



Plant Design, Supply, and Installation of Low Voltage and Medium Voltage Lines and Service Connections in the Huye, Nyamagabe, Nyanza, Kamonyi and Ruhango Districts, Southern Province of Rwanda

CONTRACT AGREEMENT N° 11.07.023/1256/19/EDCL-MD/FG/cm



HEALTH AND SAFETY MANAGEMENT PLAN

Project: Plant Design, Supply, and Installation of Low Voltage and Medium Voltage Lines and Service Connections in the Huye, Nyamagabe, Nyanza, Kamonyi and Ruhango Districts, Southern Province of Rwanda.

Contract No.: 11.07.023/1256/19/EDCL-MD/FG/cm

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Client: ENERGY DEVELOPMENT CORPORATION LIMITED (EDCL)

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Acronyms and abbreviations

- OHSAS: OCCUPATIONAL HEALTH AND SAFETY ASSESSMENT SERIES,
- ISO: International Organization for Standardization,
- ILO: International Labor Organization,
- PPE: Personal Protective Equipment,
- EDCL: Energy Development Corporation Limited,
- EUCL: Energy Utility Corporation Limited,
- STEG-IS: Steg International Services,
- ESMP: Environmental and Social Management Plan,
- HSMP: Health and Safety Management Plan,
- RoW: Right of Way,
- MV: Medium Voltage,
- LV: Low Voltage,
- QSE: Quality, Security, Environment,
- EPC: Engineering, Procurement and Construction,
- NOx: Nitrogen Oxide,
- OHS: Occupational Health and Safety,
- RFP: Request for Proposal,
- RGC: Rural Growth Centers,
- Sox: Sulphur Oxide,
- STIs : Sexually Transmitted Infections,
- HIV: Human Immune Virus.



I. EXECUTIVE SUMMARY

1. *Project identification*

Project	Proposed Plant Design, Supply, and Installation of Low Voltage and Medium Voltage Lines and Service Connections in the Huye, Nyamagabe, Nyanza, Kamonyi and Ruhango Districts, Southern Province of Rwanda
Location	Huye, Nyamagabe, Nyanza, Kamonyi and Ruhango Districts
Client	EDCL: Energy Development Corporation Limited
Objectives of the project	<p>The main objective of this project is to strengthen the distribution networks and improve the electrification rate under Supply and Installation of Medium and Low Voltage Lines, Distribution Transformers and Connection of Customers in Unelectrified Rural areas of Mainland Rwanda on Turnkey Basis.</p> <p>The purposes of this project are as follow:</p> <ul style="list-style-type: none"> • Poverty reduction through improving the electricity access rate and the creation of short-term and long-term jobs. • Energy fuel saving and environment preservation through the reduce of firewood use and to the environment preservation (forest, gas emission, fuel and lubrication oil leakage) and noise pollution reduction. • Livelihoods improvement and social leisure through the improving of life conditions and improving delivery of social services and teaching conditions. • The reliable source of energy is a catalyst for social development such as road and communication infrastructures.
Scope of the project	<p>The project consists of the construction, of MV and LV networks, related distribution transformers and services connections, on EPC Contract basis. The project includes essentially:</p> <ul style="list-style-type: none"> ✓ 223.300 km of MV lines, ✓ 187.4 km of LV lines, ✓ 125 distribution transformers, ✓ 10741 Connection of households.
Objectives of the Plan	The objective of this Health and Safety Plan is to ensure that all possible provisions are taken to address the potential HAZARD of the project on Health and Safety of workers on site as well as the surrounding people.



	<p>Furthermore, the OHSMP:</p> <ul style="list-style-type: none"> ✓ Outlines project background and the activities that will be undertaken during project implementation as well as its anticipated the occupational health and safety hazard; ✓ Reviews Rwanda’s policy, legal and administrative framework; ✓ Provide Risk assessment; ✓ Describes available preventive and mitigation measures, ✓ Provides a list of emergency situations and preparedness response; ✓ Defines performance measurement and monitoring program including parameters to be followed, responsible of implementation and supervision;
<p>Methodology and principles of this plan</p>	<p>This Plan is formulated in accordance to:</p> <ul style="list-style-type: none"> ✓ ISO9001, ISO14001, OHSAS18001 guidelines, ✓ STEG-IS certified Quality, Health, Safety and Environment Management System and best practices in the fields. ✓ Observations during previous projects, ✓ Documentation review, ✓ Workers, experts’ consultation.

2. Project related risks and control measures

During the risk identification, we enumerate divers’ risks generated by the general living conditions such us climatic conditions, life activities such as road traffic and essentially from the project activities such as material handling, excavation, pole erection, cable and conductors pulling.

The risk assessment exercise consists of the analysis of the risk impact by attributing two factors: likelihood and severity considering the possible control measures which aim to bring back risks to acceptable level.

An acceptable risk is a Risk that has been reduced to a level that can be tolerated by the organization having regard to its legal obligations and its own OH&S policy (OHSAS 18001:2007).

The risks generated during the project activity are, in descending order of impact, fall from height, risk of electrical shock, risk of road traffic accident, fall of object ...

The control measures are of preventive nature to reduce the likelihood of the occurrence but also of mitigation nature to reduce the severity of the risk in case of occurrence.

The Risk assessment exercise in view of the control measures shows that activities are within tolerable risk.



II. BACKGROUND INFORMATION

1. *Project summary*

The Government of Rwanda represented by ENERGY UTILITY CORPORATION LIMITED (EUCL)

has received financing from the World Bank (WB) under Rwanda Electricity Sector Strengthening Project (RESSP) for Construction of Medium Voltage and Low Voltage Networks in 5 provinces of Rwanda.

The requirements in the tender specifications will be satisfied while adding our experience and expertise for the implementation of this project in a timely manner.

STEG INTERNATIONAL SERVICES had the honor to submit a technical-economic offer for plant design, supply, and installation of low voltage and medium voltage lines and service connections in the HUYE, NYAMAGABE, NYANZA, KAMONYI AND RUHANGO DISTRICTS, southern province of RWANDA on an EPC turnkey basis.

The client EDCL and the contractor STEG INTERNATIONAL SERVICES have signed the contract in June 25th, 2019.

The project components shown on table below:

Lots	District	Sectors	Activities	Unit	Scope of works as EDCL survey 22/07/2019	Scope of works as Contract
Lot 14	KAMONYI AND RUHANGO DISTRICT	Nyamiyaga, Mugina, Kinazi and Ntongwe	MEDIUM VOLTAGE	km	24,304	52,000
			Low Voltage	TRF	19	34
				km	27,019	55,000



				cnx	3710	3710
Lot 11	NYANZA AND HUYE DISTRICTS	Busasamana, Cyabakamyi, Kinazi, Mukingo, Rwabicuma and Rwaniro	MEDIUM VOLTAGE	km	44,25	46
			Low Voltage	TRF	26	28
				km	48,75	45
				cnx	2389	2 389
Lot 8	NYAMAGABE AND HUYE DISTRICTS	Cyanika, Kaduha, Kigoma, Mbazi, Nyagisozi and Rwaniro	MEDIUM VOLTAGE	km	69,45	67
			Low Voltage	TRF	44	37
				km	74,86	58
				cnx	3515	3 515
Lot 12	NYAMAGABE DISTRICT	Mugano, Musange, Mushubi and Nkomane	MEDIUM VOLTAGE	km	59	58,3
			Low Voltage	TRF	37	26
				km	48,96	29,4
				cnx	1127	1 127
TOTAL			MEDIUM VOLTAGE	KM	197,400	223,300
			Low Voltage	TRF	126	125
				km	199,589	187,4
				Cnx	10 741	10 741

Table 1: Project components

All materials supplied in the frame of this project will be newly manufactured, of best quality and sized for working under the conditions specified and withstanding to the variations of temperature and atmospheric conditions arising under working conditions.

No toxic material (such as Halon, PCB, and Asbestos) will be used.

2. Project organization and responsibilities

2.1. Project Organization



Organizational Chart

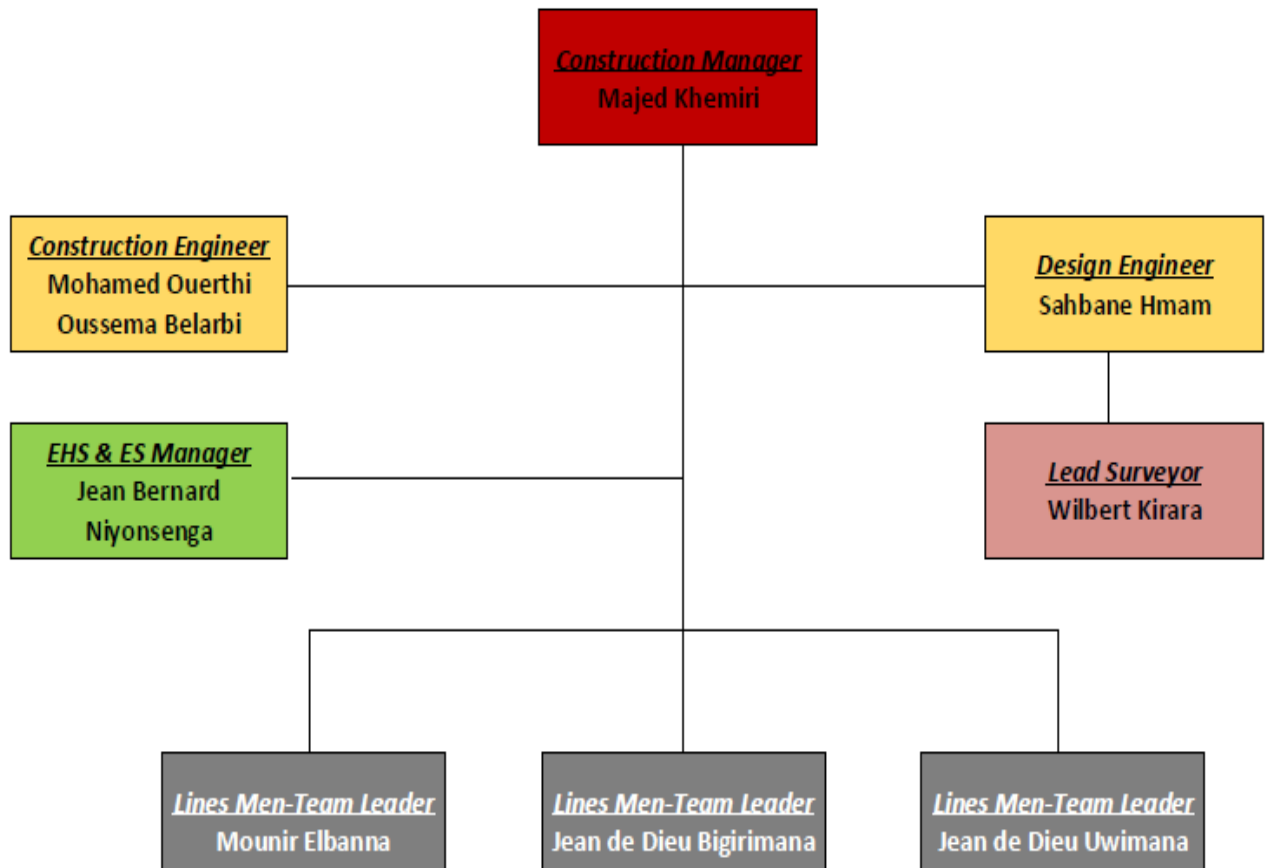


Figure 1 - Project organization chart



Occupational Health and safety Responsibilities

N°	Activity	EDCL	EHS & ES Manager	Project Manager	Design Engineer	Construction Engineer	Site Supervisor	Team work member
1	Elaboration and update of the management plan	I	R	R	P	P	I	I
2	Implementation of the management plan	I	P	P	R	P	P	P
3	Compliance to Health and safety obligations	I	R	R	P	P	I	I
4	Awareness and sensitization campaign	I	R	R	P	I	I	I
5	Incident / accident management	I	R	I	I	I	R	P
6	Complain management	P	R	I	I	I	R	P
7	Monitoring of the implementation of the management plan	P	R	R	P	I	I	I
8	Develop and enhance safe work methods on site and corrects obvious hazards immediately,	I	R	R	P	P	P	I
9	Ensure PPE availability and enhances the proper use	I	R	R	P	P	P	I
10	Be active for risks identification and assessment	I	R	R	P	P	P	P
11	Reports any risks found to whoever controls the work on site	I	R	R	P	P	P	P

Legend: R: Responsible P: Participant I: Information

Table 2: OHS responsibilities

2.2. Occupational Health and Safety and Environment Committee

The occupational health and safety steering committee is composed of:

STEG-IS side:

- The Project Manager
- The EHS & ES Manager
- The Construction Manager

EDCL side:



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- The project Manager
- Social Safeguard Specialist
- Environmental safeguard Specialist

The committee can invite any other person to assist in the meeting.

The committee must meet in case of accident in order to make the root cause analysis and setup an action plan to prevent the occurrence.

The committee has to meet monthly to follow up the implementation of this management plan.

The committee has also to meet to discuss recorded complaints and find appropriate reply in case of well-founded complaints.



3. Project Implementation Schedule

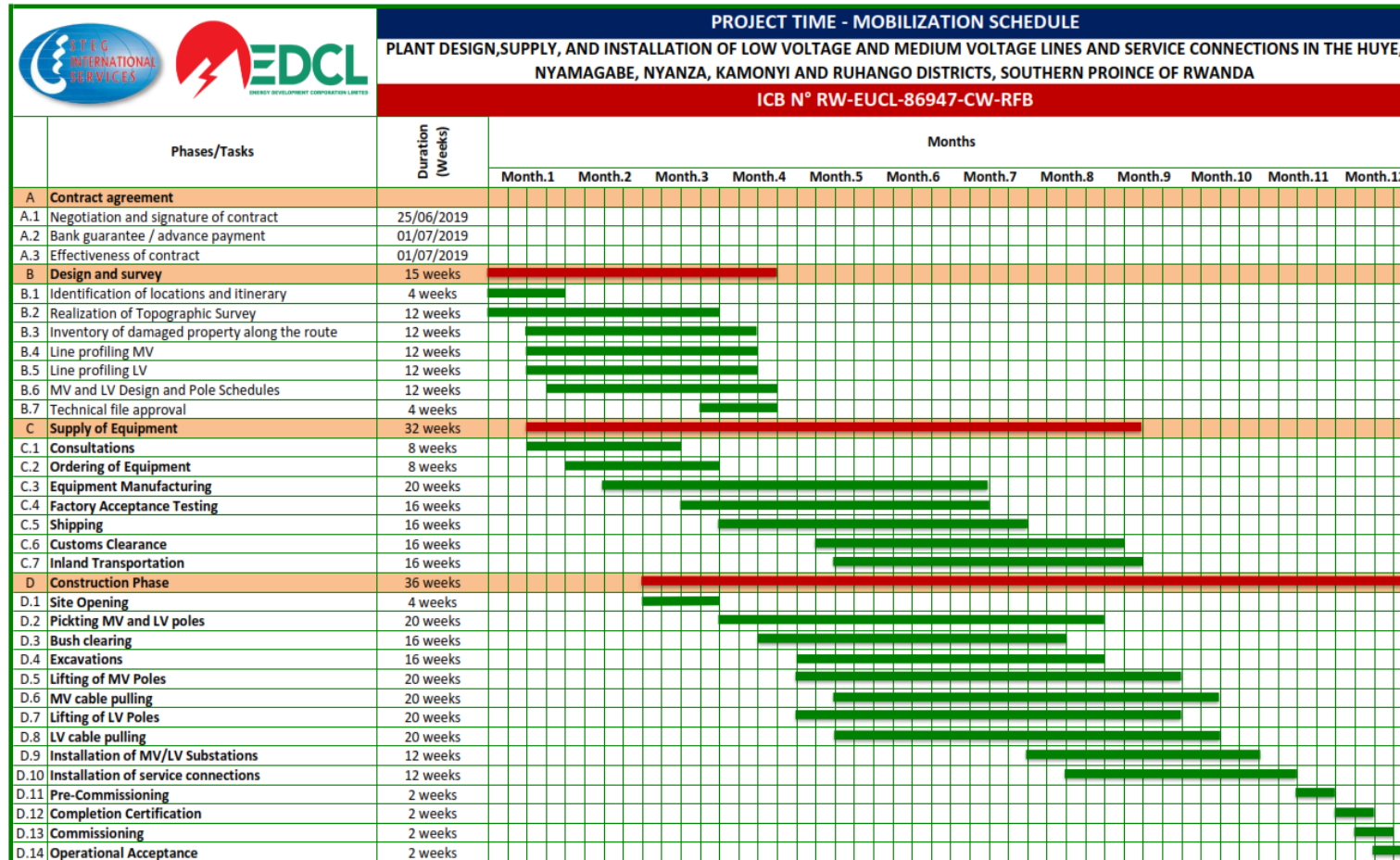


Figure 2: Project implementation Schedule



4. Project Activities

4.1. Line route survey

This activity involves the reconnaissance of the power line route previously projected and technically choose the best location for poles. The poles location are substantiated through stacking wooden stakes.

While doing this, STEG-IS team's, in collaboration with the client representative and local authority, raises the awareness of the community on the importance of the project, asks community about its expectations and possible worries.

During this activity, the team used vehicle on public road and to walk in field

4.2. Bush clearing and site preparation

All tall trees and scrub within a Right of Way of 12m of the distribution line will be cut down to a height of not more than 1.25 m above ground. All tall trees outside the RoW, but of such height as could fall within 2 m of the conductors, shall also be felled.

Practically, this process of "bush clearing" is done in a very selective manner so as to do minimal damage to the vegetation cover and crops.

This activity will be done by manual means such us machete, wood saw and mechanical means such as chainsaw.

4.3. Storage and transportation of equipment and materials

Equipment and materials to be used in the construction of the distribution network include:

- ✓ Wooden Poles
- ✓ Distribution transformers,
- ✓ Drums of cables and conductors,
- ✓ Metallic structures and frames,
- ✓ Porcelain and Composite insulators (different models),
- ✓ Hardware and fittings,
- ✓ Construction materials (cement, sand, gravel, iron ...)

STEG-IS has prepared a main warehouse in Nyanza district in order to store all plants and material and temporary yard for pole storage in Nyamagabe, Kamoyi and Ruhango. Plant and material transportation at the workplace will be done using trucks, handling, loading and unloading are done manually and mechanically using self-loader, crane or forklift.



4.4. Pole foundation excavation

Location identified for poles erection are excavated mainly manually using pickaxe, shovel, and forged crowbar. In case of rocky soil, the use of electrical drill hammer is possible.

The pole hole will have specific depth (1.5m; 1.8m or 2.2 m) according to pole length and minimum diameter allowing the pole erection and not affecting the soil integrity.

The soil excavated is put in a manner to do not upset circulation or constitutes a source of hazard for worker or neighborhood villagers.

4.5. Pole erection

If the access to the pole location allows, the pole erection is made with a crane to easy and speed up the task. If it not possible to use the crane, a team containing enough persons does the operation manually. They can use strap, rope and a holding device during the pole vertical setting.

After vertically setting the pole, the foundation is done using consecutively stone layer, excavated materiel layer and stone layer. All layers are wedged using a hand compactor.

For unsupported MV/LV poles, foundation can be done with concrete (cement, sand, crashed stone).

4.6. Pole dressing

Pole dressing consists of the installation of the line fittings and insulators. This activity requires the pole climbing by lineman. So that, this is work at height and needs devices for climbing and lineman securing. It needs also tools for the fittings assembly to the pole such us wrenches, straps. During this activity, there are some lineman working at height and some other working on the ground.

4.7. Cables and conductors stringing and sagging

The conductor reel is mounted on stands or jacks, leaving it free to rotate with just enough braking force on the reel to prevent over-run, backlash or loops. The pulling team pulls the cable past each tower structure. At each structure, the conductor is lifted and placed into a stringing sheave. A stringing sheave may also be referred to as a traveler, block, dolly, sheave, stringing block, or stringing traveler. The pulling team continues to the end of the line section being installed.

The sagging starts from the final span of the line section being installed and goes back to the conductor reel in order to turn back the conductor to the reel easily and without damage or need to cut it.

It is used temporarily clamps, wire grips, hoist, winch in order to have the desired conductor tension and then tighten the permanent clamps.

During this activity, there are some lineman working at height and some other working on the ground.

4.8. Distribution Transformer installation

This includes all activities of steel work, equipment (transformers, bus bar, panel ...) mounting.



4.9. Services connection

This the establishment of the link of the household to the power network in manner to allow him to beneficiate from power.

During this activity, there are some lineman working at height and some other working on the ground.

This activity is supposed to be on a network not energized.

4.10. Pre-commissioning tests and commission

The pre-commissioning test covers all activities of verification and check before the commissioning such as the earthing and the insulation level measurement, the sagging tension and the tightening of mechanical parts. After that, the new plants can be energized.



III. HEALTH AND SAFETY REGULATORY AND LEAGAL COMPLIANCE

Reference and title of text	Applicability/ Information	Main Requirement	Compliance	Recommended action plan
Rwandan Constitution of 2015	Applicable	<p>The Rwandan Constitution in its article 49 determines that every citizen is entitled to a Healthy and satisfying OSH.</p> <p>It enforces the citizen right on safe and healthy environment. (Articles n°21 and n°22)</p> <p>It states the right and duties relating to health for all citizens and the obligation of the State to mobilizing the population for activities aimed at promoting good health and to assist in the implementation of these activities. (Article n°41)</p> <p>It is prohibited to make international agreements permitting the transit or dumping of toxic waste and other hazardous materials capable of endangering public health and the environment. (Article n°191)</p>	<p>Comply:</p> <p>STEG-IS does not directly recruit staff, but it does issue contracts for the provision of services</p>	
Law no 66/2018 of 30/08/2018 regulating Labour in Rwanda	Applicable	<p>Law no 66/2018 of 30/08/2018 regulating Labour in Rwanda, in its articles 40, 77, 79, 81, 82 and 119 on Health and Safety at Workplace:</p> <p>Article 40: Rights of an employee</p> <p>The rights of an employee include the following:</p> <p>1 ° to work in an environment where health and safety in the workplace are guaranteed;</p> <p>Article 77: General health and safety conditions in the workplace</p> <p>An employer must ensure the health, safety and welfare in the workplace</p>	<p>Comply:</p> <p>STEG-IS ensures a fairly healthy working place and provides the necessary PPE, drinking water, hygiene means, vehicles are equipped with first aid boxes</p>	



Reference and title of text	Applicability/ Information	Main Requirement	Compliance	Recommended action plan
		<p>for employees working in his/her enterprise and for all persons who frequent the enterprise</p> <p>Article 79: Personal protective equipment</p> <p>An employer provides every person entering an area in an enterprise where he/she is likely to be exposed to the risk of injury or harm from contamination, with suitable protective equipment and instructions for their use and verify that they are used.</p> <p>Article 81: Preventing and fighting occupational accidents and diseases</p> <p>In order to prevent and fight occupational accidents and diseases, an employer does the following:</p> <p>1 ° to assess risks of occupational accidents and diseases;</p> <p>2 ° to develop occupational safety and health policy and monitor its implementation;</p> <p>3 ° to prevent risks of occupational accidents and diseases;</p> <p>4 ° to reduce in the best possible way risks of occupational accidents and diseases;</p> <p>5 ° to fight occupational accidents and diseases;</p> <p>6 ° to adapt modalities of preserving occupational health and security of employees with new technology.</p> <p>Article 82: Declaration of occupational accidents, disease or death</p>		



Reference and title of text	Applicability/ Information	Main Requirement	Compliance	Recommended action plan
		<p>An employer declares to the management of the social security body in Rwanda and to the Inspectorate of Labour where the enterprise is located, occupational accident, disease or death in accordance with relevant Laws.</p> <p>Article 119: Offences and penalties relating to occupational health and safety</p> <p>If an employer is a natural person or an employee who, through clumsiness, carelessness, inattention, negligence, failure to observe the rules or any other</p>		
Law 86/2013 Of 11/09/2013 establishing the General Statutes for Public Service	Applicable	Law 86/2013 Of 11/09/2013 establishing the General Statutes for Public Service in its articles 64, 65, 66, 67, 69,70 and especially article 68, provides for Health and Safety at Workplace;	: STEG-IS does not directly recruit staff but establishes contracts for making it available	
Decree law of 22nd August on the Organization of social security as modified and complemented by law no. 06/2003 of 22/03/2003	Information	Decree law of 22nd August on the Organization of social security as modified and complemented by law no. 06/2003 of 22/03/2003 especially in its articles 13, 14, and 20;		



Reference and title of text	Applicability/ Information	Main Requirement	Compliance	Recommended action plan
Prime Minister's Order no. 125/03 of 25/10/2010	Information	Prime Minister's Order no. 125/03 of 25/10/2010 determining the Mission, Organization and functioning of the National Labour Council especially in its article 3;		
Ministerial Order no. 07 of 13/07/2010	Information	Ministerial Order no. 07 of 13/07/2010 determining the modalities of the functioning of the Labour Inspector especially in its articles 3 and 7;		
Ministerial Order no. 02 of 17/05/2012	Information	Ministerial Order no. 02 of 17/05/2012 determining conditions for Occupational Safety and Health;		
Ministerial Order no. 01 of 17/05/2012	Information	Ministerial Order no. 01 of 17/05/2012 determining the modalities of establishing and functioning of Occupational Safety and Health Committees especially in its articles 3, 10,11, 12 and 13;		
Rwanda has ratified several regional and International conventions related to Occupational Safety and Health.	Information	Rwanda has ratified several regional and International conventions related to Occupational Safety and Health. These include: <ul style="list-style-type: none"> - ILO Convention n°12 on Workmen's Compensation (Agriculture), 1921; - ILO Convention n°17 on Workmen's Compensation (Accidents), 1925; - ILO Convention n°18 on Workmen's Compensation (Occupational Diseases), 1925; - ILO Convention n°19 on Equality of Treatment (Accident Compensation), 1925; - ILO Convention n°42 on Workmen's Compensation (Occupational Diseases) (Revised 1934); 		



Reference and title of text	Applicability/ Information	Main Requirement	Compliance	Recommended action plan
		<ul style="list-style-type: none">- ILO Convention n°62 on Safety Provisions (Building), 1937;- ILO Convention n° 118 on Equality of Treatment (Social Security), 1962; and- ILO Convention n° 81 on Labour Inspection, 1947.		

Table 3: Compliance to Health and Safety regulation



IV. OCCUPATIONAL HEALTH RISKS ASSESSMENT AND SAFE WORK

METHOD STATEMENT

This section aims to give details and explanation the type and range of risks likely to result from the different project's activities, measuring its likelihood and severity. The specific purpose of this section is to:

- identify and assess the range of potential risks;
- explain the ways in which the project activities might affect the environment human health and safety;

1. OHS Risk Assessment process

The following risk assessment has been made through:

- ✓ Determine routine activities and ad hoc activities in normal operation, abnormal walking situations and emergency / accident situations
- ✓ Identify the hazards and risks generated by the company's operations and existing actions to control these risks; Using the professional risk analysis guide (presented in the appendix) and taking into account the following factors:
 - Human resources (Behavior, skills, training, awareness, number of people in relation to the workload, etc.);
 - Material resources (Infrastructure, production equipment, means of transport, means of transport ...
 - Raw materials and consumables including energy, water, compressed air....
The workplace (Design of workspaces, processes, facilities and machinery / equipment as well as the relational aspect and leadership style, etc.)
 - Operating procedures and organization of work ...
 - Regulations applicable if any
- ✓ Identify hazards and risks from outside the workplace that may have a negative impact on the health and safety of those present in the workplace, as well as existing control actions.
- ✓ Risk assessment shows that all risks are under tolerable level, so that all activities can be implemented and possible improvement can be provided.

Risk are classified according of its assessed level and action could be planned or implemented accordingly.



Under the provisions put in place (PPE, procedures, organization), the identified risks are classified as tolerable. So, we can fulfill the work provided that we monitor the identified risks and continue the process of identification for others risks especially when the work site changes or there are other co-work in surrounding areas.

We hear by risk assessment (R), attributing significance to the risk criteria, which allows to classify.

For this assessment, we take into account for each risk:

- ✓ Severity of injury (S)
- ✓ Likelihood of occurrence of the incident (L)

The level of risk R assessment is the result of the multiplication of Severity coefficient (S) by the Likelihood coefficient (L).

1.1. Likelihood

Likelihood is defined in the following table:

Designation	Rating
Very unlikely : Incident never occurred to STEG-IS but an option	1
Unlikely : Incident possible because already occurred to STEG-IS less than once in 05 years (relying on a documentary or a collective memory statistics if statistics are not available)	2
Likely : Already incident to STEG-IS 01 times between 02-05 years (relying on a statistical document or on a collective memory if the statistics are not available)	3
Quite likely : Already incident to STEG-IS: 01 times between 01 and 02 years (relying on a documentary or a collective memory statistics if statistics are not available)	4
Very likely : Already incident to STEG-IS more than one time per year), based on a documentary or a collective memory statistics if statistics are not available	5

Table 4: Likelihood Rating

N.B.:

- ✓ If the Likelihood is exactly equal to once a year, give the note 5
- ✓ If the Likelihood of occurrence is exactly equal to twice a year, give note 4
- ✓ If the Likelihood of occurrence is exactly equal to five times a year, give note 3



1.2. Severity

Severity is defined in the following table:

Designation	Rating
<ul style="list-style-type: none"> ✓ Incident / almost crash without damage to health: gene, malaise, sliding, falling light objects, loss of balance 	1
<ul style="list-style-type: none"> ✓ Accidents with damage health, but without stop: <ul style="list-style-type: none"> • infection, disease, intoxication, spread of dust, lack of lighting, lack of visibility, heat shock, lack of ventilation of premises, hygiene and cleanliness of the premises • Bad posture, display screen • Minor injury (irritation): slight burning, a Sun or a small abrasion 	2
<ul style="list-style-type: none"> ✓ Accidents with < 7 days of rest: <ul style="list-style-type: none"> • Infection or poisoning requiring hospitalization • Deep wound: important burn, abrasion or cutting the skin off • The handling or use of dangerous products. • Sliding, manual handling of heavy load ✓ Incident generated by falling objects, ✓ Fire control locally (installation, equipment, premises and workshops) (1st intervention with use of extinguishers) ✓ Material damage 	4
<ul style="list-style-type: none"> ✓ Lost time accident > 7 days and with temporary disability ✓ Serious injury: important burn, abrasion or a deep cut of the skin ✓ Fire requiring the use of RIA (2nd response) ✓ Burning suite fall hot topic ✓ Fracture ✓ Traffic devices ✓ Falling heavy objects, ✓ Fall of person in height 	6
<ul style="list-style-type: none"> ✓ Accident with stop work and/or partial permanent incapacity ✓ Fire/explosion that requires evacuation of the workplace ✓ Flood with invasion of the premises ✓ Neurological, skeletal, stress disorder 	8
<ul style="list-style-type: none"> ✓ Accident with stop or total permanent disability ✓ Fatal accident ✓ Occupational disease with cessation of work ✓ Fire / explosion requiring external aid 	10

Table 5: Severity Rating



1.3. Risk classification

Risks are classified according of its assessed level and action could be planned or implemented accordingly.

Level of risk	Action
$1 < R \leq 20$: Tolerable	Monitor the situation and provide if possible improvements
$20 < R \leq 24$: moderate	Determine and plan actions to control the risk within a reasonable time (start or continue work without waiting for the implementation of these actions)
$24 < R < 50$: Intolerable risk	Determine and implement risk management actions required before you begin or continue work

Table 6: Risk classification

2. Risk Assessment Matrix

The following risk assessment has been made through:

- ✓ Determine routine activities and ad hoc activities in normal operation, abnormal walking situations and emergency / accident situations
- ✓ Identify the hazards and risks generated by the company's operations and existing actions to control these risks; Using the professional risk analysis guide (presented in the appendix) and taking into account the following factors:
 - Human resources (Behavior, skills, training, awareness, number of people in relation to the workload, etc.);
 - Material resources (Infrastructure, production equipment, means of transport,
 - Raw materials and consumables including energy, water, compressed air....
 - The workplace (Design of workspaces, processes, facilities and machinery / equipment as well as the relational aspect and leadership style, etc.)
 - Operating procedures and organization of work ...
 - Regulations applicable if any
- ✓ Identify hazards and risks from outside the workplace that may have a negative impact on the health and safety of those present in the workplace, as well as existing control actions.

Risk assessment shows that all risks are under tolerable level, so that all activities can be implemented and possible improvement can be provided. The following table relates the identified risks for each project activities and ranks these risks according to the available control provision and mitigation measures.



N°	Activity	Risk	Damages (consequence of Risk)	Affected person	Prevention measures	Mitigation measures	Risk Assessment		
							Severity	Likelihood	Impact
1	During all activities	Bite / Sting of insects	Infection	All the project team	-Awareness of wearing long-sleeved clothing, - Available vaccination	Provide First Aid Kit and trained aider	4	5	20
2		Exposure to tropical diseases such as malaria, typhoid	Infection	All the project team	-Awareness of tropical diseases and means of prevention - Awareness of wearing long-sleeved clothing, - Available vaccination	- Provide First Aid Kit and trained aider - Immediate Hospitalization	4	5	20
3		Exposure to climatic condition (heat and humidity)	Fatigue, Embarrassment	All the project team	-Awareness of wearing long-sleeved clothing, - Wearing sun hat	- Provide First Aid Kit and trained aider - Immediate Hospitalization	2	3	6
4		Fire	Injury / Burn	All the project team	-Awareness to avoid using fire in work place, - Avoid storing and transportation of flammable products	- Communication mean available - Firefighting device available and continuously checked - List of emergency contact available - Emergency plan	10	1	10



N°	Activity	Risk	Damages (consequence of Risk)	Affected person	Prevention measures	Mitigation measures	Risk Assessment		
							Severity	Likelihood	Impact
5		Traffic accident	Injury / Fatality	Project team / Workers / Third party	<ul style="list-style-type: none"> -Start-check of the vehicle (tire, brake), -Ensure valid inspection certificate, -Hire skilled driver, -Awareness regarding the respect of traffic rules and the wear of safety belt, -Organize trips (time, road, weather conditions ...), -Respect of the authorized load, -Use of marking device in case of huge delivery (such us towers, container) 	<ul style="list-style-type: none"> - Communication mean available - List of emergency contact available -Emergency plan 	10	1	10
6		Lack of hygiene	Infection / disease	Project team / Workers	<ul style="list-style-type: none"> -Awareness regarding hygiene of hand, cloths and foods, - Provide appropriate mobile toilet on warehouse and ensure to keep it clean, -Provision of water and soap for hand washing, provide antibacterial products in the housing site, 	Provide First Aid Kit and trained first aider	2	4	8



N°	Activity	Risk	Damages (consequence of Risk)	Affected person	Prevention measures	Mitigation measures	Risk Assessment		
							Severity	Likelihood	Impact
					-Ensure continuous cleaning of the housing site and the management of waste, - Provide safe drinking water				
7		Constraining posture	Fatigue, Embarrassment	Workers	-Awareness regarding the proper manner of handling		4	2	8
8		Conflict and aggression by owners or other person on team member during work	Injury	Project team / Workers	-Inform in advance the local authority of the work to facilitate entry to private properties, -Awareness to be in group, - Awareness to respect and preserve private properties, - Recruit workers locally	- Inform authority - Provide First Aid Kit and trained first aider	4	2	8
9		Sexually transmissible Infection / Disease	Infection / disease	Project team / Workers / Third party	- Awareness regarding the Sexually Transmissible Infection / Disease - All worker should provide medical certificate to witness the cleanliness of infectious diseases	- Provide First Aid Kit and trained first aider	6	2	12
10		Infectious disease	contagious illness	Project team / Workers	All worker should provide medical certificate to witness the cleanliness of infectious diseases	Provide First Aid Kit and trained first aider	6	2	12



N°	Activity	Risk	Damages (consequence of Risk)	Affected person	Prevention measures	Mitigation measures	Risk Assessment		
							Severity	Likelihood	Impact
1	Warehousing plants and materials	Falling object	Injury	Project team / Workers	-Start check of the delivery (no unexpected collapse), -Use proper handling tool, -Respect of the authorized charge, -Storage organization and storage height limitation, -Not personnel under moving charge, -Install protections to hold stored objects	-Availability and use of PPE (helmet), -Provide First Aid Kit and trained first aider	4	2	8
2		Constraining posture	Fatigue, Embarrassment	Workers	-Awareness regarding the proper manner of handling	Provide break time for relieve	2	2	4
3		Contact with sharp object	Injury	Workers	Use of gloves and safety shoes	Provide First Aid Kit and trained first aider	2	2	4
4		Falling from height	Injury	Workers	Assistance and supervision by a supervisor, Storage organization and storage height limitation,	Provide First Aid Kit and presence of trained first aider	6	2	12
5		Collision between person and tool of handling (crane, truck, forklift)	Injury	Project team / Workers	Assistance and supervision by a supervisor, Certified crane, slings and competent operator, Clear visibility for operator (crane, truck, forklift),	-Availability and use of PPE (helmet), -Provide First Aid Kit and trained first aider	6	2	12



N°	Activity	Risk	Damages (consequence of Risk)	Affected person	Prevention measures	Mitigation measures	Risk Assessment		
							Severity	Likelihood	Impact
1	Plants and materials transportation	Falling object	Injury / Fatality	Third person	Secure the delivery by proper device and continuous check during the trip	<ul style="list-style-type: none"> - Communication mean available - List of emergency contact available -Emergency plan 	8	1	8
2		Truck reversal	Injury / Fatality	Third person / Driver	Respect of the authorized load and the traffic rules		8	1	8
3		Collision truck with third party road user	Injury / Fatality	Third party / Driver	<ul style="list-style-type: none"> -Start-check of the vehicle / truck (tire, brake), -Valid inspection certificate, skilled driver, -Awareness regarding the respect of traffic rules and the wear of safety belt, -Organize trips (time, road, weather conditions ...), -Respect of the authorized load, -Use of marking device in case of huge delivery (such us metallic structure, container) 		10	1	10
4		Collision between person and tool of handling	Injury	Workers	Assistance and supervision by a supervisor, Certified crane, slings and competent operator, Clear visibility for operator (crane, truck, forklift),		<ul style="list-style-type: none"> -Availability and use of PPE (helmet), -Provide First Aid Kit and trained first aider 	6	2



N°	Activity	Risk	Damages (consequence of Risk)	Affected person	Prevention measures	Mitigation measures	Risk Assessment		
							Severity	Likelihood	Impact
		(crane, truck, forklift)							
1	Excavation	Shock of the worker's foot	Injury	Workers	-Availability of proper tools -Awareness regarding safe manner	-Availability and use of appropriate PPE (gloves, safety shoes), -Provide First Aid Kit and trained first aider	2	3	6
2		Noise (in case of Drilling hammer use)	Ear fatigue, Injury	Workers	-Availability of proper tools -Awareness regarding safe manner	-Availability and use of appropriate PPE (Ear plug, gloves, safety shoes,), -Provide First Aid Kit and trained first aider	2	2	4
3		Fall of persons in the hole or trench	Injury	Third party / Workers	-Signaling and markup, -limiting the time between excavation and pole erection	Provide First Aid Kit and trained first aider	4	2	8
4		Third-party traffic accident (in case the work is near to the roadside)	Injury / Fatality	Workers	-Signaling and markup (cone and ribbon, man with flag, "man at work" sign	- Communication mean available - List of emergency contact available -Emergency plan	10	1	10



N°	Activity	Risk	Damages (consequence of Risk)	Affected person	Prevention measures	Mitigation measures	Risk Assessment		
							Severity	Likelihood	Impact
5		Collision between person and tool of handling (crane, truck, forklift)	Injury	Workers	Assistance and supervision by a supervisor, Certified crane, slings and competent operator, Clear visibility for operator (crane, truck, forklift),	-Availability and use of PPE (helmet), -Provide First Aid Kit and trained first aider	6	2	12
1	Transformer installation	Shock of the worker's foot	Injury	Workers	-Availability of proper tools -Awareness regarding safe manner	-Availability and use of appropriate PPE (gloves, safety shoes), -Provide First Aid Kit and trained first aider	2	3	6
2		Constraining posture	Fatigue, Embarrassment	Workers	-Awareness regarding the proper manner of handling, -Proper number of workers	Provide break time for relieve	2	2	4
3		Fall of structures	Injury / Fatality	Workers	-Awareness regarding the proper manner of handling, -Proper number of workers, -Availability and use of adequate device of pole up keeping -Start check and periodic check of lifting and stringing tools	-Availability and use of appropriate PPE (gloves, safety shoes), -Provide First Aid Kit and trained first aider	6	2	12



N°	Activity	Risk	Damages (consequence of Risk)	Affected person	Prevention measures	Mitigation measures	Risk Assessment		
							Severity	Likelihood	Impact
4		Shock of third party person	Injury	Third party person	Prohibit entry of third party person to the field of activity	Provide First Aid Kit and trained first aider	6	2	12
5		Collision between person and tool of handling (crane, truck, forklift)	Injury	Workers	Assistance and supervision by a supervisor, Certified crane, slings and competent operator, Clear visibility for operator (crane, truck, forklift),	-Availability and use of PPE (helmet), -Provide First Aid Kit and trained first aider	6	2	12
6		Third-party traffic accident (in case the work is near to the roadside)	Injury / Fatality	Project team / Workers	Signaling and markup (cone and ribbon, man with flag, "man at work" sign)	- Communication mean available - List of emergency contact available -Emergency plan	10	1	10
1	Pole Erection & dressing	Falling object (tools, structure, equipment)	Injury	Project team / Workers	-Prohibit activities under and in the vicinity the pole, -Provide to the lineman proper device for keeping and handling its working tools, -Supervision of the activity by a skilled supervisor -Start check and periodic check of lifting and stringing tools	-Availability and use of PPE (helmet), -Provide First Aid Kit and trained first aider	4	2	8



N°	Activity	Risk	Damages (consequence of Risk)	Affected person	Prevention measures	Mitigation measures	Risk Assessment		
							Severity	Likelihood	Impact
2		Constraining posture	Fatigue, Embarrassment	Workers	Awareness regarding the proper manner of handling	Provide break time for relieve	2	2	4
3		Contact with sharp object	Injury	Project team / Workers	Use of gloves and safety shoes	Provide First Aid Kit and trained first aider	2	2	4
4		Falling from height	Injury	Workers	-Assistance and supervision by a supervisor, -Storage organization -Storage height limitation,	Provide First Aid Kit and presence of trained first aider	6	2	12
5		Lightning	Injury / Fatality	Lineman	Prohibit work under bad weather conditions	- Communication mean available - List of emergency contact available -Emergency plan	10	1	10
6		Shock of third party person	Injury	Third party person	Prohibit entry of third party person to the field of activity	Provide First Aid Kit and trained first aider	6	1	6
7		Collision between person and tool of handling	Injury	Workers	Assistance and supervision by a supervisor, Certified crane, slings and competent operator, Clear	-Availability and use of PPE (helmet),	6	2	12



N°	Activity	Risk	Damages (consequence of Risk)	Affected person	Prevention measures	Mitigation measures	Risk Assessment		
							Severity	Likelihood	Impact
		(crane, truck, forklift)			visibility for operator (crane, truck, forklift),	-Provide First Aid Kit and trained first aider			
8		Third-party traffic accident (in case the work is near to the roadside)	Injury / Fatality	Workers	Signaling and markup (cone and ribbon, man with flag, "man at work" sign	Emergency plan	10	1	10
1	Conductors and cables pulling, stringing and sagging, Service connection	Falling object (tools, equipment)	Injury	Workers	-Prohibit activities under and in the vicinity the line under construction, -Start check and regular check of the pulling tools, -Provide to the lineman proper device for keeping and handling its working tools, -Supervision of the activity by a skilled supervisor	-Availability and use of PPE (helmet), -Provide First Aid Kit and trained first aider	4	2	8
2		Constraining posture	Fatigue, Embarrassment	Workers	Awareness regarding the proper manner of handling	Provide break time for relieve	2	2	4
3		Contact with sharp object	Injury	Workers	Use of gloves and safety shoes	Provide First Aid Kit and presence of trained first aider	2	2	4



N°	Activity	Risk	Damages (consequence of Risk)	Affected person	Prevention measures	Mitigation measures	Risk Assessment		
							Severity	Likelihood	Impact
4		Falling from height	Injury	Lineman	-Skilled person, -Availability of proper climbing tools, -Availability of proper lifeline tools (harness, anti-fall device), -Start and regular check of these tools, -Presence of skilled supervisor	Provide First Aid Kit and presence of trained first aider	8	2	16
5		Lightning on conductor	Injury / Fatality	Lineman	-Prohibit work under bad weather conditions -Earthing the conductor	- Communication mean available - List of emergency contact available -Emergency plan	10	1	10
6		Electrical shock due to contact with existing energized power line	Injury / Fatality	Lineman	-Work field examination, -Necessary precaution (safety instruction application), -Ask utility services assistance -Power switch off and (safety instruction application) -Earthing the conductor	- Communication mean available - List of emergency contact available -Emergency plan	10	1	10



N°	Activity	Risk	Damages (consequence of Risk)	Affected person	Prevention measures	Mitigation measures	Risk Assessment		
							Severity	Likelihood	Impact
7		Shock of third party person	Injury	Third party person	-Prohibit entry of third party person to the field of activity, -Presence of skilled supervisor	Provide First Aid Kit and trained first aider	6	1	6
8		Collision between person and tool of handling (crane, truck, forklift)	Injury	Workers	Assistance and supervision by a supervisor, Certified crane, slings and competent operator, Clear visibility for operator (crane, truck, forklift),	-Availability and use of PPE (helmet), -Provide First Aid Kit and trained first aider	6	2	12
9		Third-party traffic accident (in case the work is near to the roadside)	Injury / Fatality	Workers	Signaling and markup (cone and ribbon, man with flag, "man at work" sign	- Communication mean available - List of emergency contact available -Emergency plan	10	1	10
1	Commissioning (lines and transformers)	Falling object (tools, equipment)	Injury	Workers	-Prohibit activities under and in the vicinity the line under construction, -Provide to the lineman proper device for keeping and handling its working tools, -Supervision of the activity by a skilled supervisor	-Availability and use of PPE (helmet), -Provide First Aid Kit and trained first aider	4	2	8



N°	Activity	Risk	Damages (consequence of Risk)	Affected person	Prevention measures	Mitigation measures	Risk Assessment		
							Severity	Likelihood	Impact
					-Start check and periodic check of lifting and stringing tools				
2		Contact with sharp object	Injury	Workers	-Use of gloves and safety shoes	Provide First Aid Kit and presence of trained first aider	2	2	4
3		Falling from height	Injury	Lineman	-Skilled person, -Availability of proper climbing tools, -Availability of proper lifeline tools (harness, anti-fall device), -Start and regular check of these tools, -Presence of skilled supervisor	Provide First Aid Kit and presence of trained first aider	8	2	16
4		Lightning	Injury / Fatality	Lineman	-Avoid work under bad weather conditions, -Earthing the conductor,	- Communication mean available - List of emergency contact available -Emergency plan	10	1	10



N°	Activity	Risk	Damages (consequence of Risk)	Affected person	Prevention measures	Mitigation measures	Risk Assessment		
							Severity	Likelihood	Impact
5		Electrical shock	Injury / Fatality	Lineman	-Work field examination, -Necessary precaution (safety instruction application), -Ask utility services assistance -Power switch off and (safety instruction application) -Earthing the conductor	- Communication mean available - List of emergency contact available -Emergency plan	10	1	10
6		Shock of third party person	Injury	Third party person	-Prohibit entry of third party person to the field of activity, -Presence of skilled supervisor	Provide First Aid Kit and trained first aider	6	1	6
7		Third-party traffic accident (in case the work is near to the roadside)	Injury / Fatality	Workers	Signaling and markup (cone and ribbon, man with flag, "man at work" sign	- Communication mean available - List of emergency contact available -Emergency plan	10	1	10

Table 7: Risk Assessment Matrix & Safe Work Method Statements

3. Safety Work Method Statement and Hazard Control

3.1. Site rules

- All personnel shall undergo safety induction training.
- Appropriate Personal Protection Equipment shall always be worn .
- Every accident and near miss event must be reported to the Site Manager immediately.
- Any person found to be interfering with or misusing fixtures, fittings or equipment provided in the interest of health, safety and welfare shall be excluded from site.
- Smoking will only be permitted in designated areas.
- Visitors must report to Security and will be allowed entry at Site Manager's entrance. Whilst on site visitors must wear the appropriate PPE.
- Vehicle drivers must wear the appropriate PPE (when outside vehicle). Vehicles are not to be reversed at the front of the building unless under the control of an authorized banksman.
- Vehicle drivers must remain with their vehicle during loading / unloading
- Safety signs and notices must be followed.
- The public must be protected from hazards associated with this work
- No alcohol or illegal drugs are to be brought onto the site
- No person who is under the influence of alcohol or drugs is allowed on site
- Offensive or inappropriate language and provocative gestures are not allowed
- No gambling, threatening or violent behavior
- No personnel shall indulge in fighting, horseplay or practical jokes within the site or its perimeter.
- Mobile toilets and washrooms must be kept in a clean and hygienic state after use.
- Rubbish must not be allowed to accumulate; work areas are to be kept tidy.
- Combustible materials are to be removed on a regular basis and disposed of in an appropriate manner.
- Permission must be obtained from the Site Manager prior to any work on site.
- All site personnel, for their own safety and for the safety of others, are required to fully comply with their employer's statement of safe working method.
- No person shall operate equipment unless trained and authorized.
- No one may enter an excavation greater than four feet deep unless authorized by the
- Competent Person. Excavations must be sloped or shored properly. Safe means of access and egress from excavations must be maintained.
- Ladders and scaffolds shall be solidly constructed, in good working condition, and inspected prior to use. No one may use defective ladders or scaffolds.
- Fall protection or fall arrest systems must be in place when working at elevations greater than six feet for temporary working surfaces and four feet for fixed platforms.
- The Supervisor must select safety belts, harnesses and lanyards. The user must inspect the equipment prior to use. No defective personal fall-protection equipment shall be used.



- Hand and portable power tools must be inspected prior to use. Defective tools and equipment shall not be used.
- Ground fault interrupters shall be used for cord and plug equipment used outdoors or in damp locations. Electrical cords shall be kept out walkways and puddles unless protected and rated for the service.
- Improper use, mishandling, or tampering with health and safety equipment and samples is prohibited.
- All incidents, no matter how minor, must be reported immediately to the Supervisor.
- All personnel shall be familiar with the Site Emergency Response Plan.
- Site fire and emergency alarms, equipment and instructions are designed to protect life. They must be followed.

3.2. *Site amenities*

- Drinking water will be provided on site for all workers.
- All workers are to have good hygiene standards and clean up after themselves.
- Daily collect all wastes from the site work and dispose in the temporary waste bins at the warehouse and site to be managed by the approved collector.

3.3. *Site security*

We will, so far as reasonably practicable, secure the site by:

- keeping the building secure during the project
- locking gates to the site outside normal hours of operation

3.4. *Site signage*

At a minimum, we will display the following signs on the entrance to the site:

- the STEG International Services' name, contact details and after-hours telephone number
- the location of the site office.

All signage will be clearly visible from outside <the workplace> <the work area where the construction project is being undertaken>.

3.5. *Fire*

A gasoline powered generator and/or air compressor will be used at the site to power the various power tools and for heavy machines. There is a risk of fire during refueling of this generator, particularly if fuel is spilled in the process. To prevent ignition of this fuel, the generator will be staged and operated outside, away from all ignition sources. Smoking will be prohibited within 30 meters of the generator and fuel storage area. The gasoline will be stored in a safe can and will be bonded to the generator during transfer of fuel. Fuel will not be dispensed from the bed of plastic lined pickup trucks. The generator will be grounded to a conducting rod driven into the



ground if such grounding is recommended by the manufacturer. A portable dry chemical fire extinguisher and sorbent pads will be staged at the jobsite in the event of fuel spillage or fire.

3.6. Personal protective equipment

We will provide the personal protective equipment (PPE) to workers at the workplace.

We have a stock of spare pieces from each items for visitors.

At a minimum, each worker and visitors has to wear:

- Hard hat
- Safety shoes (leather work boots with steel toe) or overboot
- Safety Gloves (leather work gloves or insulated gloves), if needs
- Work cloths and High visibility jacket

In addition to these basic PPE, the line man should have harness, anti-fall lanyard and climbing devices.

The person providing the PPE must ensure that the PPE is:

- suitable for the nature of the work and any hazard associated with the work
- a suitable size and fit and reasonably comfortable for the worker who is to use or wear it
- maintained, repaired or replaced so that it continues to minimize risk to the worker who uses it, including by:
 - ensuring it is clean and hygienic
 - ensuring it is in good working order
 - ensuring it is used or worn by the worker, so far as is reasonably practicable.

The person supplying the PPE must also:

- provide workers with information, training and instruction in the proper use, wearing, storage and maintenance of PPE
- ensure that any other person at the workplace (such as home owners, clients or inspectors) is appropriately provided with PPE to wear as required.
- Workers must:
 - follow all instructions to wear and use PPE
 - take reasonable care of PPE

4. Managing construction hazards

4.1. Falls from heights

We will manage the risks associated with falls from heights by:

- ensuring that where practicable, any work involving the risk of a fall is undertaken on the ground or on a solid construction (such as an elevated work platform)



- where this is not practicable, providing a fall prevention device such as secure fencing, edge protection, working platforms and/or covers
- where this is not practicable, providing a work positioning system such as plant or a structure that enables a person to be positioned and safely supported
- where this is not practicable, providing a fall arrest system such as a safety harness system. Workers will be trained in emergency procedures for fall arrest systems
- When undertaking work involving the risk of a fall from height, workers must:
 - follow all instructions
 - work with a buddy when using a ladder
 - only use approved work platforms

4.2. Falling objects

- Where practical, we will provide adequate protection against the risk of falling objects through the use of control measures such as barrier screen, toe-boards and by storing and stacking materials safely.
- Where this is not possible, a risk assessment must be undertaken and appropriate control measures implemented to manage the risk of injuries from falling objects.

4.3. Work near overhead or underground essential services

We will ensure, where reasonably practical, that that no-one comes within an unsafe distance of an overhead or underground power line.

If maintaining a safe distance is not reasonably practical, we will:

- assess the risk associated with the proposed work
- implement control measures consistent with the risk assessment
- contact and consult with the local essential service provided.

4.4. Work near overhead power lines

- work is not permitted within unsecured distance of overhead power lines
- the principal contractor (or contractor in charge of the work) must have written authority from the electrical supply authority to work within the “no go” (exclusion) zone
- when using plant or equipment within 3 to 6.4 meters of overhead power lines ensure you have a safety observer.

4.5. Excavation work near underground essential services

- take all reasonable steps to obtain current underground essential services information before directing or allowing the excavation work to start
- provide this information to any person engaged to carry out the excavation work
- consider this information when carrying out, directing, or allowing the carrying out of the excavation work



- Ensure this information is available for inspection.

4.6. Electrical

- Power supplied to the site must only come from:
 - an electricity distributors main
 - an existing switchboard permanently installed at the premises
 - a compliant low voltage generator
 - a compliant inverter.
- Switchboards and distribution boards used on site must:
 - be of robust construction and materials capable of withstanding damage from the weather and other environmental and site influences (IP23 minimum rating)
 - be securely attached to a post, pole, wall or other structure unless it is of a stable freestanding design able to withstand external forces likely to be present
 - incorporate suitable support and protection for flexible cords and cables and prevent mechanical strain to the cable connections inside the board
 - always protect all live parts
 - be individually distinguished by numbers, letters or a combination of both (where multiple boards are present).
- Flexible cords used on construction sites must be rated heavy duty.
- To avoid confusion with individual earthing conductors, green-sheathed flexible power cords must not be used on site.
- Flexible cords must be either protected by a suitable enclosure or barrier (flexible or rigid conduit) or located where they are not subjected to mechanical damage, damage by liquids or high temperature (elevated on stands or hung from nonconductive support brackets).
- We will maintain an in-service inspection and test regime for all portable electrical leads, tools and earth leakage devices.
- We will ensure that after the equipment has been inspected and tested, it will be fitted with a durable, non-reusable, non-metallic tag. The tag will include the name of the person or company who performed the test and the test and re-test date.
- Records of all inspections, tests, repairs and faults related to all electrical equipment will be recorded in a testing and tagging register.
- RCDs and portable equipment must be inspected, tested and tagged every 3 months.
- Workers must conduct an RCD push button test after connection to a socket and before connection to equipment at least once a day.
- Workers must report any damaged electrical equipment to the principal contractor. It will be removed from service and either repaired or replaced and subsequently inspected and tested as required



4.7. Plant

To ensure all plant used complies with the requirements of the WHS Regulations:

- only use plant for the purpose for which it was designed
- use all health and safety features and warning devices on plant
- follow all information, training and instruction provided
- guarding must be permanently fixed and is not permitted to be removed
- no person other than the operator may ride on the plant unless the person is provided with a level of protection that is equivalent to that provided to the operator
- We will ensure that:
 - all plant is regularly maintained, inspected and tested by a relevant competent person
 - the plant has a warning device that will warn persons who may be at risk from the movement of the plant
 - all plant that lifts or suspends loads is specifically designed to lift or suspend that load.

4.8. Scaffolds

We will ensure:

- that the scaffold is erected by a competent person
- that before we use the scaffold, the competent person has advised (in writing) that it is safe
- that scaffolding is inspected by a competent person:
 - before use of the scaffold is resumed after an incident occurs that may reasonably be expected to affect the stability of the scaffold
 - before use of the scaffold is resumed after repairs
 - at least every 30 days.
- that, if an inspection indicates that any scaffold or its supporting structure creates a risk to health or safety:
 - any necessary repairs, alterations and additions will be made or carried out
 - the scaffold and its supporting structure will be inspected again by a competent person before use of the scaffold is resumed.
- Workers must:
 - not use incomplete scaffolding
 - report any scaffolding issues to the principal contractor
 - comply with the directions of any tags attached to the scaffold
- We will prevent unauthorized access to the scaffold by:
 - removing ladders where there is no site fencing

4.9. Ladder safety

We will manage hazards associated with ladders by:



- using ladders according to the manufacturer's instructions
- only allowing one person at a time on a ladder
- performing all work from a ladder while facing the ladder
- not setting up ladders on scaffolds or elevated work platforms to gain extra height

4.10. Manual handling

We will manage hazards associated with manual handling by:

- ensuring all users follow good manual handling practices
- assessing risk assessments
- providing mechanical lifting aids where applicable

4.11. Slips, trips and falls

We will manage hazards associated with slips, trips and falls by:

- using a slips, trips and falls checklist as required
- checking for hazards that could cause someone to slip, trip or fall by doing a visual check
- ensuring workers keep the site tidy as part of the written site rules

4.12. Hand operated and power tool use

We will manage hazards of hand operated and power tool use by:

- regularly checking all tools to ensure they are in a safe working order
- recording all electrical tools in a tag and testing register
- testing and tagging electrical tools every 3 months
- Communicating any issues identified with power tools to workers through a toolbox meeting.

Before using power tools, workers must ensure:

- electrical connections are secure
- electricity supply is through an RCD
- safety guards are in position
- the machine is switched off before activating the electricity supply
- appropriate PPE is used as required by manufacturer's guidelines or as guided by the principal contractor

Workers must report any issues with power tools to the principal contractor. Unsafe tools will be tagged and removed from service



4.13. Noise

To control this exposure hazard, all personnel working near excessively noisy equipment will be required to wear hearing protection. If necessary, sound level measurements will be collected in the work area, as needed, to evaluate this hazard.

4.14. Sun safety

All persons on site should:

- Wear adequate clothing (eg hats) and other protection methods (eg sunscreen) to protect themselves from the effects of working while exposed to UV rays.
- manage working in the sun to avoid dehydration and heat stress related illnesses

4.15. Animals

During site operations, animals such as dogs, cats, mice, and snakes, ... may be encountered. Workers shall use discretion and avoid all contact with animals. If these animals present a problem; efforts will be made to remove these animals from the site by contacting the health and safety manager.

4.16. Insects

Insects including bees, wasps, hornets, and spiders may be present at this site making the chance of a bite possible. Some individuals may have a severe allergic reaction to an insect bite or sting that may result in a life threatening condition. Any individuals who have been bitten or stung by an insect should notify the ES Manager. The following is a list of preventive measures:

- Wear proper protective clothing (work boots, socks, and light colored pants).
- When walking in wooded areas, avoid contact with bushes, tall grass, or brush as much as possible.
- Personnel who may have insect allergies should provide this information to the ES Manager prior to commencing work and shall have bee sting allergy medication on site.
- The ES Manager will instruct the field crew in the recognition and procedures for encountering poisonous insects at the site.

5. HEALTH AND SAFETY MANAGEMENT AND MONITORING PROGRAM

5.1. Performance Measurement and Monitoring

The Occupational Health and Safety Monitoring Provisions are:

- Monitoring of objectives and indicators, site visit (observation and investigation);
- Regulation survey and compliance;
- Control of non-conformities and initiation of improvement actions;
- Analysis of incidents / accidents;
- Internal audit;
- External expertise.

5.2. Monitoring Program

This section aims to define an action plan to reach the Occupational Health and Safety objectives.



These objectives are to avoid as much as possible the occurrence of risk, mitigate the consequence in case of happening as well as to ensure the preparedness to respond to emergency situation.

The management and monitoring program contains indicators to follow up the achievement of the objectives.

The action plan is structured on regulation compliance, prevention of incident and mitigation of the consequence of risks and respond to the various type of risk such as falling risk, risk of injury and risks rising from emergency situation.

Each action is planned over the project duration and has a responsible of implementation and are quoted within the project budget.



Policy Focus	Risk	Objective	Indicator	Target	Action Plan	Resp.	Date	Budget
Compliance to legal requirements	-	Comply with all legal requirement applicable	Rate of conformity	100%	Identify and Review of applicable rules and ensure conformity	Project Manager	End of December 2019	Included in the project budget
	Lack of hygiene	Avoid possible Infection and disease coming from lack of hygiene	Number of affected person	0	<ul style="list-style-type: none"> -Awareness regarding hygiene of hand, cloths and foods, - Provide appropriate mobile toilet on warehouse, on site and ensure to keep it clean, -Provision of water and soap for hand washing, provide antibacterial products for cleaning, -Ensure continuous cleaning of the housing site and the management of waste, - Provide safe drinking water 	Construction Engineer	During all the construction phase	“
Prevent injury and ill health	Falling object	Avoid falling object accident	Number of falling object accident / incident	0	Ensure start and bi-monthly check of the pulling and lifting devices	Safety Manager	Ensure start and bi-monthly during all the construction phase	“



Policy Focus	Risk	Objective	Indicator	Target	Action Plan	Resp.	Date	Budget
	Falling from Height	Avoid falling from height accident	Number of falling object accident / incident	0	Ensure start and bi-monthly check of lifeline devices (harness)	Safety Manager	Ensure start and bi-monthly during all the construction phase	“
	Fire risk in the warehouse and site	Avoid fire damage			need Control Action	Safety Manager	Monthly	“
	All Risk	Improve risk awareness	-Rate of first induction attendance -Rate of awareness attendance	100% 80%	-First induction for all workers -Awareness campaign	Safety Manager	Before start work Quarterly	“
Mitigate the impact of risk occurring	All risks	Mitigation of incidents impacts	Availability of EPP	100%	Provide enough EPP with spare quantity	Safety Manager	During all the construction phase	“
	Risk of fire	Mitigation of the fire impact	Availability of operational fire extinguisher and other provision	100%	Provide enough fire extinguisher and regularly check and other provision	Safety Manager	During all the construction phase	“
	Risk related to	Ensure Emergency	-Number of mock test	100% 60%	-First induction for all workers -Awareness campaign	Safety Manager	At any time for new	“



Plant Design, Supply, and Installation of Low Voltage and Medium Voltage Lines and Service Connections in the Huye, Nyamagabe, Nyanza, Kamonyi and Ruhango Districts, Southern Province of Rwanda
CONTRACT AGREEMENT N° 11.07.023/1256/19/EDCL-MD/FG/cm



Policy Focus	Risk	Objective	Indicator	Target	Action Plan	Resp.	Date	Budget
	emergency situation	response preparedness	-Rate of attendance to mock test -Rate of awareness attendance	80%			comers or visitors Quarterly	

Table 8: Management and Monitoring Program



V. OPERATIONAL CONTROL PROCEDURES

1. *Provisions of control*

The operational procedures giving provisions to control risks are the following:

- ✓ IN.01.01: Instruction Mesures de lutte contre les incendies (Fire protection measure);
- ✓ IN.02.01: Instruction Mesures de protection contre les risques électriques (works in an electrical environment);
- ✓ IN.03.01: Instruction Mesures de secourisme (First aid);
- ✓ IN.04.01: Instruction Mesures de protection des monteurs de ligne (Protection measures for linemen);
- ✓ IN.05.01: Instruction Mesures de protection pour la manutention (Handling procedure)

The control of subcontractor is through subcontractor management procedures stating the obligation of preparation of a prevention plan for subcontractors.

2. *Monitoring and improvement*

The provisions relating to the monitoring of health and safety at work are as follows:

- monitoring objectives and indicators, site visit (observation and investigation);
- regulatory study and compliance
- control of nonconformities and the launch of improvement actions;
- analysis of incidents / accidents;
- Internal Audit.
- The management and monitoring program contains indicators to track the achievement of objectives.

The action plan is structured on compliance with regulations, prevention of incidents, accidents and mitigation of impacts and responds to different types of impacts and emergencies.

Each action is planned over the duration of the project and has an implementation manager and is indicated in the project budget

VI. EMERGENCY SITUATION AND RESPONSE PREPAREDNESS

In this section, we will deal with the potential emergency situations and the actions to prevent or mitigate the consequences these emergency situations.

The response plan is checked before the work starting and quarterly to ensure the efficiency of the plan and make the possible improvements.

1. Emergency contact

Position	Name	Contact Details
Client : EDCL		
Project Coordinator	Reuben AHIMBISIBWE	0788 584 214
Project Manager	Pierre KALINDA	0788 308 621
Construction Engineer	Alain Colombe ICYUZUZUO	0788 762 272
Environmental Specialist	Pascal TUYISHIME	0783 776 603
Social Safeguard specialist	Willy UWIZEYE	0788 350 349
Contractor: STEG International Services		
Resident Manager	Mr. Hatem KHEMISSI	0784 649 159
Construction Engineer	Mr. Mohamed Ouerthi Mr. Oussama Belarbi	0784 648 873 0784 358 901
EHS & ES Manager	Mr. Jean Bernard NIYONSENGA	0788 504 052
Other public Utilities: National Police / Fire fighting service		
	Police	112
	Ambulance/ SAMU	912
	Ambulance hop. Nyanza	0783 597 234
	Emergency: Nyanza Hospital Kabutare Hospital CHUB Kigeme Hospital	0728 243 625 0788585427/0252530545 0786918201
	Emergency Fire & Rescue Brigade : Nyanza poste	0788 311 449
	SAHAM Assurance Rwanda	+250 252 57 55 96 / +250 252 50 12 10

Table 9: Emergency situation Contacts



2. First Aid Kit stuffs

The first aid kit contains:

- A leaflet giving general guidance on first aid,
- Contents list,
- Individually wrapped small, medium and large sterile gauze dressings,
- Individually wrapped, sterile, triangular bandages,
- Safety pins,
- Sterile eye pads,
- Plasters,
- Sterile Wipes,
- Adhesive tape,
- Disposable nitrile gloves (pairs),
- Crêpe rolled bandages,
- Finger dressings,
- Alcohol-free cleansing wipes,
- Burn dressings,
- Distilled water, for cleaning wounds,
- Tweezers,
- Scissors.

3. Emergency situation and response

The following table relates the identified possible emergency situations, the prevention provisions, the actions to be undertaken for each situation. We make mock test for each emergency situation in order to guarantee the preparedness of the team and the availability and the efficiency of the provided resources.



N°	Situation	Responsible	Prevention provision	Response	Capacity (minute)	Record	Communication
1	Falling from height	Site supervisor	<ul style="list-style-type: none"> -Skilled person, -Availability of proper climbing tools, -Availability of proper lifeline tools (harness, anti-fall device), -Start and regular check of these tools, -Presence of first aider - Emergency contact list 	<p>1-Avoid over-accident by ensuring that there is no immediate danger to the victim (and you yourself).</p> <p>2-Reassure the victim.</p> <p>3-Evalute the victim state: -Make sure the person is conscious and respond: take the victim's hand and ask for his or her name.</p> <p>-Check if the person is responding to simple solicitations: ask him or her to shake hands.</p> <p>- Check for breathing: slow, fast, no breathing ...</p> <p>-Check the pulse of the victim: in case of absence of breathing or pulse, a cardiac massage is vital</p> <p>-Palpate the person: touch the victim's clothes to check the absence of blood</p> <p>5- Call for recue</p> <p>6- Delivery of the first aid act</p> <p>IN.SE.03 : Instruction de mesure de securisme</p>	05	Incident report	<ul style="list-style-type: none"> - Rescue authority - Safety manager -Site Manager - EDCL
2	Fire	Site supervisor	<ul style="list-style-type: none"> -Awareness to avoid using fire in work place, 	<ul style="list-style-type: none"> -In case of localized fire, personnel who have been trained in the use of fire extinguishers intervene to extinguish the fire. 	10	Incident report	<ul style="list-style-type: none"> - Firefighting services - Rescue authority



			<ul style="list-style-type: none"> - Avoid storing and transportation of flammable products - Emergency contact list 	<p>The other persons present must deviate from the dangerous zone and wait for instructions before returning to their workplace</p> <p>-In the event of a major fire, all personnel must depart from the fire and call firefighting services</p> <p>IN.SE.04 : Mesure de lutte contre le feu</p>			<ul style="list-style-type: none"> - Safety manager - Site Manager - EDCL
3	Road traffic accident	Site supervisor	<ul style="list-style-type: none"> - Start-check of the vehicle / truck (tire, brake), - Valid inspection certificate, skilled driver, - Awareness regarding the respect of traffic rules and the wear of safety belt, - Organize trips (time, road, weather conditions ...), - Respect of the authorized load, - Use of marking device in case of huge delivery (such as metallic structure, container) - Emergency contact list 	<p>1-Avoid over-accident by ensuring that there is no immediate danger to the victim (and you yourself).</p> <ul style="list-style-type: none"> - Park your vehicle properly; - Turn on your emergency lights; - Put on your safety vest; - Get the passengers down and help them get as far away as possible from the road - Indicate accident using triangle or any other possible mean <p>2-Reassure the victim.</p> <p>3-Evalute the victim state:</p> <ul style="list-style-type: none"> - Make sure the person is conscious and respond: take the victim's hand and ask for his or her name. - Check if the person is responding to simple solicitations: ask him or her to shake hands. - Check for breathing: slow, fast, no breathing ... 	05	Incident report	<ul style="list-style-type: none"> - Rescue authority - Safety manager - Site Manager - EDCL



				<ul style="list-style-type: none"> -Check the pulse of the victim: in case of absence of breathing or pulse, a cardiac massage is vital -Palpate the person: touch the victim's clothes to check the absence of blood 5- Call for rescue 6- Delivery of the first aid act IN.SE.03 : Instruction de mesure de securisme 			
4	Conflict with property owner	Site supervisor	<ul style="list-style-type: none"> -Awareness regarding respect of private properties - Emergency contact list -Inform in advance local authority to inform population and ease the entry to private properties - Recruiting workers locally to intervene to solve conflict -Be in group 	<ul style="list-style-type: none"> -Alert local authority and ask for assistance -Explain to the owner the importance of the work and benefits - Delivery of first aid if necessary 	10	Incident report	<ul style="list-style-type: none"> - Firefighting services - Rescue authority - Safety manager -Site Manager - EDCL

Table 10: Health and Safety Emergency situation and preparedness response



4. Emergency situation preparedness Control

The following table provides the schedule for the mock test to verify the preparedness and the effectiveness of the planned provisions in case of emergency situation arising:

Scenario	Frequency	Date
1	1 time/ year	September 2019
2	1 time/ year	December 2019

Table 11: Mock test schedule



VII. INDUCTION, TRAINING AND CAPACITY BUILDING

1. Worker induction

The Safety Manager conducts day to day induction sessions which covers the following items:

- The expectations outlined in this Management Plan, including all policies and procedures
- The emergency meeting point
- The site rules and facilities or Site's environmental conditions
- Any site specific hazards: handling, falling, electrical, traffic road ...
- Use and preservation of PPE
- Safe work methods
- Prevention of STD
- Information on new operations or changes in work practices
- the emergency situation
- any site specific waste
- the hazard substance
- the waste management
- the environment respect and preservation
- any incident reporting
- the respect of the third party property
- the respect of society values
- the OHS hazard
- the prevention of fire on site

We will work with other subcontractors to ensure that a site-specific induction is provided for all workers before starting work, daily and at any time it seems necessary (after incident / accident, complaints, new activity, new work place ...).

2. Worker training

The main object of the training is to:

- ensure workers are trained and competent for the work to be carried out
- ensure workers are trained to deal with any risks associated with the work and understand the control measures in place
- ensure workers are trained on first-aids
- ensure workers are trained on firefighting equipment
- ensure on-site training and supervision is provided

The HSE safeguard officer assessed the workers needs in terms of training. He can conduct the training by himself. He can provide external trainer for specific subject.

Training sessions cover the following items:

N°	Training description	Population	Responsible	Plan
1	First aid	03 team leaders, 10 linemen's	EHS& ES Manager	- september 2019 session
2	Hazard identification and assessment	03 team leaders,	EHS& ES Manager	- september 2019 session
3	Safe work methods	03 team leaders,	EHS& ES Manager	- september 2019 session
4	Safety for work at height	03 team leaders, 10 linemen's	EHS& ES Manager	-septemeber 2019 session
5	Safety for work on energized network	03team leaders	EHS& ES Manager	-february 2020 session
6	Waste management	03 team leaders, 10 linemen's	EHS& ES Manager	- septemeber 2019 session

Table 12: Training plan



VIII. COMMUNICATION PLAN

OBJECT (WHAT?)	TRANSMITTER (WHO?)	RECIPIENT (WHO?)	MOYEN DE (HOW?)	FREQUENCY (WHEN?)	TRAITEMENT (WHY?)
Work announcement	EDCL / EHS&ES Manager	Third party	Project Sign on site project	At the beginning	Inform third party (citizens, local authorities ...) of the work for better understanding and facilitation of access
Project management plan	EHS&ES Manager	Team members / EDCL	Email/meeting	At the beginning and At each change	Implementation of health and safety provision
HSE Management and operational documentation (instructions, procedures ...)	EHS&ES Manager	Team members/ EDCL	Email/meeting	At the beginning and at each modification	Understanding, awareness of the project team and implementation
Stakeholders claim	Any stakeholders	EHS&ES Manager / EDCL	Claim file	At each claim	Analyze and action plan
Accident/incident	Team supervisor	Site Manager, EHS&ES Manager / EDCL	Incident / accident report file	At each accident/ incident	Awareness and accountability of staff to avoid accidents
Monitoring of the indicators/target	EHS&ES Manager	Team members / EDCL	Monitoring report	Monthly	Awareness and accountability of staff for achieving objectives
Site visit and inspection	EHS&ES Manager	Team members	Site visit checklist	Weekly	Ensure application of the project management plan provision
Monitoring report	Site Manager / EHS&ES Manager	EDCL	Email	Monthly	Monitoring and reporting
Internal audit	Internal auditor	Site Manager / EHS&ES Manager	Report	Quarterly	Compliance check and improvement action
Mock test	EHS&ES Manager	Team members	Mock test report	Quarterly	Emergency preparedness check

Table 13: Communication plan



IX. CONSULTATION, PARTICIPATION AND COMMUNICATION

1. Consultation and participation

Regarding Health and Safety matters, we will consult with all workers, neighborhoods and local authorities on issues for this project:

- at meetings where anyone can raise issues for discussion
- informally during the planning of activities or the development of Safe Work Method Statements
- when changes to workplace arrangements could affect the health and safety of workers
- during investigations into any incident to establish details of the incident or to formulate corrective action to prevent the incident re-occurring

We will also consult with subcontractors and suppliers regarding any products or services provided for the contract:

- during the negotiation phase before agreeing on the work requirements
- before starting any contractor operations
- when any changes to workplace arrangements occur that could affect the health and safety of the contractors or affect their work procedures

Regarding OHS matter, we welcome suggestions and information from relevant stakeholders, visitors and the general public, which shall help improve its operations in order to minimize impact on the environment and worker health and safety. The Site Manager is open to the general public for complaints and suggestions.

Complaints received from the public will be documented and follow-ups made to ensure that such grievances are addressed accordingly and in line with the established grievance redress mechanism.

Field visits and public consultation will be conducted starting from July 2019 relating the site handover.

During these site visits, the survey team will meet EDCL and villages' authorities' representatives as well as people from villages to be electrified.

Several people will be interviewed:

- Men, women and youth of various categories of local people (farmer, shopkeeper, travelling salesman, pupils, laborers ...)

- Authorities (mayor, sector chief, village chief ...)

Briefly, the field visits will allow to:

- Make a statement on the establishment of the population and their economic activities in the project area;
- Collect ideas from the people on the project's expected benefits, concerns and recommendations related to the installation of the project.
- Present Benefits of accessing to electricity in their locality,
- Present Means and line route to benefiting as many villagers as possible,
- Present Social infrastructures or facilities such as schools, health facilities, public and private administrative offices, commercial that would benefit from the project;
- Explain Expropriation and compensation in case land or crops are damaged by installation of the power lines;
- Benefits of accessing to electricity by the households or by the community in general;
- Expropriation and compensation in case land or crops are damaged by installation of the power lines;
- Possibility to work within the project;
- Possible risks from the power line.

2. Communication

We will ensure our workers and other contractors are aware of OHS requirements by providing them with this OHS Management Plan before starting work on the project. Contractors are expected to make their workers aware of all OHS requirements.

We will communicate relevant OHS information to everyone involved in this project by:

- induction
- pre-work meetings
- toolbox talk meetings
- incident reports and outcomes
- distributing safety alerts or guidance material about industry specific hazards/incidents



X. CONCLUSION

This project is part of the effort to implement Rwanda policies of development such as the energy policies and state development strategies in view of its economic and social benefits.

However, inevitably, the project activities can generate concerns regarding Occupational, Health and Safety against workers and third party as well as adverse social and environmental impacts.

The present Management Plan gives a detailed risk assessment and reports details of the projects desired outcomes and the possible adverse impacts. But also, it proposes adequate preventive and mitigation measures to offset the adverse impacts in return.

The philosophy of this plan acts first on prevention such as the good organization, good preparedness, the advance information, the awareness campaign, having the skilled staff, ensuring the good conditions of vehicles, machineries, tools and devices used for the construction work. It acts than on the impact reduction through the availability adequate means such as PPE, first aid kit, firefighting devices, waste management plan ...

The management and monitoring program, part of this plan, provides parameters to be monitored and responsibility.

The Implementation of this plan, continuous monitoring and possible improvement update on it is a condition of success of the project and of achievement of it objectives meanwhile preserving the health and safety of workers and surrounding people and preserving the environmental and the social capital.



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