted, among which 12 are females and 28 are males.	Facilitating people who do not have their land titles to get them because they are needed for payment of compensation and for connecting new customers.	Fair compensation for properties that ASCENT Rwanda activities should damage should be paid on time.  Once the scope and time to start ASCENT Rwanda activities in Kayonza District are known, inform the District as earlier as possible to mobilize residents specifically women to apply for jobs.	e-mail, letter, phone, face-to-face discussions, meeting	Urgent need for electricity to public infrastructures not yet electrified (e.g: Health care facilities, schools, markets, business centers).
		Gishari	Bwinsanga						
		Muhazi	Karitutu						
		Mukarange	Mburaburo						

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				operators, schools (GS Ndego II, HOPE Nursery & Primary School) and local community.		declare taxes in EBM due to lack of electricity.  At GS Ndego, the security officer said that apart from other constraints caused by the lack of electricity, it is difficult to keep the security of the school during the night given that it is not fenced. He added that at the beginning of this year (2023), they faced a case of school beans that had been stolen.			
18/08/2023, 21/08/2023 & 22/08/2023	Ngoma	Kibungo	Cyasema kamba	District authority, Dir./OSC, EME, EUCL-Ngoma Branch, ES/Sector, SLMs, public servants and	262 stakeholders have been consulted: 133 are females and 129 are males	Consulted stakeholders appreciated this interaction of introducing ASCENT project prior to the start of civil works.  People prefer on-grid electricity over off-grid because the latter has some limitations when it comes to business activities like	Communication of assets/properties valuation activity should be efficient to enable local authorities to solve land titles issues and mobilize all PAPs for full participation in this activity.  Consulted stakeholders recommend that this consultation for future energy	e-mail, letter, phone, face-to-face discussions, meeting	Referring to the guidance from the Government Authority, areas located at borders with neighbour countries should be given priority during electrification.

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				local community		welding, haircut, use of electric sawing machines, ... People who have croplands along the road with streetlight raise a challenge of lack of production due to street lighting which impedes the growth of crops.	development projects should be done earlier to agree on the same prioritization which in turn will help to prevent gaps experienced in past projects. EDCL should solve the issue of the delays for payment of compensation experienced for past energy development projects.  EDCL should provide training to stakeholders like District Electricity Maintenance Engineer and Sector Land Managers to feed them with project information to share with local residents.  PAPs of past projects recommend that the assets/properties valuation and compensation activity should be improved because they witness some cases of		In general, there is higher need for electricity to households and productive users like business centers, schools, health care facilities, etc.

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							victims of negative impacts like constructing a power line over their houses without compensating them and nowadays, they are not allowed to rehabilitate those houses.		
23/08/2023	Kirehe	Kirehe	Nyabikorokora	District authority, Dir./OSC, EME, EUCL-Kirehe Branch, ES/Sector, SLMs, public servants and local community	In a total of 90 stakeholders consulted; 41 are females and 49 are males	Issues in expropriation left by past energy development projects (e.g: some PAPs who still claim their compensation. There is a PAP whose part of his residential plot has been used for the earthing of a transformer without compensation).	Institutions like REG, WASAC, RTDA should work hand in hand while planning for public infrastructures by referring to the National Land Use Master Plan to avoid the destruction of existing infrastructures by new infrastructure development projects.  EDCL should involve the local authority during the entire project lifecycle as a measure to avoid the issues experienced from past energy development projects.	e-mail, letter, phone, face-to-face discussions, meeting	Kirehe District raised a big issue of productive users with insufficient electricity to maximize their economic contribution to the community (e.g: Nasho, Mpanga & Mahama Export Targeting Irrigation Projects, etc.).  In Kirehe District, there are productive users without

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									electricity (E.g: GS Nyankurazo TSS is a technical school without electricity while it teaches welding and electricity trades)
24-25/08/2023	Gatsibo	Kabarore	Karenge	District authority, EME, EUCL-Gatsibo Branch, ESs/Sector, SLMs, public servants, business operators and local community	88 stakeholders have been consulted: 16 are females and 72 are males	Gatsibo District Authority raised an issue of low status of electrification (48%) and requested for special attention to increase this percentage.  Gatsibo District raised an issue of PAPs with account numbers in Umurenge SACCOS who delay getting their compensation money because EDCL does not share the proof of payment to the management of Umurenge SACCOS.	EDCL should establish and operationalize Grievance Redress Committees (GRCs) because they help to solve community problems at grassroots levels as experienced from past world bank funded projects.  EDCL should advocate for provision of the compensation for the land under the Right of Way (RoW) or make a written agreement with the PAPs on the allowed use of the RoW.  The District authority appreciated this consultation	e-mail, letter, phone, face-to-face discussions, meeting	Gatsibo District still has productive users without electricity (e.g: business centers, farms, milk collection centers, health posts, local authority offices, schools...)



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						To ensure the security of the electrical materials, the local authority requested that the list of workers allowed to operate in a given area should be shared to prevent persisting thefts.	of introducing ASCENT project and recommended a such kind of engagement during the site selection, expropriation and other upcoming project activities.		
24-25/08/2023	Nyagatare	Nyagatare	Nyagatare	District authority, Dir./OSC, EME, EUCL-Nyagatare Branch, ESs/Sectors, SLMs, public servants, business operators and local community	In a total of 34 stakeholders consulted; 7 are females and 27 are males	Shortage of electricity in some areas connected to single phases.  Many complaints in expropriation are left out by past energy development projects.  There are productive users (e.g., Health posts, schools, etc.) with off-grid electricity which experience shortages.	EDCL should advocate for compensation to PAPs whose properties are damaged by the construction of LV lines.  EDCL should involve the District during the design of energy development projects.	e-mail, letter, phone, face-to-face discussions, meeting	To speed up the process of starting the civil works of Rwanda Transmission System Reinforcement and Last Mile Connectivity Project.  As guidance of the Government of Rwanda, areas around the border of

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						Nyagatare District still has residential areas (e.g, Nshuri Village...) and productive users (e.g: Nshuri business center, Gitengure Primary School,...) without electricity.			Rwanda with neighbouring countries should be given a priority in electrification projects as well.
28/08/2023	Bugesera	Nyamata	Nyamata Ville	District authority, Dir./OSC, EME, EUCL-Bugesera Branch, ESs/Sectors, SLMs, public servants, business operators and local community	In a total of 61 stakeholders consulted; 39 are females and 22 are males	In Bugesera District, there are households and productive users (e.g, schools, business centers, etc.) that are not yet connected to electricity.  The challenge of theft of off-grid equipment had been raised.  Electrical materials remained after the completion of energy development activities which are stored at some public offices in Bugesera	This project should connect households in electrified villages who had been left without electricity.  This project should contribute to the rehabilitation of old poles and other electricity infrastructures in general.	e-mail, letter, phone, face-to-face discussions, meeting	Bugesera District prioritizes electrification for some Cells (e.g: Juru Cell, Mugorore Cell) without electricity on their entire territory.

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						District (e.g, electrical materials at Kanzenze Cell Office/Ntarama Sector).			
16/08/2023	Nyamagabe	Kibirizi	Uwindekazi	Community members	Among the 9 persons from which 3 were females	<ul style="list-style-type: none"> <li>- Delay in expropriation</li> <li>- lack of information</li> <li>- need of electricity</li> <li>- voltage drops</li> <li>- requested jobs</li> </ul>	<ul style="list-style-type: none"> <li>- Speed up expropriation</li> <li>- Full engagement of community members</li> <li>- Job offers</li> <li>- Strengthening existing electrical lines</li> </ul>	Letters, telephones and public meetings	of Electricity
		Musebeya	Gatovu	Community members	11 persons from which 6 are women and 5 men	<ul style="list-style-type: none"> <li>- Delay in expropriation</li> <li>- lack of information</li> <li>- need of electricity</li> <li>- voltage drops;</li> <li>- requested jobs</li> </ul>	<ul style="list-style-type: none"> <li>- Speed up expropriation;</li> <li>- Full engagement of community members</li> <li>- Job offers;</li> <li>- Strengthening existing electrical lines</li> </ul>	Letters, telephones and public meetings	Need of electricity
		Gasaka	Nyamugari	District authorities and staffs, business operators	From 11 person consulted person 2 were all females	<ul style="list-style-type: none"> <li>- The project was much appreciated by stakeholders and committed their full participation;</li> <li>- Areas not connected should covered</li> <li>- Considering master plan</li> <li>- Underground cables</li> </ul>	<ul style="list-style-type: none"> <li>- Maximizing grid extension where possible to enable the district reach full connection;</li> <li>- Strengthening existing electrical lines</li> <li>- Overhead lines</li> </ul>	Letters, telephones and public meetings	Need of electricity

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Dates	District	Sector	Cell	Stakeholder group or Consulted person and Position	Venue Key characteristic s	Observation or Points raised by stakeholders	Suggestions from stakeholders and how they are considered by the project (proposed action)	Preferred notification means (e-mail, phone, radio, letter)	Specific needs by stakeholders
17/08/2023	Nyaruguru	Kibeho	Mubuga	District staffs, community	22 persons from which 8 were females	Stakeholders appreciated the project and raised the following issues to be considered in this new project <ul style="list-style-type: none"> <li>- Voltage drops: 70 % of existing electrical lines are single phase</li> <li>- Wooden poles with poor standards</li> <li>- Maximizing electricity coverage to the possible extent</li> </ul>	Strengthening/upgrade the existing electricity from single to three phase Expand electricity to areas not connected	Letters, telephones and public meetings	Need of electricity
18/08/2023	Huye	Ngoma	Butare	District authorities and staffs	25 persons from which 7 were females	The district authorities appreciated this new project and promised full engagement in project implementation. However, as secondary city, they requested the project to address the following issues: <ul style="list-style-type: none"> <li>- Underground cables</li> <li>- Wooden poles with</li> </ul>	Maximize electricity coverage Electricity strengthening Productive users to be connected Underground cables to be replaced by overhead Consider master plan especially the newly villages which changed from agriculture to residential areas	Letters, telephones and public meetings	Need of electricity

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Dates	District	Sector	Cell	Stakeholder group or person Consulted and Position	Venue Key characteristic s	Observation or Points raised by stakeholders	Suggestions from stakeholders and how they are considered by the project (proposed action)	Preferred notification means (e-mail, phone, radio, letter)	Specific needs by stakeholders
						<ul style="list-style-type: none"> <li>- poor quality</li> <li>- Areas not connected</li> <li>- Upgrade of single phase</li> <li>- Productive use areas</li> <li>- Master plan consideration</li> </ul>			
21/08/2023	Gisagara	Ndora	Cyamukuzza	District authorities and staffs	All the 21 persons consulted were females	<p>The district authorities had much appreciated the project and promised their support during the project implementation. They requested to address the following:</p> <ul style="list-style-type: none"> <li>- voltage drops</li> <li>- areas not connected</li> <li>- delay of compensation</li> <li>- to be involved in all project phases</li> </ul>	<ul style="list-style-type: none"> <li>- Speed up expropriation</li> <li>- Full engagement of local leaders and community members</li> <li>- Upgrade MV and LV lines</li> <li>- Areas without electricity to be considered</li> </ul>	Letters, telephones and public meetings	Need of electricity
		Mamba	Mamba	Community members	24 persons from which 8 are females	<ul style="list-style-type: none"> <li>- Expropriation issues</li> <li>- Full electricity coverage</li> <li>- Requested jobs</li> </ul>	<ul style="list-style-type: none"> <li>- Speed up expropriation</li> <li>- Full engagement of community members</li> <li>- Job offers</li> </ul>		Need of electricity

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Dates	District	Sector	Cell	Stakeholder group or Consulted person and Position	Venue Key characteristic s	Observation or Points raised by stakeholders	Suggestions from stakeholders and how they are considered by the project (proposed action)	Preferred notification means (e-mail, phone, radio, letter)	Specific needs by stakeholders
22/08/2023	Nyanza	Busasama	Rwesero	District authorities and staffs	Among 23 persons consulted 4 of them are females	The district had appreciated the new project and committed to provide support in project implementation. They wished the following: <ul style="list-style-type: none"> <li>Increase electricity coverage to the possible extent</li> <li>Expropriation delays</li> <li>Lack of information about project</li> </ul>	<ul style="list-style-type: none"> <li>Consideration of cells not connected</li> <li>Full involvement in the project implementation</li> <li>Speed up expropriation</li> </ul>	<ul style="list-style-type: none"> <li>telephones</li> <li>public meetings</li> </ul>	Need of electricity
		Rwabusoro		Community members	11 persons from which 8 are females	<ul style="list-style-type: none"> <li>Expropriation issues</li> <li>Requested job offer</li> </ul>	<ul style="list-style-type: none"> <li>Speed up expropriation</li> <li>Job offers during project implementation</li> <li>Engagement in project implementation</li> </ul>	<ul style="list-style-type: none"> <li>ers, telephones</li> <li>public meetings</li> </ul>	
23/08/2023	Ruhango	Ruhango		District authorities and staffs	21 persons from which 5 are females	The district had appreciated the project and committed to provide all support needed to ease implementation of the project.	<ul style="list-style-type: none"> <li>Expedite project implementation to fast track the electricity coverage</li> <li>To always be communicated for their engagement</li> <li>Speed up expropriation</li> </ul>	<ul style="list-style-type: none"> <li>telephones</li> <li>public meetings</li> </ul>	

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Dates	District	Sector	Cell	Stakeholder group or Consulted person and Position	Venue Key characteristic s	Observation or Points raised by stakeholders	Suggestions from stakeholders and how they are considered by the project (proposed action)	Preferred notification means (e-mail, phone, radio, letter)	Specific needs by stakeholders
						To handle expropriation issues and related claims			
24/08/2023	Muhanga	Mushishi ro		District authorities and community members	The team consulted 9 persons from which 4 are females	The district Vice mayor in charge of economic affairs appreciated the project and committed to support where needed. He raised concerns to be addressed: <ul style="list-style-type: none"> <li>- Voltage drops</li> <li>- Coverage of all HHs</li> <li>- Improved clean cooking</li> <li>- Establishment of GRC and provision of money for its function.</li> </ul>		, telephones and public meetings	
25/08/2023	Kamonyi	Gacurabwenge		District authorities and staffs	The team consulted 25 District authorities and staffs from which 9 are females	The project was much welcomed as it will help district to increase the electricity rate. The district authorities appreciated the project and promised to be engaged and provide	Handle Expropriation issues on time Expedite the project implementation to enable district reach 100 % connection rate as soon as possible	, telephones and public meetings	

Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)

Dates	District	Sector	Cell	Stakeholder group or person consulted and Position	Venue Key characteristics	Observation or Points raised by stakeholders	Suggestions from stakeholders and how they are considered by the project (proposed action)	Preferred notification means (e-mail, phone, radio, letter)	Specific needs by stakeholders
						support during project implementation.			
17/08/2023 18/08/2023	BURERU	Rusarubye, Nembagogo	Ruhanga	District Officials and local community in the village of Bisayu I	56 stakeholders (11 women and 45 men)	<ul style="list-style-type: none"> <li>✚ Residents of in this village were claiming that they were left out by the previous electrification projects.</li> <li>✚ Delay in compensation payment for expropriation</li> <li>✚ Lack land titles which are required for compensation payment.</li> <li>✚ Need of employment opportunities during the project implementation.</li> </ul>	<ul style="list-style-type: none"> <li>✚ Need of electricity line and connection in their village to boost their socio-economic activities.</li> <li>✚ The payment for expropriation should be made prior to the project implementation as per the law governing expropriation.</li> <li>✚ Facilitation to get land titles for those who do not have them by the local leaders, especially land managers.</li> <li>✚ Urging the contractors to give priority to local residents during the recruitment of project employees.</li> </ul>	meetings & public meetings	<ul style="list-style-type: none"> <li>❖ Access to electricity to boost the economic activities.</li> <li>❖ Rapid payment of compensation packages.</li> <li>❖ Reduction of voltage drop, specifically in Business center.</li> </ul>



## Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)

Dates	District	Sector	Cell	Stakeholder group or Consulted person and Position	Venue Key characteristic s	Observation or Points raised by stakeholders	Suggestions from stakeholders and how they are considered by the project (proposed action)	Preferred notification means (e-mail, phone, radio, letter)	Specific needs by stakeholders
16/08/2023 21/08/2023	GICUMBI	Byumba, Bwisige, Rukomo		District leaders, Executive secretaries of sectors, Land Managers, leaders of security organs, and business operators in different business centres	94 stakeholders (21 women and 73 men)	<ul style="list-style-type: none"> <li>• The need to have a substation in the district to reduce the long distance from both Gabiro and Rulindo substations. Preferably, the new substation would be constructed in Rwamiko sector.</li> <li>• Special consideration of productive Users (commercial centers without electricity)</li> </ul>	<ul style="list-style-type: none"> <li>✚ Construction of a new substation in Gicumbi District, preferably in Rwamiko Sector.</li> <li>✚ Efficient and sustainable energy supply.</li> </ul>	<ul style="list-style-type: none"> <li>✚ Consultation meeting public meeting.</li> </ul>	<ul style="list-style-type: none"> <li>✚ The need to have new substation in the district reduce to reduce long distance.</li> <li>✚ Special consideration of productive commercial centers without electricity</li> </ul>
24/8/2023	MUSANZE	MUHOZA		Musanze District officials	28 district leaders and staff from the sector level to the district, 21 men and 7 women	<ul style="list-style-type: none"> <li>• Reduction of low voltage and sustainable energy supply as a secondary city and a hub of tourism.</li> <li>• Special consideration of the villages which were left out by the previous electrification projects</li> </ul>	<ul style="list-style-type: none"> <li>• Upgrading the old electricity lines and installing additional transformers to cope with the voltage drop in the district.</li> <li>• With full collaboration with Land managers, the villages without electricity</li> </ul>	<ul style="list-style-type: none"> <li>✚ Consultation meeting</li> </ul>	<ul style="list-style-type: none"> <li>✚ Special consideration of productive commercial centers without electricity</li> </ul>

Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)

Dates	District	Sector	Cell	Stakeholder group or Consulted person and Position	Venue or Key characteristic s	Observation or Points raised by stakeholders	Suggestions from stakeholders and how they are considered by the project (proposed action)	Preferred notification means (e-mail, phone, radio, letter)	Specific needs by stakeholders
						<p>and review of NEP, especially concerning the villages under off grid and on grid.</p> <ul style="list-style-type: none"> <li>Anticipate the challenges related to expropriation to harmonize the expropriation process from the beginning of the project</li> </ul>	<p>will be identified, and put into the new project (ASCENT) scope.</p> <ul style="list-style-type: none"> <li>Conducting expropriation process in full compliance with the law, and total involvement of the concerned parties( PAPs, local leaders, contractors, consultants and EDCL team) to avoid and minimize the expropriation related challenges.</li> </ul>		
25/08/2023	RULINDO	BUSHOKI		District Officials and staff	District officials such as Division Manager, Director of One Stop Centre, Sector Land Managers	<ul style="list-style-type: none"> <li>The need of electricity line and household connections to boost people’s socio-economic development.</li> <li>Delays in the payment of compensation packages.</li> <li>Possible conflict between the National electrification plan (NEP) and district</li> </ul>	<ul style="list-style-type: none"> <li>Need of electricity line and connection in their village to boost their socio-economic activities.</li> <li>The payment for expropriation should be made prior to the project implementation as per the law governing expropriation.</li> <li>National Electrification Plan (NEP) is a dynamic</li> </ul>	Consultation meeting	Special consideration of productive commercial centers without electricity

Environmental and Social Management Framework (ESMF) For Rwanda Accelerating Sustainable and Clean Energy Access Transformation Project (ASCENT)

Dates	District	Sector	Cell	Stakeholder group or Consulted person and Position	Venue Key characteristic s	Observation or Points raised by stakeholders	Suggestions from stakeholders and how they are considered by the project (proposed action)	Preferred notification means (e-mail, phone, radio, letter)	Specific needs by stakeholders
						<p>masterplan.</p>	<p>document, that can be amended and accommodates the views and needs of the stakeholders, and this the ultimate purpose of these consultation sessions.</p>		
28/08/2023	GAKENKE			District Officials and staff	District officials (V/Mayor, OSC Director, and executive secretaries of sectors.  24 men and 2 women	<ul style="list-style-type: none"> <li>• Special consideration of the villages which were left out by the previous electrification projects and review of NEP, especially concerning the villages under off grid and on grid.</li> <li>• Delays in the payment of compensation packages.</li> </ul>	<ul style="list-style-type: none"> <li>• With full collaboration with Land managers, the villages without electricity will be identified, and put into the new project (ASCENT) scope.</li> <li>• Conducting expropriation process in full compliance with the law, and total involvement of the concerned parties (PAPs, local leaders, contractors, consultants and EDCL team) to avoid and minimize the expropriation related challenges.</li> </ul>	consultation meeting	<p>eration of productive commercial centers without electricity</p>

## Annex 6 : Timeframe for the consulted stakeholders

## a. Districts Administration

Dates of consultation	Administrative District name	Participants category	Participants by gender		Total
			Male	Female	
17/08/2023	Rubavu	Local authorities Local people Tradespeople	10	18	28
18/08/2023	Nyabihu	Local authorities REG Staff	15	4	19
21/08/2023	Ngororero	Local authorities REG Staff	28	4	32
22/08/2023	Rutsiro	Local authorities REG Staff Local people Tradespeople	35	49	84
23/08/2023	Karongi	Local authorities RAB/SAIP Staff REG Staff	43	17	60
23/08/2023	Nyamasheke	Local authorities RAB/SAIP Staff REG Staff	13	4	17
25/08/2023	Rusizi	Local Authorities Local population REG Staff	8	3	11
<b>Total</b>			152	99	251
16/08/2023	Nyamagabe	Local leaders, Community	20	11	31
17/08/2023	Nyaruguru	Local leaders, Community	9	8	17
18/08/2023	Huye	Local leaders	25	7	32
21/08/2023	Gisagara	Local leaders and community	37	8	45
22/08/2023	Nyanza	Local leaders and community	22	12	34
23/08/2023	Ruhango	Local leaders	16	5	21
24/08/2023	Muhanga	Local leaders and community	5	4	9

Dates of consultation	Administrative District name	Participants category	Participants by gender		Total
			Male	Female	
25/08/2023	Kamonyi	Local leaders and community	15	9	24
Total			149	64	213
16/08/2023 21/08/2023	GICUMBI	District leaders, Executive secretaries of sectors, Land Managers, leaders of security organs, and business operators in different business centres	73	21	94
17/08/2023 18/08/2023	BURERA	District leaders (Mayor, V/M Assoc, and DES) Executive secretaries of sectors, Land Managers, School, and Health centre leaders, leaders of security organs, and business operators in different business centres.	45	11	56
24/8/2023	MUSANZE	District leaders (Ag. Mayor, Advisor to the Mayor, DES), Land Managers, and some members of security organs,	21	7	28
25/08/2023	RULINDO	District officials such as Division Manager, Director of One Stop Centre, Sector Land Managers	14	4	18
28/08/2023	GAKENKE	District officials (V/Mayor, OSC Director, and executive secretaries of sectors	24	2	26
Total			177	45	222
16/08/2023	Rwamagana	Dir./OSC, EME, District environment officer, EUCL-Rwamagana Branch, SLM, public servants and local community	7	7	14
17-18/08/2023	Kayonza	District authority, Dir./OSC, EME, District environment officer, EUCL-Kayonza Branch, ES/Sector, SLM, Public servants, Faith Based Organizations (i.e Bethesida Holly Church), Business operators, schools (GS Ndego II, HOPE Nursery &	28	12	40

Dates of consultation	Administrative District name	Participants category	Participants by gender		Total
			Male	Female	
		Primary School) and local community			
18/08/2023, 21/08/2023 & 22/08/2023	Ngoma	District authority, Dir./OSC, EME, EUCL-Ngoma Branch, ES/Sector, SLMs, public servants and local community	129	133	262
23/08/2023	Kirehe	District authority, Dir./OSC, EME, EUCL-Kirehe Branch, ES/Sector, SLMs, public servants and local community	49	41	90
24-25/08/2023	Gatsibo	District authority, EME, EUCL-Gatsibo Branch, ESs/Sector, SLMs, public servants, business operators and local community	72	16	88
24-25/08/2023	Nyagatare	District authority, Dir./OSC, EME, EUCL-Nyagatare Branch, ESs/Sectors, SLMs, public servants, business operators and local community	27	7	34
28/08/2023	Bugesera	District authority, EME, EUCL-Bugesera Branch, ESs/Sectors, SLMs, public servants, business operators and local community	22	39	61
Stakeholders consulted in the Eastern Province			334	255	589
G.Total			812	463	1,275


## b. Public and Private Institutions

Date of consultation	INSTITUTION	FULL NAMES	POSITION	Telephone
24/08/2023	REMA	Mr. Jean Luc RUKWAYA	Biodiversity Sector Specialist	0788870313
24/08/2023	MININFRA	Mme Peace KALISA	Donor Coordinator	0788312898
24/08/2023	NLA	Mrs. NISHIMWE M. Grace	Head of Land Administration Department	0788874562
25/08/2023	RDB	Mr. NTUYE Simeon	EIA Specialist	0788353048
		Mr. KARARA Jean de Dieu	EIA Specialist	0788422184
25/08/2023	RWB	Mr. Evariste NSABIMANA	Deputy Director General	0783281805
25/08/2023	Rwanda Forest Authority	Mr. Lamber UWIZEYIMANA	Director of Tree Seed Unit	0788456940
25/08/2023	Enviroserve Rwanda Green Park/Rwanda E-waste recycling Facility	Mr. NDUWAYEZU Venuste	Technical Supervisor	0784017924
25/08/2023	RURA	Mr. MUTWARE Alexis	Director of electricity and Renewable Energy	0788758071
25/08/2023	IRPV	Mr. MUNYABUGINGO Bonaventure	Member of Committee on research and reference prices	0788498888
25/08/2023	Energy Private Developers	Mr. NDAYISABA Eduard	Vice Chairman & Director of Operations and Development	0788302624

Date of consultation	INSTITUTION	FULL NAMES	POSITION	Telephone
28/08/2023	University of Rwanda-UR	Mr. NSENGUMUREMYI Damien	Academician	0788866719
28/08/2023	Albertine Rift Conservation Society (ARCOS)	Mr. Philbert TUYISABE	Landscape Manager	0788688540
28/08/2023	Sustainable Agricultural Intensification and Food security Project (SAIP)/ Rwanda Agriculture Board (RAB)	Mme Angelique MUKAMUGENGA	District Project Coordinator	0788569967




Annex 7: Attendance List of consulted people

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ABITABIRIYE INAMA NGISHWANAMA KU MUSHINGA WA ASCENT (Accelerating Sustainable and Clean Energy Access for Transformation)  
 AKARERE/UMURENGE/AKAGALI: RUTERU DISTRICT  
 ITARIKI: 22/08/2023

NO	AMAZINA	UMURIMO AKORA	IGITSINA (I/M)	TEL	UMUKONGU
1	KUGUMANA Juvie	ox -Muma/transport	M	0788488037	<i>[Signature]</i>
2	DUSHIMIRIMANA Marie Odine	URWOROZI	F	0781480485	<i>[Signature]</i>
3	MSIKANGUNENZA Genevieve	Veterinary	F	0784979366	<i>[Signature]</i>
4	TUYAMBAZE Jeanne	Veterinary	F	0783599738	<i>[Signature]</i>
5	MUKAMUKA Joseph	Veterinary	F	078663676	<i>[Signature]</i>
6	ASHAMWE ALICE	URWOROZI	F	0787117522	<i>[Signature]</i>
7	NIZIBI Jean Pierre	Veterinary	M	078811213	<i>[Signature]</i>
8	Prophete Uwogazane	private Veto	M	0781642310	<i>[Signature]</i>
9	DASEBE Ameliora	Private	F	0783308276	<i>[Signature]</i>
10	MUHAYENIMANA Clémentine	Private	F	0782350522	<i>[Signature]</i>
11	MUSAMIMANA Eric	Private	M	0782880565	<i>[Signature]</i>
12	MUHAYENIMANA J Verone	private wife	F	0785003517	<i>[Signature]</i>
13	Nyamugir Jean Pierre	Company Manager	M	078847094	<i>[Signature]</i>
14	BARIMENSA Francois	Umushinga-Muma	M	0788966756	<i>[Signature]</i>



ABITABIRIYE INAMA NGISHWANAMA KU MUSHINGA WA ASCENT (Accelerating Sustainable and Clean Energy Access for Transformation)  
 AKARERE/UMURENGE/AKAGALI: NGORORERO DISTRICT  
 ITARIKI: 21/08/2023

NO	AMAZINA	UMURIMO AKORA	IGITSINA (I/M)	TEL	UMUKONGU
1	NKUNSI Christophe	Mayor	M	0788265670	<i>[Signature]</i>
2	Patrick UWIGOREYE	V/Mayor ES	M	0788545643	<i>[Signature]</i>
3	NZABAKURIKIZA Alphonse	ES Ndava Sector	M	0788327366	<i>[Signature]</i>
4	BARELAYO J.M Yannay	ES SUVU Sector	M	0788334497	<i>[Signature]</i>
5	MUKAMANA Soline	ES Gutumba	F	078842845	<i>[Signature]</i>
6	MUNYONZI J. Tuma	ES Gukunda	F	0788483034	<i>[Signature]</i>
7	KAYAMBE Jean d'Amour	ES KAGEYO	M	0788620002	<i>[Signature]</i>
8	Japhet MUSAHYIMANA	ES Ruvira	M	0782765256	<i>[Signature]</i>
9	Thomas Nyirakaba	ES Nyange	M	078860416	<i>[Signature]</i>
10	Dutagasha Amelle	ES Matiyazo	M	0788800392	<i>[Signature]</i>
11	KARUYIZA Charles	ES Umukono	M	078877775	<i>[Signature]</i>
12	HIBUKIYURA Jean Pierre	ES Muhororo	M	078876999	<i>[Signature]</i>



ABITABIRIYE INAMA NGISHWANAMA KU MUSHINGA WA ASCENT (Accelerating Sustainable and Clean Energy Access for Transformation)

AKARERE/UMURENGE/AKAGALI: NYABIHU DISTRICT

ITARIKI: 18/08/2023

NO	AMAZINA	UMURIMO AKORA	IGITSINA (F/M)	TEL	UMUKONO
1	<del>HTAMUNYAKIJE Jean Claude</del>	Vice Mayor SA	M	0788323716	<del>[Signature]</del>
2	SIMPENZWE Fabrice	Vice Mayor / Social Affairs	M	0788613166	[Signature]
3	MUKESHIMANA Charlotte	OSC Lawyer	F	0788730179	[Signature]
4	Willy UWIZETE	SSS	M	0788305129	[Signature]
5	AZIZIMARI Daniel	Environment Officer IKS-USA	M	0789715804	[Signature]
6	Ishimwe Rigor	Administration Officer	F	0783895310	[Signature]
7	Protogene TWISHIMIRE	Electricity Maintenance	M	0785109792	[Signature]
8	MUGANYEZA Desideraire	Finance & Administration	F	0788404024	[Signature]
9	MUTHIZI Alphonse	Finance & Administration	M	0789550833	[Signature]
10	NDANDU Marcel	CS of Sectors Sector	M	0788818425	[Signature]
11	Kwambwira Amelina David	Assoc. Accountant	F	0788688672	[Signature]
12	NYITEGEKA Jerome	SLM Karafu	M	0785160472	[Signature]



ABITABIRIYE INAMA NGISHWANAMA KU MUSHINGA WA ASCENT (Accelerating Sustainable and Clean Energy Access for Transformation)

AKARERE/UMURENGE/AKAGALI: NGOMA/MURAMA/GITARAGA

ITARIKI: 22/08/2023

NO	AMAZINA	UMURIMO AKORA	IGITSINA (F/M)	TEL	UMUKONO
1	Nyirabakine Emoburabo	Umuhungu	F	—	[Signature]
2	Mubandayizabye Jeanette	Umuhungu	F	—	[Signature]
3	Muhiriyamba Matayo	Umuhungu	M	0782541139	[Signature]
4	Mubandayizanga Fanny	Umuhungu	F	—	[Signature]
5	Ababazi Japiyeu	Umuhungu	M	0792583193	[Signature]
6	Munyangaba Emmanuel	Umuhungu	M	0789374307	[Signature]
7	Mubabiriza PISI	Umuhungu	F	0786786507	[Signature]
8	Sefohire S. Bosiko	Umuhungu	M	0995397970	[Signature]
9	Pando Zamuda	Umuhungu	F	0782658456	[Signature]
10	Joyce Nyambizi	Umuhungu	F	07874117809	[Signature]
11	Nirere Janine	Umuhungu	F	—	[Signature]
12	Nyiraseyo Pando	Umuhungu	F	0786951635	[Signature]

*Annex 8 : Signed attendance list for 4 Provinces of Rwanda*

Attached separately.

*Annex 9 : Chance find procedures under ASCENT.*

Chance find procedures under Accelerating Sustainable and Clean Energy Access Transformation Project will be designed as follows:

- Immediate Stop the construction activities in the area of the chance find.
- Delineate the discovered site or area.
- Secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a night guard shall be present until the responsible local authorities take over. The Institute of National Museum of Rwanda shall be responsible for significant movable and immovable cultural property that pertains to Rwanda history, heroes and the conservation of historical artifacts and the National Museum shall be responsible for significant movable and immovable cultural and natural property pertaining to collections of fine arts, archaeology, anthropology, botany, geology, zoology and astronomy, including its conservation aspect. Institute of National Museum of Rwanda Cultural Properties Division take over. The address of Institute of National Museum of Rwanda is as follows:
  - Rwanda, Huye
  - Address: SH 1RD 2
  - P.O.BOX 6397, Kigali
  - +250730741093
  - +250783379597
  - E-mail: [info@museum.gov.rw](mailto:info@museum.gov.rw)
- Notify the supervisory Engineer who in turn will notify the responsible local authorities and the Institute of National Museum of Rwanda Cultural Properties Division immediately (less than 24 hours).
- Contact the responsible local authorities and the Institute of National Museum of Rwanda Cultural Properties Division who would be in charge of protecting and preserving the site before deciding on the proper procedures to be carried out. This would require a preliminary evaluation of the findings to be performed by the archaeologists of the Institute of National Museum of Rwanda Cultural Properties Division (within 72 hours). The significance and importance of the findings should be assessed according to the various criteria relevant to cultural heritage, including the aesthetic, historic, scientific or research, social and economic values.
- Ensure that decisions on how to handle the finding be taken by the responsible authorities and the Institute of National Museum of Rwanda Cultural Properties Division. This could include changes in the layout (such as when the finding is an irremovable remain of cultural or archaeological importance) conservation, preservation, restoration and salvage.
- Implementation for the authority decision concerning the management of the finding shall be communicated in writing by the Institute of National Museum of Rwanda Cultural Properties Division; and
- Construction work will resume only after authorization is given by the responsible local authorities and the Institute of National Museum of Rwanda, Cultural Properties Division concerning the safeguard of the heritage.

- These procedures must be referred to as standard provisions in construction contracts, E&S risk management Procedures for Inclusion in the Technical Specifications for Contracts. During project supervision, the Site Engineer in collaboration with the contractor E&S risk management team shall monitor the above regulations relating to the treatment of any chance find encountered are observed.
- Relevant findings will be recorded by the E&S team and will be reported in monitoring and Evaluation Report on quarterly basis to the World Bank, and Implementation Completion Report on E&S risk management part will assess the overall effectiveness of the project's cultural property mitigation, management, and activities when the chance find encountered during the implementation.

## *Annex 10* : Environment Health and Safety Guidelines for Electric Power Transmission and Distribution<sup>11</sup>

The EHS Guidelines for Electric Power Transmission and Distribution include information relevant to power transmission between a generation facility and a substation located within an electricity grid, in addition to power distribution from a substation to consumers located in residential, commercial, and industrial areas.

### **1. Environmental Impacts mitigation guidelines**

#### **Right-of-way construction**

- Proper Site transmission and distribution rights-of-way, access roads, lines, towers, and substations to avoid critical habitat through use of existing utility and transport corridors for transmission and distribution, and existing roads and tracks for access roads, whenever possible;
- Installation of transmission lines above existing vegetation to avoid land clearing;
- Avoidance of construction activities during the breeding season and other sensitive seasons or times of day;
- Revegetation of disturbed areas with native plant species; Removal of invasive plant species during routine vegetation maintenance (see right-of-way maintenance section below).

#### **Right of way maintenance**

- Implement an integrated vegetation management approach (IVM). The selective removal of tall-growing tree species and the encouragement of low-growing grasses and shrubs. Observing manufacturer machinery and equipment guidelines, procedures with regard to noise, and oil spill prevention and emergency response;
- Avoiding clearing in riparian areas;
- Avoiding use of machinery in the vicinity of watercourses.

#### **Forest Fires**

- Monitoring right-of-way vegetation according to fire risk;
- Removing blowdown and other high-hazard fuel accumulations;
- Time thinning, slashing, and other maintenance activities to avoid forest fire seasons;
- Planting and managing fire resistant species (e.g. hardwoods) within, and adjacent to, rights-of-way; Establishing a network of fuel breaks of less flammable materials or cleared land to slow progress of fires and allow firefighting access.

#### **Avian and Bat Collisions and Electrocutions**

- Aligning transmission corridors to avoid critical;
- Maintaining 1.5 meter (60-inch) spacing between energized components and grounded hardware or, where spacing is not feasible, covering energized parts and hardware;
- Considering the installation of underground transmission and distribution lines in sensitive areas (e.g. critical natural habitats).

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<sup>11</sup> For more information visit <https://www.ifc.org/content/dam/ifc/doc/2000/2007-electric-transmission-distribution-ehs-guidelines-en.pdf>

## **Aquatic Habitat Alteration**

- Site power transmission towers and substations to avoid critical aquatic habitat (e.g. watercourses, wetlands, and riparian areas);
- Minimizing clearing and disruption to riparian vegetation.

## **Electric and Magnetic Fields**

- Evaluating potential exposure to the public against the reference levels developed by the International Commission on Non-Ionizing Radiation Protection (ICNIRP). Average and peak exposure levels should remain below the ICNIRP recommendation for General Public Exposure;
- Considering siting new facilities so as to avoid or minimize exposure to the public. Installation of transmission lines or other high voltage equipment above or adjacent to residential properties or other locations intended for highly frequent human occupancy, (e.g. schools or offices), should be avoided;
- If EMF levels are confirmed or expected to be above the recommended exposure limits, application of engineering techniques should be considered to reduce the EMF produced by power lines or transformers.

## **Hazardous Materials**

- The use of SF<sub>6</sub> should be avoided due to its potential GHGs potential effect.
- Replacing existing transformers and other electrical equipment containing PCB, and ensuring appropriate storage, decontamination, and disposal of contaminated units;
- Prior to final disposal, retired transformers and equipment containing PCB should be stored on a concrete pad with curbs sufficient to contain the liquid contents of these containers should they be spilled or leaked. The storage area should also have a roof to prevent precipitation from collecting in the storage area. Disposal should involve facilities capable of safely transporting and disposing of hazardous waste containing PCB.

## **Wood Preservatives**

- Poles should be pre-treated at an appropriate facility to ensure chemical fixation and prevent leaching, and to impede the formation of surface residues at the right-of-way.

### **2. Occupational Health and Safety guidelines**

Occupational health and safety hazards specific to electric power transmission and distribution projects primarily include Live power lines; Working at height; Electric and magnetic fields; Exposure to chemicals.

## **Live Power lines**

- Only allowing trained and certified workers to install, maintain, or repair electrical equipment;
- Deactivating and properly grounding live power distribution lines before work is performed on, or in close proximity, to the lines;
- Ensuring that live-wire work is conducted by trained workers with strict adherence to specific safety and insulation standards;

- Workers should not approach an exposed energized or conductive part even if properly trained unless: The worker is properly insulated from the energized part with gloves or other approved insulation, or the energized part is properly insulated from the worker and any other conductive object, or the worker is properly isolated and insulated from any other conductive object (live-line work);
- Where maintenance and operation is required within minimum setback distances, specific training, safety measures, personal safety devices, and other precautions should be defined in a health and safety plan;
- Workers not directly associated with power transmission and distribution activities who are operating around power lines or power substations should adhere to local legislation, standards, and guidelines relating to minimum approach distances for excavations, tools, vehicles, pruning, and other activities;
- Minimum hot stick distances may only be reduced provided that the distance remaining is greater than the distance between the energized part and a grounded surface.

### **Working at height on poles and structures**

- Testing structures for integrity prior to undertaking work;
- Implementation of a fall protection program that includes training in climbing techniques and use of fall protection measures;
- Inspection, maintenance, and replacement of fall protection equipment; and rescue of fall-arrested workers, among others;
- Establishment of criteria for use of 100 percent fall protection (typically when working over 2 meters above the working surface, but sometimes extended to 7meters, depending on the activity). The fall protection system should be appropriate for the tower structure and necessary movements, including ascent, descent, and moving from point to point;
- Installation of fixtures on tower components to facilitate the use of fall protection systems;
- Provision of an adequate work-positioning device system for workers; Connectors on positioning systems should be compatible with the tower components to which they are attached;
- Hoisting equipment should be properly rated and maintained and hoist operators properly trained;
- Safety belts should be of not less than 16millimeters (mm)(5/8 inch) two-in-one nylon or material of equivalent strength. Rope safety belts should be replaced before signs of aging or fraying of fibres become evident;
- When operating power tools at height, workers should use a second (backup) safety strap;
- Signs and other obstructions should be removed from poles or structures prior to undertaking work;
- An approved tool bag should be used for raising or lowering tools or materials to workers on structures.

### **Electric and magnetic fields Electric and magnetic fields (EMF)**

- Identification of potential exposure levels in the workplace, including surveys of exposure levels in new projects and the use of personal monitors during working activities;
- Training of workers in the identification of occupational EMF levels and hazards;

- Establishment and identification of safety zones to differentiate between work areas with expected elevated EMF levels compared to those acceptable for public exposure, limiting access to properly trained workers;
- Implementation of action plans to address potential or confirmed exposure levels that exceed reference occupational exposure levels developed by international organizations such as the (ICNIRP), and the Institute of Electrical and Electronics Engineers (IEEE). Action plans to address occupational exposure may include limiting exposure time through work rotation, increasing the distance between the source and the worker, when feasible, or the use of shielding materials.

### **Exposure to chemicals**

- Train personnel on how to use pesticides applied to wooden pole for preservation, and ensure that personnel have received the necessary certifications, or equivalent training where such certifications are not required;
- Respect post-treatment intervals to avoid operator exposure during wooden pole handling;
- Ensure hygiene practices are followed to avoid exposure of family members to pesticides residues.

### **3. Community Health and Safety guidelines**

The operation of live power distribution lines and substations may generate the following industry-specific impacts to the community: Electrocuting; Electromagnetic interference; Visual amenity; Noise and Ozone and Aircraft Navigation Safety

### **Electrocution**

- Use of signs, barriers (e.g. locks on doors, use of gates, use of steel posts surrounding transmission towers, particularly in urban areas), and education / public outreach to prevent public contact with potentially dangerous equipment;
- Grounding conducting objects (e.g. fences or other metallic structures) installed near power lines, to prevent shock.

### **Noise and Ozone**

- To mitigate this impact during project planning stages to locate rights-of-way away from human receptors to the extent possible and use of noise barriers or noise cancelling acoustic devices should be considered as necessary.

### **4. Performance Indicators and Monitoring**

**Environment:** Environmental monitoring activities should be based on direct or indirect indicators of emissions, effluents, and resource use applicable to the particular project. Monitoring frequency should be sufficient to provide representative data for the parameter being monitored. Monitoring data should be analysed and reviewed at regular intervals and compared with the operating standards so that any necessary corrective actions can be taken.

**Occupational Health and Safety:** Projects should try to reduce the number of accidents among project workers (whether directly employed or subcontracted) to a rate of zero, especially accidents that could result in lost work time, different levels of disability, or even fatalities. Facility rates may be benchmarked against the performance of facilities in this sector in developed countries through consultation with published sources.



Facilities should also maintain a record of occupational accidents and diseases and dangerous occurrences and accidents.

*Annex II: Guidelines for Management of Solar Panels and Batteries (including Recycling/Safe Disposal) in Off-grid Electrification (part of Component 3)*

1. Quality requirement

Crystalline type solar PV panels are the only minimum quality recommended panels for importation.

2. Minimum Service level requirements

They should have enough electricity to power at least:

- Three lamps of at least 120 lumens each, operating at least four hours per day
  - A mobile phone charge supply for at least two hours per day
  - A radio charge supply for at least five hours per night
  - Supply the above loads for at least one day without input from the solar module/when there is sunshine;
  - Product labelling for system part is mandatory. Eg: Batteries: Voltage storage capacity (in mAh, Ah, or Wh), battery chemistry (eg: lead-acid, lithium iron phosphate, lithium-ion,)
  - Dismountable system parts (eg: lamp and battery) and system compatibility is recommended to allow for spare parts replacement.
3. Warranty requirements
- A minimum of three years' warranty and after sales contract that commits to the availability of spare parts and technical service for minimum five years after the installation of the system.
4. Electrical installation

Electrical regulations shall follow the REGULATIONS 002/EL/ENRGY/RURA/2012 ON ELECTRICAL INSTALLATIONS

5. Battery

No batteries should contain Cadmium or Mercury at levels greater than treatable amounts.

6. Agreement

The agreement of between purchase and supplier shall cover the following:

- Responsibilities of purchase/user with timeline;
- Responsibilities of the supplier;
- Dispute resolutions/complaints handling;
- Details of the after sales services including timeline;

7. Waste management

The supplier, herein the company that has contract with EDCL to supply the solar home system in the community should:

- Have contract of waste collection and transportation with EnviroSource Rwanda Green Park/Rwanda E-waste Recycling Facility which can recycle the panel and the used batteries.
- Submit the waste management Plan providing the details about collection and transportation of used panel and batteries;

- The waste management plan should be established based on the annex 12 of Waste Management Plan of this ESMF,
- Waste management should comply with REGULATIONS N0 002 OF 26/04/2018 GOVERNING E-WASTE MANAGEMENT IN RWANDA

*Annex 12* : Indicative contents of waste management plan

The waste management plan will be an integral part of the ESMP and will be developed consistent with World Bank ESF and WB EHS and General Electric Power Transmission and Distribution).

- Introduction: Here the contractor should provide the executive summary on waste management and the relevancy to the project Component.
- A review and analysis of national and institutional policy and legislation related to waste
- A description of National legal, policy and procedures in relation to waste management
- A description of the general types and an indication of likely quantities of waste likely to be generated by the proposed development;
- Waste Management Principles; These principles, with the procedures above, will form the basis of the waste management Plan including the used solar panels and batteries. The contractor should discuss in detail the way to
  - Minimize,
  - Reuse,
  - Recycle,
  - Disposal and recover.
- Waste management implementation plan and institutional arrangement: In this section the contractor should discuss in detail how the waste management will be implemented focusing mainly on the way to:
  - Collect waste;
  - Storage of waste
  - Waste transportation
  - Waste disposal

He should also discuss an arrangement showing how he will be working with Local Government Officials and Local population to access to produced waste especially waste concerning the used solar home system including used panels and batteries at the end of life.

The implementation arrangement should also show the need to work with certified company for electronic waste management where the contract for collection, transportation and disposal is mandatory and a pre-requisite requirement for being awarded a contract to work in the area of Off Grid intensification in Rwanda for the ASCENT.

### *Annex 13: Hazardous Substance Management Plan*

This plan is constituted based on the regulations governing the provision of services for Hazardous waste management in Rwanda established by RURA which can be accessed on ([https://www.rura.rw/fileadmin/Documents/Water/RegulationsGuidelines/Regulations\\_governing\\_the\\_provision\\_of\\_services\\_for\\_Hazardous\\_waste\\_management.pdf](https://www.rura.rw/fileadmin/Documents/Water/RegulationsGuidelines/Regulations_governing_the_provision_of_services_for_Hazardous_waste_management.pdf)).

#### **a. Generation of Hazardous Waste**

Any company, individual or a group of people working under the power lines and electrical infrastructure should strive to avoid, reduce, minimize or recover the waste generated and make sure that the safe disposal is done.

The generator of hazardous waste shall ensure that hazardous waste is segregated from other wastes to avoid any harm to the environment and the community.

#### **b. Segregation of Hazardous waste**

The segregation of hazardous waste must meet the following requirements:

- All hazardous waste must be segregated according to their nature to prevent incompatible mixtures.
- The segregation can be by hazard class such as flammable, oxidizer, pyrophoric, reactive, reducer, acid, base, and Toxic.

#### **c. Packing material for hazardous waste**

The packing materials of hazardous waste shall be of the following conditions:

- Inert and not react with hazardous waste;
- Able to absorb impact;

The materials which can be used include steel, aluminum, Natural Wood, Plywood, reconstituted wood, plastic materials.

#### **d. Types of containers for hazardous waste packing**

The types of containers applicable for packing hazardous waste include the following types Bags, Drums,, jerrycans, combination packaging, composite packaging etc.

#### **e. Packaging of hazardous waste**

The containers used for packaging hazardous waste shall be able to withstand normal handling conditions and retain integrity for at least six months must meet the following requirements:

- All packaging materials shall be of such strength, construction and type that would not break or become defective during transportation;

- All packaging material shall be packaged and sealed in such a way that those spillages of hazardous wastes/substances are prevented during transportation due to jerks and vibrations caused by uneven road surface;
- Re-packaging materials including that used for fastening must not be affected by the contents or form a dangerous combination with them;

Packaging material shall be such that there will be no significant chemical or galvanic action among any of the material in the package.

**f. Labelling of Hazardous waste**

All hazardous waste containers must be clearly labeled to indicate the presence of hazardous waste. The labels must be waterproof and firmly stuck to the containers so that they cannot be removed. Containers storing hazardous waste shall be labeled with the words “**HAZARDOUS WASTE, IMYANDA IHUMANYA or DECHETS DANGEREUX**” or warning or caution statements such as “**WARNING**” or “**CAUTION**”.

The information on the label must include the type of waste, origin (name, address, telephone number og generator), hazardous property (flammable, toxic, etc.) and any symbol for the hazardous property.

**g. Collection of Hazardous Waste**

Any generator of hazardous waste shall ensure that hazardous wastes generated are collected in an appropriate manner and by an authorized person, company or cooperative. The personnel collecting hazardous waste must have personal Protective Equipment to avoid any physical contact with the waste.

**h. Requirements for hazardous waste collection and transportation**

Any company or cooperative intending to collect and transport waste shall fulfill the following requirements:

- Have appropriate vehicles designed to facilitate the collection, transportation and removal of hazardous waste;
- Have a signed contract with the owner of the receiving hazardous waste for treatment.

**i. Transportation of hazardous waste**

The transportation of hazardous wastes shall confirm with the following requirements:

- Hazardous waste shall be collected and transported by duly designed vehicles to transport hazardous waste;
- Vehicles shall be painted preferably in a color that is easy to facilitate identification of the transportation of hazardous waste.

- The transportation vehicles and containers shall be suitably designed to transport hazardous waste and must be fully closed all times.
- Vehicle should be fitted with mechanical handling equipment for safe handling and transportation of hazardous wastes and structurally sound and leak free to avoid contamination of local environment;
- The words “**HAZARDOUS WASTE, IMYANDA IHUMANYA or DECHETS DANGEREUX**” shall be displayed on all sides of the vehicle to easily identify the vehicle;
- Transporter shall carry documents of manifest for the wastes during transportation;
- The trucks shall be dedicated for transportation of hazardous wastes ONLY and shall not be used for any other purposes;
- Each vehicle shall carry first-aid kit, spill control equipment and fire extinguisher;
- Vehicles transporting hazardous waste shall have a speed governor installation system to avoid any eventuality of over-speeding during the transportation of hazardous waste;
- Driver(s) shall be properly trained for handling the emergency situations and safety aspects involved in the transportation of hazardous wastes.

**j. Storage Facilities for hazardous waste**

The storage of hazardous waste before treatment shall be handled with extreme care to avoid any contamination or hazard and the following are requirements pertaining to the storage of hazardous waste facilities:

- The storage area shall have a proper containment system with a collection area to collect and remove any leak, spill or precipitation;
- The designated hazardous waste storage area shall have proper enclosures, safety and avoid open storage;
- Signboards showing precautionary measures to be taken in case of normal and emergency situations shall be displayed at appropriate locations;
- Manual operations within storage area are to be avoided to the extent possible;
- Proper precautions need to be taken in case of personnel use particularly during loading/unloading of hazardous waste.

**k. Treatment of hazardous waste**

Any person that provide or intend to provide the services of hazardous waste treatment shall treat or cause to be treated such hazardous waste and shall operate under a license to provide such services.

Any products treated shall be disposed or treated in accordance with the conditions set by the competent authority in consultation with the concerned stakeholders.

### **I. Safe working conditions**

To provider of services for treating hazardous waste shall ensure the safety of employees, visitors and other users within the safe working conditions and shall confirm to the following:

- Possess hazard warning signs including multilingual signs together with appropriate information regarding remedial action;
- Provide adequate safety and protective Equipment (Masks, Safety shoes, eye protection gadgets, gumboots, and other safety equipment) to employees involved in waste collection, transportation and handling;
- Provide instructions and appropriate trainings to employees to minimize the risks;
- Provide social and medical insurance to employees to ensure treatment during, accident, illness or injury;
- Provide risk prevention and management facilities;



Annex 14 : Expected Administrative Districts under ASCENT per development Partners;

ID	Province	District	DP
1	North	Musanze	WB&AIIB
2	South	Kamonyi	WB&AIIB
3	South	Muhanga	WB&AIIB
4	South	Ruhango	WB&AIIB
5	South	Nyanza	WB&AIIB
6	South	Huye	WB&AIIB
7	South	Nyamagabe	WB&AIIB
8	South	Nyaruguru	WB&AIIB
9	South	Gisagara	WB&AIIB
10	West	Rubavu	WB&AIIB
11	East	Bugesera	WB&AIIB
12	East	Rwamagana	WB&AIIB
13	East	Kayonza	WB&AIIB
14	East	Ngoma	WB&AIIB
15	East	Kirehe	WB&AIIB
16	East	Gatsibo	WB&AIIB
17	East	Nyagatare	WB&AIIB

Annex 15 : Sample of the photo-log during public consultation meeting



Public consultation with SAIP/RAB staff in Karongi district



Public consultation with different stakeholders in Nyabihu District



Public Consultation in Kamonyi

Public consultation in Ruhango District



Consultation at Huye District  
District

Awareness conducted at Musebeya sector in Nyamagabe

*Annex 16* : public consultation and stakeholder engagement strategy

Developing a robust public consultation and stakeholder engagement strategy is essential for organizations and projects that aim to involve the public and stakeholders in decision-making processes and gather valuable input. Below are the key steps and considerations that will be used to create an effective strategy:

- a) **Define Objectives and Scope:**
  - Clearly outline the goals and objectives of the consultation and engagement process. Determine what you want to achieve, whether it's gathering input, building trust, or informing the public.
- b) **Identify Stakeholders:**
  - Identify all relevant stakeholders who may be affected by or have an interest in the project or initiative. This can include community members, local authorities, NGOs, industry groups, and more.
- c) **Stakeholder Analysis:**
  - Conduct a comprehensive stakeholder analysis to understand each stakeholder's interests, concerns, influence, and communication preferences. Categorize stakeholders based on their level of impact and importance to the project.
- d) **Legal and Ethical Considerations:**
  - Ensure compliance with legal requirements and ethical standards for public consultation and engagement. This may include data privacy regulations and guidelines for fair and transparent processes.
- e) **Select Engagement Methods:**
  - Choose appropriate methods and channels for engagement, considering the preferences and accessibility of stakeholders. Methods can include public meetings, surveys, focus groups, online platforms, workshops, and one-on-one consultations.
- f) **Develop a Communication Plan:**
  - Create a communication plan that outlines the key messages, communication channels, and the timing of engagement activities. Ensure consistency and clarity in messaging.
- g) **Engagement Toolkit:**
  - Prepare engagement materials and tools, such as informational brochures, websites, surveys, and presentation materials, to facilitate communication with stakeholders.
- h) **Public Meetings and Workshops:**
  - Plan and organize public meetings, workshops, or town halls to provide stakeholders with opportunities to ask questions, express concerns, and provide feedback. Ensure that meetings are accessible and inclusive.
- i) **Online Engagement:**
  - Establish online platforms, such as websites, social media accounts, and online surveys, to engage with a wider audience, especially those who may not be able to attend physical meetings.
- j) **Feedback Collection and Analysis:**
  - Systematically collect and analyze feedback from stakeholders. Use tools to track and manage responses, categorize feedback, and identify common themes and concerns.
- k) **Responsive and Transparent Communication:**

- Communicate responses to stakeholder feedback promptly and transparently. Clarify how feedback influenced decisions and actions taken.
- l) **Adapt and Iterate:**
- Be prepared to adapt your strategy based on feedback and evolving stakeholder needs. Continuously evaluate and improve your engagement approach.
- m) **Documentation and Reporting:**
- Document the entire engagement process, including feedback received, actions taken, and outcomes achieved. Prepare regular reports summarizing engagement activities and outcomes.
- n) **Monitoring and Evaluation:**
- Establish key performance indicators (KPIs) to measure the effectiveness of your engagement efforts. Evaluate whether objectives were met and identify areas for improvement.
- o) **Feedback Loop:**
- Create a feedback loop to ensure that stakeholders are kept informed about project developments, decisions, and outcomes, even after the consultation process has concluded.
- p) **Engagement Resources:**
- Allocate sufficient resources, including staff and budget, to support the consultation and engagement process effectively.
- q) **Engagement Culture:**
- Foster an organizational culture that values stakeholder engagement and recognizes its importance in decision-making.
- r) **Publicize Results:**
- Share the results of the engagement process with the public and stakeholders, showcasing how their input influenced decisions and contributed to project outcomes.

## *Annex 17 : Prevention of GBV, Sexual Harassment, Exploitation, and Abuse Plan*

### ❖ **Introduction**

Sexual harassment is a violation of human rights and hinders productivity within an institution/organization. Sexual harassment can also lead to other criminal acts such as rape. Sexual harassment and exploitation are also degrading, embarrassing, and may lead to traumatic experiences. Staff members who experience sexual harassment may feel threatened, scared, isolated and/or alone.

It creates psychological anxiety and stress for victims, which can result in loss of productivity (decline in staff performance), low worker morale, absenteeism, and staff turnover. Sexual harassment and exploitation most often occur in relationships of unequal power or authority. It undermines equality at the workplace by calling into question the integrity, dignity, and wellbeing of workers.

As a prevention and response to GBV, sexual harassment, exploitation, and abuse and in line with the Government of Rwanda's (GoR) commitment to the protection of human dignity and integrity, and based on national laws, regulations, and policies, a gender and GBV/SHAE action plan which highlights the expected behaviours, prohibitions, prevention measures, as well as the reporting and response mechanisms/procedures will be developed. The GBV Action Plan will be developed to provide enough details and establish procedures of handling cases as part of the service providers mapping. The bidding documents will clearly define GBV requirements.

### ❖ **Prevention measures/strategies**

In the framework of preventing and/or minimizing the risks of sexual harassment, exploitation, and abuse in the world of work, measures such as raise awareness about the plan of preventing the sexual harassment, exploitation in different periodic meetings, signing official form as a personal acknowledgement of the plan, availing in place a safe reporting mechanism, including anonymous channels such as anonymous web-based mail service etc.

### ❖ **Trainings on anti-GBV**

Trainings on anti-GBV Anti GBV related preventive measures and responses will be established, adopted and strengthened through the trainings organized to project Staff and concerned stakeholders. In order to properly address GBV/SEA & SH, the trainings and sensitization campaigns of workers are essential. These workers include civil works contractors (including subcontractors and suppliers and their workers), supervising Engineers, consultants who may have a presence in the communities adjoining the project.

### ❖ **Expected/ Prohibited behaviours**

In the framework of preventing and effectively responding to any incident or concern of sexual harassment, exploitation, and abuse, a non-exhaustive list of expected/prohibited behaviours will be defined in the anti GBV Sexual harassment plan which will be developed through the anti GBV/SHAE plan.

### ❖ **Responsive measures**

Provision of comprehensive support services to GBV victims will be essential that project-level measures to address GBV risks consider other ongoing efforts to prevent and respond to GBV, and how the project will complement/use them. Project GBV interventions shall therefore be linked wherever possible with

existing activities in the Health Sector, and other GBV Service Providers such as Local Administration; Justice/Security, Psychosocial support and Economic empowerment programming.

### ❖ Reporting

finding evidence for GBV, sexual harassment, exploitation, and/or abuse may be challenging as such acts and/or behaviours usually occur in private. However, considering the critical importance of reporting in addressing sexual harassment, exploitation, and abuse, including preventing future reoccurrence of such acts or behaviours, anyone can raise a complaint even if he or she has no evidence other than his or her own experience. Reporting is not only meant for pursuing the alleged offender, but also guides the general corrective measures and to prevent any reoccurrence of such a situation and/or incident in the future. Early reporting and intervention have proven to be the most effective method of resolving actual or perceived concern/incidences of sexual harassment, exploitation, and abuse, reason why it will be encouraged. The following format will be used as a GBV/SHEA reporting format.

*Table 3233 : GBV/SEA Reporting template*

S/N	INCIDENT DETAILS	GUIDING NOTES
1	Type of Violation (e.g.: physical, economic, sexual, psychological violence).	SEA/SH (by Client rules and regulation, ethics consideration, contractor staff)
2	Nature of the incident reported (What happened and by whom).	Basic facts of the incident: What, Who. Is the incident related to the project? No in-depth details should be asked for.
3	Source of information.	Community Focal Point, GRM Operator, email, other (specify)
4	Where did the incident occur.	Project site City, elsewhere (specify)
5	When did the incident occur.	Date
6	Additional information (if available).	Sex, Age
	The identity and safety of a Victim must be protected at all times. No personal data or identifying information about a survivor or their experience can be shared through this document. Personal/identifying information includes the victim's name, perpetrator(s)' name, date of birth, home address, the exact time and place the incident took place, visible disability, residence status.	

*Table 34: GBV/SEA Training Plan*

S/N	Target group	Topics to be covered	Frequency	Modality	Indicators	Budget
1	Relevant technical staff from implementing agencies.	Understanding of GBV/SEA & SH and how Project can exacerbate GBV/SEA & SH risks, Psychosocial support for survivors of GBV/SEA & SH	Annual	Official workshop organized and delivered by EDCL/ ASCENT	Report on the training with participants and content delivered, gaps and recommendations for next training sessions	Covered in the project cost
2	Management at central and local level including District Engineers.	Roles and responsibilities of actors involved in the Project (the standards of conduct for project staff captured in Codes of Conduct)	Annual	Official workshop organized and delivered by EDCL/ ASCENT	Report on the training with participants and content delivered, gaps and recommendations for next training sessions	Covered in the project cost
3	District Gender and Family Promotion Officer.	GBV/SEA & SH allegation reporting mechanism, accountability structures, and referral procedures within agencies and for community members to report cases related to project staff;	Annual	Official workshop organized and delivered by EDCL/ ASCENT	Report on the training with participants and content delivered, gaps and recommendations for next training sessions	Covered in the project cost
4	Grievance Redress Management (GRMs).	Services available for victims of GBV; and follow-up activities to reinforce training contents	Annual	Official workshop organized and delivered by EDCL/ ASCENT		



S/N	Target group	Topics to be covered	Frequency	Modality	Indicators	Budget
5	Civil works contractors' unskilled or casual workers • Subcontractors, • Suppliers and their workers.	Understanding of GBV/SEA & SH and how Project can exacerbate GBV/SEA & SH risks, Psychosocial support for survivors of GBV/SEA & SH, Roles and responsibilities of actors involved in the Project, GBV/SEA & SH cases/allegation reporting mechanism	Quarterly	Seminars organized and delivered by implementing agencies in close collaboration with EDCL/ ASCENT	Number of seminars with participants and content delivered, gaps and recommendations for future seminars.	Covered in the project cost
6	Communities adjoining the project site Men, women and youth (boys and girls), PWDs and elderly persons to be resettled in the green villages.	Understanding of GBV/SEA & SH and how Project can exacerbate GBV/SEA & SH risks, Psychosocial support for survivors of GBV/SEA & SH, Roles and responsibilities of actors involved in the Project, GBV/SEA & SH cases/allegation reporting mechanism.	Quarterly	Seminars organized and delivered by implementing agencies in close collaboration with EDCL/ ASCENT	Number of training workshops conducted, participants and content delivered, gaps and recommendations for future training sessions.	Covered in the project cost.

*Annex 18 : BRD List of Excluded Activities applied to BRD ESMS*

BRD does not finance the following projects:

- Production or trade in any product or activity deemed illegal under host country laws or regulations or international conventions and agreements, or subject to international bans, such as pharmaceuticals, pesticides/herbicides, ozone depleting substances, PCB's, etc.
- Trade in animals, plants or any natural products not complying with the provisions of the CITES convention;
- Production or trade in weapons and munitions and armed related activities;
- Production or trade in tobacco;
- Gambling, casinos, and equivalent enterprises;
- Production or trade in radioactive materials. This does not apply to the purchase of medical equipment, quality control (measurement) equipment and any equipment where BRD considers the radioactive/nuclear source to be trivial and/or adequately shielded;
- Production or trade in unbonded asbestos fibres and other non-permitted chemicals and polluting substances. This does not apply to purchase and use of bonded asbestos cement sheeting where the asbestos content is less than 20%;
- Drift net fishing in the marine environment using nets more than 2.5 km in length and fishing using electric shocks and explosive materials;
- Production or sale of strong alcohol intended for human consumption;
- Any trade related to pornography or prostitution.
- Any operation leading to or requiring the destruction of a critical habitat (both natural and modified habitat or ecologically sensitive areas), or high Conservation value areas or any forestry project which does not implement a plan for improvement and sustainable management;
- Commercial logging operations for use in primary tropical moist forest;
- Production or trade in wood or other forestry products other than from sustainably managed forests;
- Activities which may affect adversely sites of cultural or archaeological significance;
- Transboundary trade in waste or waste products, unless compliant with the Basel Convention and the underlying regulations;
- Trade in goods without required export or import licenses or other evidence of authorization of transit from the relevant countries of export, import and, if applicable, transit;
- Drug and human trafficking;
- Any criminal or outlawed activities;
- Any business prohibited by laws and regulations;
- Terrorism and money laundering activities;
- Production or activities involving harmful or exploitative forms of forced labor /harmful child labor.
- Activities linked to tax evasions;

In addition, BRD will not use funds from its Development organization if the latter does not offer financing to any activity involving the following:

- Production and distribution or investment in media that are racist, antidemocratic or that advocate discrimination against a part of the population;

- Exploitation of diamond mines and marketing of diamonds where the host country has not adhered to the Kimberley Process;
- Any sector or any service subject to an embargo by the United Nations, European Union and/or France in a particular country and with no absolute or relative restriction regarding the amount;
- Prospection, exploration, and mining of coal; land-based means of transport and related infrastructure essentially used for coal; power plants, heating stations and cogeneration facilities essentially fired with coal, as well as associated stub lines;
- Nuclear power plants (apart from measures that reduce environmental hazards of existing assets) and mines with uranium as an essential source of extraction;
- Non-conventional prospection, exploration, and extraction of oil from bituminous shale, tar sands or oil sands;

*Annex 19: EDCL Exclusion List*

During the E&S Screening as a first step, all proposed activities should be screened to ensure that they are within the boundaries of the Project's eligible activities, and they are not considered as activities listed on the E&S Exclusion List below.

- (a) Any construction in protected areas or biodiversity areas, as defined in the national law on the environment.
- (b) Construction of dams is excluded under ASCENT
- (c) Activities that have potential to cause significant impact on any ecosystems of importance, especially those supporting rare, threatened or endangered species of flora and fauna
- (d) Purchase or use of banned/restricted pesticides, insecticides, herbicides, and other dangerous chemicals
- (e) Other types of sub-projects and activities that would harm the environment, encourage the marginalization of social and ethnic groups and duplicate other projects and activities supported by other institutions and activities that are not in compliance with Rwandan Legislation
- (f) Construction of any new schemes that use or risk polluting international waterways and/or activities that otherwise adversely affect the quantity or quality of the water flowing to other riparians
- (g) Weapons, including but not limited to mines, guns, ammunition, and explosives
- (h) Support of production of any hazardous good, including alcohol, tobacco, and controlled substances
- (i) Activities that may cause or lead to forced labor or child abuse, child labor exploitation or human trafficking, or subprojects that employ or engage children, over the minimum age of 14 and under the age of 16, in connection with the project in a manner that is likely to be hazardous or interfere with the child's education or be harmful to the child's health or physical, mental, spiritual, moral, or social development
- (j) Coal fired power generation, including the construction, expansion and refurbishment of the power generation facilities.
- (k) Coal mining, processing and transport.
- (l) Gambling, casinos and equivalent enterprises.
- (m) The production of, or trade in, any product or activity deemed illegal under national laws or regulations of the country in which the Project is located, or international conventions and agreements, or subject to international phase out or bans, such as:
  - Production of, or trade in, products containing polychlorinated biphenyl ("PCBs").

- Production of, or trade in, pharmaceuticals, pesticides/herbicides and other hazardous substances subject to international phase outs or bans (Rotterdam Convention, Stockholm Convention).
- Use of, ozone depleting substances subject to international phase out (Montreal Protocol).
- (n) Trade in wildlife or production of, or trade in, wildlife products regulated under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)
- (o) Activities prohibited by legislation of the country in which the Project is located or by international conventions relating to the protection of biodiversity resources or cultural resources, such as, Bonn Convention, Ramsar Convention, World Heritage Convention and Convention on Biological Diversity.
- (p) The implementation of High Voltage in sensitive and critical habitats, protected areas, as well as highly populated areas”.

*Annex 20: Standardized Incident reporting format*

**INCIDENT REPORT FORMAT**

**To be completed by implementing agency/contractor staff within 24 hours of incident/accident**

---

Incident date: .....Incident Time:  
.....

Incident’s place (District, Sector, Cell, Village:  
.....

Injured/dead person name:  
.....

Address:  
.....  
.....

Phone number:  
.....  
.....

Male/Female:.....Date of Birth

---

**Incident category:**

**Category 1:** "Minor or negligible, no one was injured"

**Category 2:** Moderate, injuries with short term impairment

**Category 3:** Critical/ major, susceptible to lead to serious illness or death

---

**Details of incident:**  
.....  
.....  
.....  
.....

Who was injured person?:

.....  
...

Injury type:

.....  
.....

Does injury require hospital/Physician? Yes: .....No:

.....

Hospital name:

.....  
.....

Address:

.....  
.....

Hospital phone number:

.....  
.....

Injured person/party signature/ date:

...../.....

**Important notes / instructions**

.....  
.....  
.....

Prepared by: ....., Signature: .....Date and time: .....

Approved by: ....., Signature: ....., Date and time: .....

**Annex 21: Contractor's Code of Conduct**

**Implementing Environmental, Social Health and Safety (ESHS) and Occupational Health and Safety (OHS) Standards**

**Preventing Gender -Based Violence (GBV) and Violence Against Children (VAC)**

*(Name of contractor)* acknowledges that adhering to environmental, social health and safety (ESHS) standards, following the project's occupational health and safety (OHS) requirements, and preventing gender-based violence (GBV) and violence against children (VAC) is important. All forms of GBV or VAC are unacceptable, be it on the work site, the work site surroundings, at worker's camps, or the surrounding communities.

The company considers that failure to follow ESHS and OHS standards, or to partake in GBV or VAC activities, constitute acts of gross misconduct and are therefore grounds for sanctions, penalties or potential termination of employment. Prosecution of those who commit GBV or VAC may be pursued if appropriate.

*(Name of contractor)* agrees that while working on the project every employee will:

- Attend and actively partake in training courses related to ESHS, OHS, HIV/AIDS, GBV and VAC as requested by employer.
- Shall wear personal protective equipment (PPE), in the correct prescribed manner, at all times when at the work site or engaged in project related activities.
- Take all practical steps to implement the organization’s environmental and social management plan (CESMP).
- Implement the OHS Management Plan.
- Adhere to a zero-alcohol policy during work activities, and refrain from the use of illegal substances at all times.
- Consent to a police background check.
- Treat women, children (persons under the age of 18), and men with respect regardless of race, color, language, religion, political or other opinion, national, ethnic or social origin, property, disability, birth or other status.
- Not use language or behavior towards women, children or men that is inappropriate, harassing, abusive, sexually provocative, demeaning or culturally inappropriate.
- Not participate in sexual contact or activity with children—including grooming or contact through digital media. Mistaken belief regarding the age of a child is not a defense. Consent from the child is also not a defense or excuse.
- Not engage in sexual harassment—for instance, making unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct, of a sexual nature, including subtle acts of such behavior. Ex. Looking somebody up and down; kissing, howling or smacking sounds; hanging around somebody; whistling and catcalls; giving personal gifts; making comments about somebody’s sex life; etc.
- Not engage in sexual favors—for instance, making promises or favorable treatment dependent on sexual acts—or other forms of humiliating, degrading or exploitative behavior.
- Unless there is the full consent<sup>12</sup> by all parties involved, every worker shall not have sexual interactions with members of the surrounding communities. This includes relationships involving the withholding or promise of actual provision of benefit (monetary or non-monetary) to community members in exchange for sex—such sexual activity is considered “non-consensual” within the scope of this Code.

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<sup>12</sup> **Consent** is defined as the informed choice underlying an individual’s free and voluntary intention, acceptance or agreement to do something. No consent can be found when such acceptance or agreement is obtained through the use of threats, force or other forms of coercion, abduction, fraud, deception, or misrepresentation. In accordance with the United Nations Convention on the Rights of the Child, the World Bank considers that consent cannot be given by children under the age of 18, even in the event that national legislation of the country into which the Code of Conduct is introduced has a lower age. Mistaken belief regarding the age of the child and consent from the child is not a defense.

- Consider reporting through the GRM (Grievance Redress Mechanism) or to the manager any suspected or actual GBV or VAC by a fellow worker, whether employed by my employer or not, or any breaches of this Code of Conduct.

### **Quality of products and services**

*(Name of the contractor)* expects that products and services provided by each sub-Contractor will be of the highest quality and will be fairly and reasonably priced so that *(Name of the contractor)* customers are served with the best value. In addition to any specific requirements in the agreement with *(Name of the contractor)*, products and services will meet or exceed applicable government standards, including environmental and safety standards.

### **Health and Safety**

*(Name of the contractor)* is dedicated to providing safe, injury-free working conditions and a healthy work environment. Compliance with this commitment is a condition of any sub-Contractor engagement with *(Name of the contractor)*.

#### **Workplace safety**

Each Sub-Contractor is responsible for ensuring that its Representatives complete all necessary safety training and per formwork in conformance with all applicable safety rules, laws, standards and procedures and for complying with and enforcing any additional *(Name of the contractor)* safety policies and procedures communicated to Sub-Contractor.

#### **Reporting injuries, damage and unsafe conditions**

In addition to any other legal reporting requirements, *(Name of the contractor)* and each Contractor must immediately report any occupational injuries, unsafe conditions or practices and damage to property occurring as a result of the *(Name of the contractor)/Sub-Contractor* or its Representative's activities to REG or any deserved entity.

### **Alcohol and drug use**

*(Name of the contractor)*'s commitment to providing a healthy and safe working environment is compromised by the consumption of alcohol and illegal drugs. While performing work for *(Name of the contractor)*, Employees, Sub-Contractors and Representatives must not consume, use or be impaired by alcohol or illegal drugs or be under the influence of prescription drugs that impair a person's ability to perform work in a safe and efficient manner.

### **Workplace violence**

Acts or threats of physical violence, intimidation and harassment will not be tolerated. Engaging in violence or threatening or intimidating behavior may result in termination of the contract with *(Name of the contractor)* or removal of the Representative from *(Name of the contractor)* property, as deemed appropriate by *(Name of the contractor)*.

### **The Environment**

REG is committed to conducting its business in an environmentally responsible manner. *(Name of Contractor)* and Representatives will comply with all applicable environmental laws and regulations and operate in a way that minimize the negative environmental impact of the products and services.

### **Ethics**

*(Name of Contractor)* must operate within the highest standards of ethical conduct when dealing with REG, Representatives, REG employees, customers and the public. *(Name of Contractor)* will ensure that its actions, and those of its Representatives, comply with the letter and spirit of this Code.

### **Anti-corruption**

(name of contractor) and Representatives are committed to zero tolerance against corruption and shall not engage in any form of bribery, extortion, embezzlement or other corrupt practices.

### **Fair competition**

When conducting works (*Name of Contractor*) and Representatives shall uphold fair standards in recruiting and competition.

### **Confidentiality**

Confidential information includes information that is not known by the public and that may be harmful to the organization, its employees or its customers if disclosed. (*Name of the Contractor*) is committed to safeguarding and protecting its own confidential information and the personal information of its customers and employees. Sub-Contractor must maintain the confidentiality of information entrusted to it in accordance with its agreements with (*Name of the Company*) and applicable law. The obligation to protect (*Name of the Company*)’s confidential information continues even after the business relationship with (*Name of the Company*) ends.

### **Updates to Code and Disclaimer**

(*Name of the Contractor*) reserves the right to amend and modify this Contractor Code of Conduct at its discretion. The provisions of the Code are not intended to change any obligations set forth in the Contractor’s agreement with REG and in the event of any conflict, the terms in the agreement with REG will prevail.

## **Annex 22 : Individual code of conduct in case of contractor**

### **Implementing Environmental, Social Health and Safety (ESHS) and Occupational Health and Safety (OHS) Standards**

### **Preventing Gender -Based Violence (GBV) and Violence Against Children (VAC)**

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I, \_\_\_\_\_, acknowledge that adhering to environmental, social health and safety (ESHS) standards, following the project’s occupational health and safety (OHS) requirements, and preventing gender-based violence (GBV) and violence against children (VAC) is important. All forms of GBV or VAC are unacceptable, be it on the work site, the work site surroundings, at worker’s camps, or the surrounding communities.

The company considers that failure to follow ESHS and OHS standards, or to partake in GBV or VAC activities, constitute acts of gross misconduct and are therefore grounds for sanctions, penalties or potential termination of employment. Prosecution of those who commit GBV or VAC may be pursued if appropriate.

I agree that while working on the project I will:

- Attend and actively partake in training courses related to ESHS, OHS, HIV/AIDS, GBV and VAC as requested by my employer.
- Shall wear my personal protective equipment (PPE), in the correct prescribed manner, at all times when at the work site or engaged in project related activities.
- Take all practical steps to implement the contractor’s environmental and social management plan (CESMP).
- Implement the OHS Management Plan.



- Adhere to a zero-alcohol policy during work activities, and refrain from the use of illegal substances at all times.
- Consent to a police background check.
- Treat women, children (persons under the age of 18), and men with respect regardless of race, color, language, religion, political or other opinion, national, ethnic or social origin, property, disability, birth or other status.
- Not use language or behavior towards women, children or men that is inappropriate, harassing, abusive, sexually provocative, demeaning or culturally inappropriate.
- Not participate in sexual contact or activity with children—including grooming or contact through digital media. Mistaken belief regarding the age of a child is not a defense. Consent from the child is also not a defense or excuse.
- Not engage in sexual harassment—for instance, making unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct, of a sexual nature, including subtle acts of such behavior. Ex. Looking somebody up and down; kissing, howling or smacking sounds; hanging around somebody; whistling and catcalls; giving personal gifts; making comments about somebody’s sex life; etc.
- Not engage in sexual favors—for instance, making promises or favorable treatment dependent on sexual acts—or other forms of humiliating, degrading or exploitative behavior.
- Unless there is the full consent by all parties involved, I shall not have sexual interactions with members of the surrounding communities. This includes relationships involving the withholding or promise of actual provision of benefit (monetary or non-monetary) to community members in exchange for sex—such sexual activity is considered “non-consensual” within the scope of this Code.
- Consider reporting through the GRM (Grievance Redress Mechanism) or to my manager any suspected or actual GBV or VAC by a fellow worker, whether employed by my employer or not, or any breaches of this Code of Conduct.

With regard to children under the age of 18:

- Wherever possible, ensure that another adult is present when working in the proximity of children.
- Not invite unaccompanied children unrelated to my family into my home, unless they are at immediate risk of injury or in physical danger.
- Not sleep close to unsupervised children unless absolutely necessary, in which case I must obtain my supervisor's permission, and ensure that another adult is present if possible.
- Use any computers, mobile phones, or video and digital cameras appropriately, and never to exploit or harass children or to access child pornography through any medium (see also “Use of children's images for work related purposes” below).
- Refrain from physical punishment or discipline of children.
- Refrain from hiring children for domestic or other labor which is inappropriate given their age or developmental stage, which interferes with their time available for education and recreational activities, or which places them at significant risk of injury.
- Comply with all relevant local legislation, including labor laws in relation to child labor.

### **Use of children's images for work related purposes**

When photographing or filming a child for work related purposes, I must:

- Before photographing or filming a child, assess and endeavor to comply with local traditions or restrictions for reproducing personal images.
- Before photographing or filming a child, obtain informed consent from the child and a parent or guardian of the child. As part of this I must explain how the photograph or film shall be used.
- Ensure photographs, films, videos and DVDs present children in a dignified and respectful manner and not in a vulnerable or submissive manner. Children should be adequately clothed and not in poses that could be seen as sexually suggestive.
- Ensure images are honest representations of the context and the facts.
- Ensure file labels do not reveal identifying information about a child when sending images electronically.

### **Sanctions**

I understand that if I breach this Individual Code of Conduct, my employer shall take disciplinary action which could include:

- Informal warning.
- Formal warning.
- Additional Training.
- Loss of up to one week's salary.
- Suspension of employment (without payment of salary), for a minimum period of 1 month up to a maximum of 6 months.
- Termination of employment.
- Report to the police if wanted.

*I understand that it is my responsibility to ensure that the environmental, social, health and safety standards are met. That I shall adhere to the occupational health and safety management plan. That I shall avoid actions or behaviours that could be construed as GBV or VAC. Any such actions shall be a breach this Individual Code of Conduct. I do hereby acknowledge that I have read the foregoing Individual Code of Conduct, do agree to comply with the standards contained therein and understand my roles and responsibilities to prevent and respond to ESHS, OHS, GBV and VAC issues. I understand that any action inconsistent with this Individual Code of Conduct or failure to take action mandated by this Individual Code of Conduct may result in disciplinary action and may affect my ongoing employment.*

Signature: \_\_\_\_\_

Printed Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

### **Annex 23: Individual code of conduct in case of electrical line works**

#### **Implementing Environmental, Social Health and Safety (ESHS) and Occupational Health and Safety (OHS) Standards**

**Sexual Exploitation and Abuse (SEA), Sexual Harassment (SH) and Violence against Children (VAC)**

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I, \_\_\_\_\_, acknowledge that sexual exploitation and abuse (SEA), sexual harassment (SH), Violence against Children (VAC) and other unethical behaviors are prohibited at workplace, while adhering to Environmental, Social Health and Safety (ESHS) standards and following the project’s Occupational Health and Safety (OHS) requirements is a must at workplace. As an employee of Village \_\_\_\_\_; Cell \_\_\_\_\_Sector; \_\_\_\_\_District..... in Rwanda, I acknowledge that sexual exploitation and abuse (SEA),sexual harassment (SH), violence against children (VAC) and other unethical activities, not adhering to Environmental, Social, Health and Safety (ESHS) standards and not following the project’s Occupational Health and Safety(OHS) requirements on the work site, the work site surroundings, or the surrounding community constitute a violation of this *Code of Conduct*. I understand SEA, SH, VAC and other unethical activities, not adhering to ESHS standards and not following OHS requirements are grounds for sanctions, penalties or potential termination of employment. I pledge not to commit SEA, SH, VAC or other unethical offense, otherwise I will undergo the above punishments, including being pursued by prosecution.

**I agree that while working on the project, I will:**

- Treat all persons, including children (persons under the age of 18), with respect regardless of sex, race, color, language, religion, political or other opinion, national, ethnic or social origin, gender identity, sexual orientation, property, disability, birth or other status.
- Commit to creating an environment which prevents SEA, SH, VAC and unethical practices and promotes this code of conduct. In particular, I will seek to support the systems which maintain this environment.
- **Not** participate in SEA, SH, VAC and other unethical activities as defined by this *Code of Conduct* and as defined under Rwandan law.
- **Not** use language or behavior towards women, children or men that is inappropriate, harassing, abusive, sexually provocative, demeaning or culturally inappropriate;
- **Not** participate in sexual contact or activity with anyone below the age of 18. Mistaken belief regarding the age of a child is not a defense. Consent from the child is also not a defense. I will not participate in actions intended to build a relationship with a minor that will lead to sexual activity.
- **Not** solicit/engage in sexual favors in exchange for anything as described above;
- Unless there is the full consent by all parties involved, recognizing that a child is unable to give consent and a child is anyone under the age of 18, I will not have sexual interactions with coworkers or any members of the surrounding communities. This includes relationships involving the withholding or promise of actual provision of benefit (monetary or non-monetary) to coworkers or community members in exchange for sex—such sexual activity is considered “non-consensual” under this Code;
- Reveal any case related to hiring children for domestic or other labor which is inappropriate given their age or developmental stage, which interferes with their time available for education and recreational activities, or which places them at significant risk of injury;
- Always wear my personal protective equipment (PPE), in the correct prescribed manner, at all times when at the work site or engaged in project related activities;

- Take all practical steps requiring employee compliance and adherence to implement the contractor's environmental and social management plan (CESMP) and any relevant instructions which will be provided by the employer in relation to Environmental and Social Risk Management requirements;
- **Not** manifest any kind of robbery or theft of any kind at the workplace;
- Fully observe the principle of honesty, integrity, fair play and mutual respect at work;
- Avoid soliciting or accepting any advantage from any persons to in turn secure ineligible benefits of any kind from the project;
- Avoid using the employment position or any information made available to me in the course of my duties for not deserved personal gains or gains of any other persons;
- Ensure proper use, maintenance, safety and security of site property and materials;
- Always possess at my disposal a valid personal Health Insurance during employment period;
- Not be indulged in any form of interpersonal conflict such as fighting, insults, abuse of any sort, etc.
- Observe working hours, avoid absenteeism without genuine reasons and fully work as required

**I commit to:**

- Adhere to the provisions of this code of conduct both on and off the project site.
- Attend and actively partake in training courses related to preventing SEA, SH and other unethical practices as requested by my employer.

If I am aware of or suspect SEA, SH and any other unethical practice, at the project site or surrounding community, I understand that I am encouraged to report it to the Grievance Redress Committee (GRM) for case proper follow up and handling. The safety, consent, and consequences for the person who has suffered the abuse will be part of my consideration when reporting. I understand that I will be expected to maintain confidentiality on any matters related to the incident to protect the privacy and security of all those involved.

**Sanctions:** I understand that if I breach this Individual Code of Conduct, my employer will take disciplinary actions which could include:

- Informal (verbal) warning or formal warning;
- Additional training;
- Deduction from the salary;
- Loss of payment;
- Suspension of employment (with or without payment of worked days);
- Termination of employment contract;
- Report to the Rwanda National Police (RNP) or Rwanda Investigation Bureau (RIB) or other authorities as warranted.

***I understand that it is my responsibility to adhere to this code of conduct. That I will avoid actions or behaviors that could be construed as SEA, SH, VAC and unethical practices. I will avoid any activity that could hinder the implementation of Environmental, Social, Health and Safety (ESHS) standards and Occupational Health and Safety (OHS) requirements Any such actions will be a breach to this Individual Code of Conduct. I acknowledge that I have read the Individual Code of Conduct, do agree to comply with the standards contained in this document, and understand my roles and responsibilities to prevent and potentially report SEA, SH, VAC and other unethical issues, environmental damage, health and safety problems. I understand that any action inconsistent with this Individual Code of***

***Conduct or failure to act mandated by this Individual Code of Conduct may result in disciplinary action and may affect my employment.***

Signature: \_\_\_\_\_

Printed Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

### *Annex 24 Air Quality Parameter*

Pollutants in the form of gaseous and particulate substances are air quality pollutant parameters which are released in excess into the atmospheres that cause air pollution as well as degrading the quality of the air when subjected to the index and standard according to the Environmental Protection Agency air permissible standard (**Environmental Protection Agency (EPA) (2010) Climate Change Indicators in the United States. Environmental Protection Agency, Washington DC, 70-77**). The imbalance of the atmosphere is a result of the gaseous and particulate matter released into the atmosphere in the form of pollutants. When these pollutants are released into the globe (atmosphere, lithosphere, and hydrosphere) through anthropogenic activities due to the high increase in pollution uncontrolled and technological advancement, it results in three different kinds of environmental pollution formed, due to the fact that the air quality has been altered, degraded and tempered with air quality parameters, that leads to air pollution. Air pollution sources result from different gaseous emissions or the release mainly from the industries, thermal power stations, automobiles, household's fuel, etc. are accumulated gaseous chemical substances in the atmosphere condenses due to a mixture of rainfall with other parameters released in the form of Sulphur (iv) oxide, Carbon dioxide, and other greenhouse gases (SO<sub>2</sub>, CO<sub>2</sub>, Cl<sub>2</sub>, etc.) into the atmosphere from different activities which results in acid rain, and falls back to the land/soil as well as water bodies, hence land and water pollution is formed. Selected qualities of air measurement parameters in this project are air quality index which is written as AQI. It is measured in microgram per meter cube. Carbon monoxide in limited supply and carbon dioxide excess supply during the chemical reaction of hydrocarbons in the industries, which are written as CO, NO<sub>2</sub>, O<sub>3</sub>, SO<sub>2</sub>, Ammonia Gas (NH<sub>3</sub>), and particulate matter (PM<sub>10</sub> & PM<sub>2.5</sub>), Nitrogen Mono Oxide (NO), are not detected throughout the sampling period. The quality of air pollution can easily be determined in a workplace according to [Jang, H. (2016) Identifying 21st Century STEM Competencies Using Workplace Data. Journal of Science Education and Technology, 25, 284-301. <https://doi.org/10.1007/s10956-015-9593-1>]. The air meter is used to detect the levels of air quality parameters present in the project area, with help of different colour detection. Sometimes when green is detected, it showed that the quality of air is good, excellent indicating that such ecosystem is green vegetation, meaning air quality pollutants free, regarding the parameter indicated, yellow colour shows fair or moderate air quality as shown in [the](#) figure below.

Air color	Concern levels	Classes	Index values	Air quality description
Green	Good	1	0 - 50	Satisfactory air quality. Air pollution here, pose little or no risk.
Yellow color	Fair/Moderate	2	51 - 100	Acceptable air quality. This category may pose risk for some people, especially those who are usually prone to air pollution.
Orange color	This group is concerned with unhealthy health issues for some sensitive people.	3	101 - 150	Pollutant levels here, members of people in this category are affected due to the sensitive health effects experience by the general public health.
Red color	Concern levels for people is not healthy.	4	151 - 200	Some members of people in this group where the pollutants indicate red color, the general public may experience health effect that some sensitive member may experience very serious health effects.
Purple color	People in this category are very unhealthy.	5	201 - 300	Here, everyone experience the risk of health effects alert.
Maroon color	Hazardous	6	301 an above	Everyone here, are likely to be affected due to health emergency warning condition alert.

Figure 37: Description of air color and air quality

Source: Environmental Air Quality Parameters Monitory Information Assessments and Its Health Implications on Biotic Factors in Banjul Metropolis, The Gambia, March 2024

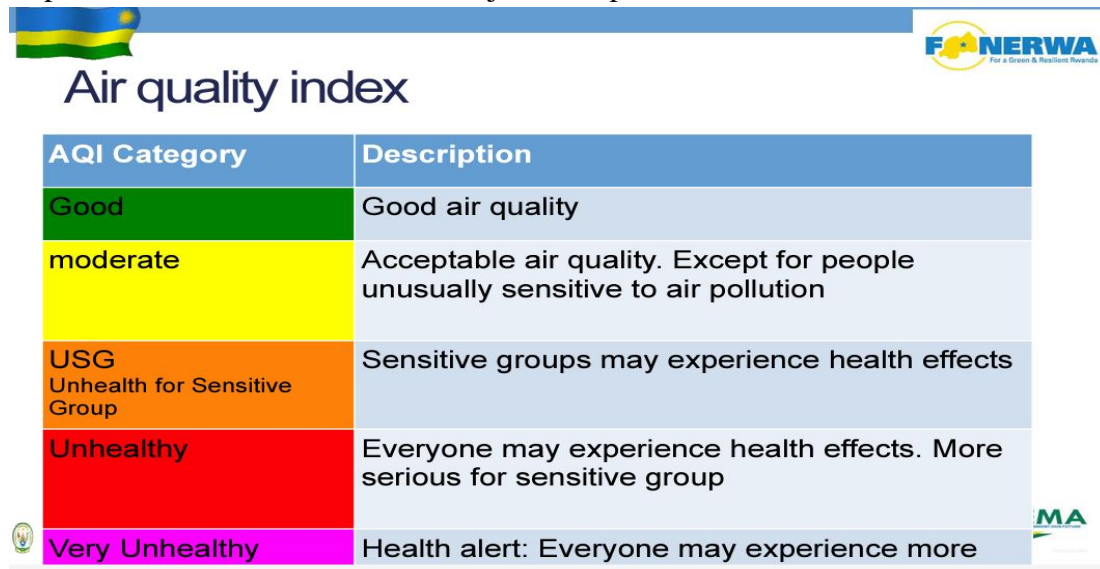


Figure 38: Air Quality Index Rwanda.

Source : air quality in rwanda levels, impacts, way forward, June 2019

Annex 25: Potable water quality

Sl. No.	Parameter	Limit		Test method
		Treated potable water	Natural potable water	
a)	Colour, TCU <sup>a</sup> , max.	15	50	ISO 7887
b)	Turbidity, NTU, max.	5	25	ISO 7027
c)	pH	6.5 – 8.5	5.5 - 9.5	ISO 10523
d)	Conductivity, $\mu\text{S}/\text{cm}$ , max.	1500	2500	ISO 7888
e)	Suspended matter, mg/l	Not detectable	Not detectable	ISO 11923
f)	Total dissolved solids, mg/l, max.	1000	1500	ASTM D 5907-13
g)	Total hardness, as $\text{CaCO}_3$ , mg/l, max.	300	600	ISO 6059
h)	Aluminium, (Al), mg/l, max.	0.2	0.2	ISO 12020
i)	Chloride, (Cl), mg/l, max.	250	250	ISO 9297
j)	Total Iron (Fe), mg/l, max.	0.3	0.3	ISO 6332
k)	Sodium, (Na), mg/l, max.	200	200	ISO 9964
l)	Sulphate ( $\text{SO}_4$ ), mg/l, max.	400	400	ISO 10304-1
m)	Zinc (Zn), mg/l, max.	5	5	ISO 8288
n)	Magnesium, (Mg), mg/l, max.	100	100	ISO 7980
o)	Calcium, (Ca), mg/l, max.	150	150	ISO 7980
p)	Potassium (K), mg/l, max.	50	50	ISO 9964

<sup>a</sup> True colour units (TCU) mean hazen units after filtration.

Figure 3940: Physico-chemical requirements for potable wate.

Source: IWRM Programme Rwanda Water quality monitoring in Rwanda phase II final report (February – March 2019)

Annex 26: Discharged Water Quality

	Parameter	Permissible limits
1	Temperature increase (°C)	<3
2	Total suspended solids (mg/l)	50.0
3	Total Dissolved Solids (mg/l)	2000.0
4	Oil and grease (mg/l)	10.0
5	BOD <sub>5</sub> (mg/l) (20°C)	50.0
6	COD (mg/l)	250.0
7	Faecal Coliforms (MPN/100ml)	400
8	Ammonia (as N) (mg/l)	20.0
9	Arsenic (mg/l)	0.01
10	Benzine (mg/l)	0.1
11	Cadmium (mg/l)	0.01
12	Hexavalent Chromium (mg/l)	0.05
13	Copper (mg/l)	3.0
14	Cyanide (mg/l)	0.1
15	Iron (mg/l)	3.5
16	Lead (mg/l)	0.1
17	Mercury (mg/l)	0.0002
18	Nickel (mg/l)	3.0
19	Phenol (mg/l)	0.2
20	Sulphide (mg/l)	1.0
21	Zinc (mg/l)	5.0
22	pH	5-9

The total amount of heavy metals shall not exceed 10.0 mg/l

Figure 41: Discharged standards for industrial effluents into water bodies maximum permissible limits (EAS, 2012)

Annex 27: Noise parameters, Tolerable limits for Noise

Area Code	Category of area	Limit in dB, Max.	
		Day time	Night time
A	Industrial Area	75	70
B	Commercial Area	65	55
C	Residential area	55	45
D	Silence Zone	50	40

Figure 42: Ambient air quality standards in respect of noise.

Source : Acoustics — Noise pollution — Tolerance limits, Rwanda Standard Bord, July 2014.

S/No	Type of building	Maximum acceptable noise levels (dB)
1	Offices	50 - 60
2	Dwellings(Houses and Flats)	45 - 55
3	Schools(Classrooms or lecture rooms)	45 - 50
4	Hospitals	40 - 50

Figure 43: Maximum acceptable noise levels inside buildings.



Source : Acoustics — Noise pollution — Tolerance limits, Rwanda Standard Bord, July 2014

Noise level (dBA)	Maximum exposure time per 24 h
85	8 h
88	4 h
91	2 h
94	1 h
97	30 min
100	15 min
103	7.5 min
106	3.7 min
109	112 sec
112	56 sec
115	28 sec
118	14 sec
121	7 sec
124	3 sec
127	1 sec
130 – 140	less than 1 sec
140	NO EXPOSURE

Figure 44: Maximum recommended noise dose — Exposure levels.

Source : Acoustics — Noise pollution — Tolerance limits, Rwanda Standard Bord, July 2014