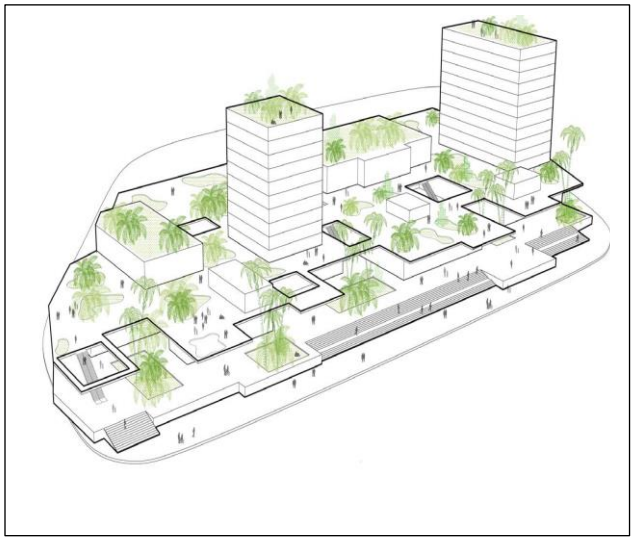
Kigali Mall project



Environmental Impact Assessment (EIA)

Report

October 2019

EXECUTIVE SUMMARY

1. Background

Duval Great lakes Ltd, a Rwandan company proposes to construct the Kigali Mall on the plot identification number UPI:1/02/08/03/681 in Kimuhurura Sector, Rugando cell, covering an area of 26,885m^2, on the plot currently occupied by the Ministry of Justice and its affiliated institutions.

With a Memorandum of understanding (MOU) between the Government of Rwannda (GoR) and Duval Great Lakes Ltd, in which GoR the owner of the project land intends to facilitate the private sector to carry out a project to develop a mix of office and retail properties on this site, Duval Great Lakes Ltd "the Developer" wises to develop the Kigali Mall.

As part of the condition to proceed on this project, GoR requires Duval Great Lakes Ltd to prepare a feasibility study and preliminary designs before the plot of land can be transferred to the developer at negotiated cost.

Kigali Mall shall comprise of; retail and business area (with 3 active plazas; fashion square, market place and experience centre), offices and serviced workspace, serviced apartments, hanging gardens, an active street area for public space, leisure and physical activity area.

Reference is made to the 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, in determining whether the Kigali Mall project is liable to an EIA.

Based on this Ministerial order, all projects comprising of any of the following; buildings classified as residential, commercial, administrative or institutional sports facilities, social, cultural or public facilities fulling at least two of the following; having a capacity to host more than 500 people, a total floor area exceeding 1500 m^2, built in plot size exceeding 1000m^2, must undergo a full EIA.
Kigali Mall is proposed to cover a built in area of most of its entire plot of 26,885m^2, comprising of components such as; hotel of serviced apartments tower of floor area 9,000m^2, of the office tower of floor area of 5,500m^2, cinema floor area of 1,820m^2 and hold a capacity of more than 500 people, making it eligible to undergo an full EIA.

Duval Great lakes Ltd has contracted the EIA to be performed by Eco-excellence consultancy Ltd, a Rwanda Local firm certified to perform EIAs in Rwanda.

The EIA was prepared as required by the National law No.48/2018 of 13/08/2018 on environment, in accordance with the requirements of the Ministerial order no. 001/ 2019 of 15/04/2019.

2. Objectives of the study

The objective of the Environmental Impact Assessment (EIA) is:

(i) To assess the potential environmental impacts of establishing the Kigali Mall, whether positive or negative, and propose mitigation measures which will effectively address the impacts; by either offsetting them, minimising or totally avoiding these impacts.
(ii) To enable the developer to plan, design aligned along the implement of proposed mitigation measures for significant adverse environmental impacts and to maximise social benefits from a proposed project.
(iii) For the decision-makers to objectively evaluate the proposed project.

(iv) To provide information on environmental impacts and mitigation measures for key stakeholders to be able to contribute their opinions.

3. Approach and methodology of the study

Scoping- The methodology of the study involved a scoping study of the project; where available project literature was reviewed, consultation with developer, key stakeholders and field visits were done to understand the project, identify its boundaries and relevant stakeholders.

Literature review of Institutional, legislative and policy framework was done with a number of laws, policies, protocols and conventions such as; Kigali Mall project conceptual plans 2019, Kigali Master plan 2050, Rwanda Statistical Year 2018, Law no. 48/2018 of 13/08/2018 on environment, the Ministerial order no. 001/ 2019 of 15/04/2019, establishing the list of projects that must undergo EIA, AfDB Operation safeguards. *(Literature reviewed is referred in the References section of the Appendices)*

Stakeholder consultation- From the scoping exercise, stakeholders consulted were mostly government officials with relevance to the objective of the project such as; institutions that authorise permits relevant to project implementation, utilities institutions, security organs, etc.

During the Stakeholder consultation, the study applied different participatory methods, namely; interviews and one-to-one discussions with Key Informants (KIs) and focus Group discussions in form of a workshop. Discussions were held with stakeholders who were informed of the proposed project objectives and preliminary ideas of project design. They were asked to raise their concerns on the proposed project and suggestions on to how the project can be approached not to affect each of their sectors but instead imorove livelihoods of its benefactors. Issues raised by one individual or a group of people were cross-checked by discussion with other individuals or groups to triangulate. It is from these concerns that the likely impacts were determined and summarized in chapter 5.

Baseline environment analysis- Information was collected on the existing physical, socio-economic environment of project intervention areas.
Physical environment- Comprised collection of data and analysis of; area climate and topography. The data used for the climate assessment included; rainfall records, monthly evaporation and temperature. From this climate information, the effects of climate variability (and in some instances change) were understood, alternatives to the project components were analysed against these effects and mitigation measures were proposed against any anticipated risks/impacts.
Available meteorological data was gathered from Kigali Aero Meteorological Station and the relevant national institutions.
Field visits to the project site was used to crosscheck information obtained during the desk study and to obtain any additional field information missed.

Ecological/ biological environment analysis- since the project site is an already built administrative property, currently occupied formerly by the Ministry of Justice and still occupied by Supreme Court, High court, NPPA, its affiliated institutions covered in buildings and paved parking area, there was no flora or fauna on the site that required mentioning for baseline biological environment of the area.

Social environment baseline analysis- This involved reviewing social needs of potential users of the facility, market and commercial analysis, competition in the vicinity, the extra-ordinary initiatives the project is bringing to the city.

Impact analysis- Furthermore, *an Impact analysis* was done by Impact evaluation Matrix which determined adverse impacts and risks likely to be caused by project interventions. For each adverse impact/risk identified, adaptation and mitigation measures for the predicted impacts/risks were proposed and an **Environmental and Social Management Plan (ESMP)** developed.

4. Project Description

As described in detail in sub-chapter 2.2, Kigali mall project is proposed to have a number of zones that comprise of; Business center, commercial zone and public square.

- The ***Business center area*** shall comprise of; 3 active plazas with shops in the fashion square, market place and experience centres. This will be mainly the Ground and first floor that will comprise of Anchor tenants such as; chain store located at a shopping mall so as to give maximum exposure to smaller, satellite stores, supermarkets, restaurants, cinema, health fitness areas, coffee shops, hanging gardens.
- ***Commercial zone*** shall comprise of; two towers of more than 10 floors. One tower with offices and serviced workspace and the other tower with serviced apartments.
- ***Public square*** shall comprise of open space for leisure activities, event performances and physical activities.

5. Alternatives analysis

Consideration of Alternatives for physical interventions for project components were discussed on; the establishment of the Kigali Mall, amount of space proposed for offices and service apartments, how best to relocate utilities and infrastructure services on site, type of wastewater treatment, resource efficiency at the Mall. At most three (3) alternatives including the zero or no-project alternative were analysed and from them a preferred choice of one of the alternatives proposed based on environment and social benefits over other alternatives.

For the establishment of Kigali Mall, after an analysis of 2 alternatives, *Alternative 1 to have build the Kigali Mall was proposed* for the following benefits:

- It would be the first ever commercial mall in Kigali as opposed to the common commercial buildings.
- The Mall offer space for stores, shops, Anchored tenant foreign chain of stores, office space, serviced apartments, leisure areas (like cinema, gym, bowling), public space for events, restaurants and bars.
- It shall compliment services offered by KCC for MICE.
- It shall create job opportunities from planning, construction to operation phase.
- It is probably an economical way of using the plot area compared to the current Institutional use considering the hotspot commercial status of the area.

For the design proposal to have two towers for office space and serviced apartments, two alternatives were analysed, from which Alternative 2 to proceed with design of the two towers, however consider the following:

- Proposal to reduce the floor area for offices of the G+10 floor tower to avoid losses, considering the IPAR real estate survey 2018 put Kigali Commercial buildings at a 15% non-occupancy as mentioned in the Socio-economic environment *sub-chapter 4.3.1*.
- Consider reasonable low pricing on rent per square metre after market survey of prices in Kigali, in order to attract more clientele.

On alternatives of how best to relocate utilities and infrastructure services traversing the site, the alternative of not relocating or striking a balance in order to minimise relocation work involved for some of the utilities and infrastructure (i.e. Electricity Ring main unit and optic fibre PoP on site) was proposed with the objective of ensuring;
- Less disruption of connectivity of other connected institutions, businesses and neighbourhood.
- Minimising 20 million cost estimate of relocating broadband internet connectivity.

Regarding technologies for wastewater treatment on the Kigali Mall, *Alternative 1 was chosen comprising of a mechanized treatment system over the constructed wetland system* on the grounds that:
- In context to site area, land should be economized and hence the system that covers smaller space is suitable.
- Many projects with Mechanised treatment systems have so far been implemented in Rwanda, meaning that technical skills to operate and manage the system are readily available.
- With this Alternative chosen, there would be no worry of malaria.

Analysing alternatives of resource efficiency at the Mall, the alternative of using energy, water saving technology and reuse of treated wastewater for flushing toilets and garden irrigation was preferred as opposed to conventional plumbing and electricity installations that do not result in resource efficiency.

6. Environmental and social impact assessment

Chapter 5 gives a summary of issues raised during the stakeholder consultation likely to be caused by activities of the project.

Based on field expert survey, analysis of baseline environment data, stakeholder consultation and literature review, an Impact analysis was done by Impact evaluation Matrix which determined adverse impacts and risks likely to be caused by project interventions in chapter 6.

7. Environmental Management Plan (EMP) and monitoring plan

In chapter 8 and 9, the report presents in tabular form, an environmental and social management plan (ESMP) and an Environmental Monitoring Plan indicating the mitigation measures, procedure to be followed, monitoring indicators, the responsible institutions to implement these measures, cost estimates and implementation schedule of implementing the ESMP.

The report ends with Chapter 10, making conclusions from the study findings and submission of summarised recommendations.

Recommendations:

Based on the findings of this ESIA study, the following recommendations were proposed to achieve an efficient and sustainable Kigali Mall project:

<u>At Planning phase:</u>

- For soil erosion and storm water management, at the design stage, a detailed storm water management plan shall need to be prepared in order to minimise impact of soil erosion and flooding the neighbourhood.
- In order to minimise adverse impacts arising from destruction of utilities (i.e water distribution pipes, Electricity Ring main unit and underground cables) and existing infrastructure services (i.e. Broadband internet connectivity) traversing the site plot and its boundaries, it is apparent that the Developer needs to collaborate with the relevant Institutions (i.e. WASAC, EUCL and KTRN) on the most optimistic way of identifying and relocating existing utilities and infrastructure.
- Upon approval of the project by GoR, the Developer may request GoR to set a reasonable period for public announcements of planned relocation of the existing Institutions off site, dates and venue of relocation for the public and employees to readjust to these changes.
- To control noise pollution, design of the Mall could include measures such as; zoning together businesses likely to generate loud noise, ensure sound proof material, centralise control of music and sound at the Mall and have noise level monitoring done annually.
- To minimise traffic congestion and accidents, design of the Mall could consider the following measures; Traffic assessment of site surroundings to guide the design team, entrance of the Mall at the backside adjacent to Fairview building, exit at Simba supermarket into KN5 road, request for the road between KCC and the site to be transformed into a One-way road approach from the back of KCC, no Mall entry from the KCC roundabout, expansion of the road between the site and Lemigo Hotel towards KN5 Airport road to a double carriage one-way road, establishment of traffic signals and barriers to slow traffic before and after the Mall, consider opening the Mall after 8:30am.
- Incase Duty free shops are planned in the Mall design, collaboration with RRA on procedure of operation is required to avoid its abuse.
- In the context of the project area, this study recommends a package mechanised wastewater treatment system, for example, sequential batch reactor (SBR) or moving bed bio film reactor (MBBR) as most appropriate.
- As means of misuse of resources such as water and power, the study recommends that Technical specifications in the tender document for fittings should emphasize the application of energy and water saving equipment and fittings. And if possible, plumbing design may consider applying installations that allow for reuse of treated wastewater for flushing in toilets. Furthermore, project design may consider use of solar for hot water.
- For safety of People With Disabilities (PWDs), Project designs should include access aids for PWDs to all sections of the Mall, such as; ramps, lifts, guardrails along the ramps and stairs, escape routes/exits in the building suitable for PWDs to use and suitable parking lots for PWDs.

At Construction Phase:

- For proper management of debris disposal, the contractor shall separate construction debris at the source (i.e. concrete and cement debris from metals, glasses, plastics), in order to simplify its disposal. Construction debris shall be disposed at the District designated dump site.
- To avoid or minimise mud, dirt, gabage littered on the KN5 Airport road and anyother road used by the project, the contractor shall ensure all trucks disposing off and delivering have a canvas covering the back, tyres are cleaned before they get on the road and daily cleaning of dirtened roads during the course of each day.
- For fire risk management, the contractor shall have a clear fire safety management plan, with signage on site and later installed in buildings for application during the Mall operation stage, comprising of: fire escape route map at critical positions that are highly susceptible to fires, fire hydrants, demarcated

points for fire extinguishing trucks to stand in case of any fires, fire exit points and directions on site and for every buidlings, fire extinguishers and hoses for each building, fire alarm system, an Assembly point and a regular training schedule of staff during the construction phase and passed on to the operation phase.

- To ensure Occupation Health and safety (OHS), the Contractor during construction and eventually the Developer during project operation shall prepare and implement a site Health and safety (HES) plan/policy that includes measures to: ensure that workers use personal protection equipment (PPE), provide Health & Safety training for all personnel, keep accident/ near miss reports and records, inform local communities about the work and dangers and have a fire risk management plan.
- To avoid possible child labour, recruitment of workers shall be based on submission of a copy of National ID, where those below the age of 16 years shall not be employed as per National law regulating labour in Rwanda.
- For proper working conditions on site, the Contractor should have a labour policy and comply to it that includes; prohibition of Child labour, forced works, freedom of worker's opinion, contracts of employment, leaves, health and safety policy at work place, medical insurance, prevention policy and Insurance policy of the site, works and workers on it.
- To boost gender equality in employment, it is preferred that for both skilled and unskilled labour, the contractor and developer show equal opportunities in employment of both qualified, experienced male and female.
- To reduce air pollution by dust and Green House Gases, the contractor shall ensure soil compaction is done on completed portions of work, regular water spraying, covering of stock piles and hauling trucks and atleast annual air quality monitoring tests and analysis shall be done.
- To reduce noise pollution, noisy activities during working hours 7-17h. Contractor shall use automobiles with Inspection certificates since they are in good condition emitting less noise. Noise levels shall also be monitored.
- To mininise losses on usable construction material from demolishing of existing buildings, the Developer in collaboration with GoR may decide to sub-contract, at a cost, the auctioning of reusable construction material and demolition of the buildings and disposal of debris.

At operation phase:

- For proper performance of proposed secondary wastewater treatment systems, the Developer project shall ensure periodic maintenance of the proposed wastewater systems and monthly test of effluent discharge. Records of these monitoring effluent quality tests shall be kept by the Mall management for any adhoc inspections or audits.
- Noise and air quality monitoring levels (where necessary) from Kigali Mall shall also be analysed annually.
- For solid waste management, proposed Cleaner production techniques such as; sorting waste at source, reuse and recycling of waste and proper disposal of non-reusable waste shall be encouraged on campus.
- To ensure Occupational health and safety on campus, the following measures shall be taken; Mall management shall prepare and implement a site Health and safety (HES) plan/policy, ensure a qualified and experienced Health, safety and environment (HSE) officer is on site to ensure compliance to the policy, ensure that workers use personal protection equipment (PPE) during operation stage or especially when making repairs that require PPE, provide Health & Safety training relevant personnel and regular awareness of Health and safety to all workers, Install instruction signage on occupation Health and safety (OHS), documented procedures and ensure compliance is

adhered in every part of the Mall, carry out weekly site inspection of compliance to Health and safety requirements, Keep records of near misses, minor and fatal accident reports, have a fire risk management plan and procedure with fire escape directions on site.

- For security on site, the Mall is required to have the campus lit up, security guards in and out of the Mall, CCTV cameras on site, Metal detectors at entrances of all accesses to the Mall including staff entrances.
- An Environmental Audit of the project implementation shall be carried out annually and submitted to REMA for review.

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ABBREVIATIONS

AfDB	African Development Bank
CoK	City of Kigali
EIA	Environmental Impact Assessment
ESMP	Environmental Social Management Plan
EUCL	Energy Utility Corporation ltd
GHG	Greenhouse Gases
GoR	Government of Rwanda
KTRN	Korean Technology Rwanda Network
MoE	Ministry of Environment
NISR	National Institute of Statistics of Rwanda
OS	Operation Safeguards
REMA	Rwanda Environment Management Authority
REG	Rwanda Electricity Group
RDB	Rwanda Development Board
RHA	Rwanda Housing Authority
ToRs	Terms of Reference
UR	University of Rwanda
USD	United States Dollar
WASAC	Water and Sanitation Coporation

CHAPTER 1: GENERAL BACKGROUND

1.1 BACKGROUND TO THE PROJECT

Duval Great lakes Ltd, a Rwandan company which proposes to construct the Kigali Mall on the plot identification number UPI:1/02/08/03/681 in Kimuhurura Sector, Rugando cell, covering an area of 26,885m^2, on the plot formerly occupied by the Ministry of Justice, currently occupied by the supreme court, National Public Prosecution Authority (NPPA) and its affiliated institutions.

The specific objective of the Kigali Mall project is to construct a mall comprising of; a combination of offices and serviced workspace, serviced apartments, retail business areas, public space as a way of complimenting the Meetings, Incentives, Conference, Exhibitions (MICE) activities, for example the Kigali Convention centre.

With a Memorandum of understanding (MOU) between the Government of Rwannda (GoR) and Duval Great Lakes Ltd, in which GoR the owner of the project land intends to facilitate the private sector to carry out a project to develop a mix of office and retail properties on this site, Duval Great Lakes Ltd "the Developer" wises to develop the Kigali Mall.

As part of the condition to proceed on this project, GoR requires Duval Great Lakes Ltd to prepare a feasibility study and prelminary designs before the plot of land can be transferred to the developer at negotiated cost.

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Kigali Mall is proposed to cover a built in area of most of its entire plot of 26,885m^2, comprising of components sucha as; hotel of serviced apartments tower of floor area 9,000m^2, of the office tower of floor area of 5,500m^2, cinema floor area of 1,820m^2 and hold a capacity of more than 500 people, making it eligible to undergo an full EIA.

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The EIA was prepared as required by the National law No.48/2018 of 13/08/2018 on environment, in accordance with the requirements of the Ministerial order no. 001/ 2019 of 15/04/2019.

1.2 OBJECTIVES OF THE EIA STUDY

The objective of the Environmental Impact Assessment (EIA) is to:

(i) To assess the potential environmental impacts of establishing the Kigali Mall, whether positive or negative, and propose mitigation measures which will effectively address the impacts; by either offsetting them, minimising or totally avoiding these impacts.
(ii) To enable the developer to plan, design aligned along the implement of proposed mitigation measures for significant adverse environmental impacts and to maximise social benefits from a proposed project.
(iii) For the decision-makers to objectively evaluate the proposed project.
(iv) To provide information on environmental impacts and mitigation measures for key stakeholders to be able to contribute their opinions.

1.3 SCOPING OF THE STUDY

The scoping study was undertaken by the consultant with an intention of collecting enough and relevant information so as to ensure a comprehensive EIA.
Scoping for this study was restricted to activities proposed for the the Kigali Mall.

The Scope of work was to -

- Analyse interventions proposed for the proposed components within Kigali Mall and affiliated facilities;
- Assess social, environmental impacts related to the proposed project and propose mitigation measures;
- Conduct a comprehensive impact assessment of Kigali Mall project.
- Conduct extensive consultations with various project teams and other relevant stakeholders to obtain information and inform the different ongoing project studies including; Planning, design and construction; and
- provide an environmental management plan (EMP) that:
    - prescribes mitigation measures needed to ensure long-term project sustainability and,
    - Outlines indicators and monitoring for implementation of the proposed mitigation measures including an estimate of the costs associated with the EMP.

Scoping by location- This study was restricted to land allocated to the project at UPI:1/02/08/03/681 in Gasabo District, Kimuhurura Sector, Rugando cell, an area covering 26,885m^2.

1.4 APPROACH AND METHODOLOGY OF THE STUDY

The study adopted the following approach: (i) scoping study/ preliminary assessment, (ii) review of relevant policies, regulations and safe guards, (iii) review and analysis of baseline environment data of project intervention sectors, (iv) field surveys at the project site to fill any gaps on baseline data (v) stakeholder engagement. This was done to gather information and data on various aspects of the project activities.

Site locations, land cover, proposed infrastructure were described fully with clear maps (where necessary) for a comprehensive understanding of the area and project activities and to make the task of planning and monitoring easier during the implementation of the mitigation measures for the identified impacts. The methodology is detailed hereafter.

1.4.1 Preliminary Assessment/ Scoping study

A scoping study involved consultation with Developer's team and a field visit to familiarize the EIA study team with existing features and proposed project components.

The scoping exercise further entailed the following:

- A preliminary desk review of: Project concept, Scheme Design and outline proposal, law on the environment, ministerial order establishing the list of projects that must undergo environmental impact assessment and procedure of carrying out an EIA;

- Field visit to establish clear boundaries of the study and focus on the relevant issues concerning the study;
- Identification of the likely stakeholders who eventually were involved in the stakeholder engagement consultations;
- Preliminary findings of the existing environment; (primary, biological and socio-economic environment);
- Preliminary predictions of likely positive and adverse impacts;

1.4.2 Review of Institutional, legislative and Policy framework

Intense deskwork was undertaken of existing institutional legislation, policies, plans and projects, which are likely to influence or be influenced by the different parts of the implementation of the Kigali Mall, its sustainability and ensure enhancement of the environmental resources.

The literature review involved but was not restricted to the following;

- Kigali Mall project conceptual plans;
- Memorandum of Understanding (MOU) between GoR and Duval Great lakes ltd on the establishment of this project;
- Minutes of the stakeholder consultative meeting with the Duval Greatlakes Ltd team on the "New Ecosystem at Kigali's Heart" now called the "Kigali Mall".
- Kigali masterplan 2050.
- Law no. 48/2018 of 13/08/2018 on environment.
- 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.
- GGRS 2011
- 3rd National Submission to UNFCCC Activity report on GHG emissions;
- AfDB Operation safeguards
- Rwanda Statistical year 2018.

An institutional framework is also presented, indicating roles and responsibilities of National and international Institutions that will have a stake in implementing this project, approving the EIA and monitoring adaptation and mitigation measures proposed against anticipated adverse impacts.

1.4.3 Stakeholder engagement

Identification and Involvement of stakeholders

Information collected from the preliminary desk review, preliminary scoping consultation with the Design team and preliminary field visits to the site, guided the consultant in identifying the project stakeholders.

The stakeholders identified were from:

1. Developer- Duval Great Lakes Ltd
2. Rwanda Development Board (RDB),
3. Rwanda Housing Authority (RHA),
4. City of Kigali (CoK),
5. REG/ EUCL,
6. KT Rwanda Network (KTRN),
7. WASAC.
8. Various security organs.

The Developer had previously organised a workshop with these key stakeholders to inform them of; the objective of the Project, conceptual plans and request for their suggestions on how best the project can best implemented with minimised impact on existing infrastructure and yet offering the state of the

art service to locals and internationals. Minutes of the outcome of this workshop have been referred in the stakeholder consultation section of this report, used to inform the anticipated impacts of the project and proposed adaptation and mitigation measures.

Further to this, the EIA consultant carried out Public consultation with these key stakeholders, the study applied different participatory methods, namely; interviews, one-to-one discussions with Key informants (KI) with stakeholders, via phone call in some cases.

Stakeholders were consulted about the proposed project, relevant information on stakeholder opinions on component options, likely impacts of the project components and suggestions on how these impacts can be mitigated. Stakeholders were asked to raise their concerns on the proposed project. It is from these concerns that the likely impacts were determined and summarized in chapter 5.

1.4.4 Baseline Data and Information

Information on the physical, socio-economic environment of the project intervention area.

1.4.4.1. Methods used for baseline data collection and analysis

Physical environment- Comprised collection of data and analysis of; area climate and topography.The data used for the climate assessment included; rainfall records, monthly evaporation and temperature. From this climate information, the effects of climate variability (and in some instances change) were understood, alternatives to the project components were analysed against these effects and mitigation measures were proposed against any anticipated risks/impacts.
Available meteorological data was gathered from Kigali Aero Meteorological Station and the relevant national institutions.
Field visits to the project site was used to crosscheck information obtained during the desk study and to obtain any additional field information missed.

Ecological/ biological environment analysis- since the project site is an already built administrative property, currently occupied by the Ministry of Justice and its affiliated institutions covered in buildings and paved parking area, there was no flora or fauna on the site that required mentioning for baseline biological enviroment of the area.

Social environment baseline analysis- This involved reviewing social needs of potential users of the facility, market and commercial analysis, competition in the vicinity, the extra-ordinary initiatives the project is bringing to the city. This information was referred from the Developer's research on existing real estate, business offering similar services as planned for the project and potential project opportunities.

This data was used in understanding the environmental and social issues likely to be caused by the project and to the project. It was also used in the alternative analysis of component options, anticipation of positive and adverse impacts likely to be enhanced or caused by project component activities and proposing adaptation or mitigation measures.

1.4.5 Impacts Assessment

Impacts prediction and analysis involved assessment of the entire project cycle i.e. project planning, construction, operation phases. Impact assessment applied a number of tools and techniques to determine the nature (positive or negative), extent (spatial), occurrence (one-off, intermitted or constant), magnitude, whether reversible or irreversible, direct or indirect, probability of occurrence and significance with and without mitigation. An Impact evaluation matrix in tabular format was drawn, in which actual impacts were rated based on their significance. Only those found to have negative

impacts were advanced to the Environmental Management Plan where mitigation measures were proposed against each adverse impact.

The Impact evaluation matrix is discussed in Chapter 6.

1.5 REPORT STRUCTURE

This report is organised in ten chapters. Chapter 1 gives a general background of the project; Chapter 2 deals with the project description, Chapter 3 gives a description of pertinent policy, legal and institutional framework within which the project will operate; and Chapter 4 presents the baseline data, i.e. environmental, socio-economic and cultural setting of the project site. Chapter 5 presents the findings of the Stakeholders' engagement and public participation. Impacts identification, evaluation for significance and proposed mitigation measures are elaborated in Chapter 6 and Alternative analysis in 7, while Chapter 8 presents the Environmental Social management Plan.

An Environmental and Social Monitoring plan is presented in Chapter 9 and Chapter 10 provides conclusions and recommendations of the project.

CHAPTER 2: PROJECT DESCRIPTION

2.1. PROJECT AREA

2.1.1. Location

The proposed Kigali Mall project site is located in Kigali city, Gasabo District, Kimuhurura Sector, Rugando cell, plot no. UPI:1/02/08/03/681. It is a site located with immediate conflux of both key commercial (i.e.Kigali Convention centre, Kigali Heights, Kigali Business Centre, Lemigo Hotel) and public administrative institutions (i.e.Parliament Building, Rwanda Development Board) in the city of Kigali, as shown in the figure below.

Figure 1: Proposed Kigali Mall project Location (Source: Google earth)

2.2. DESCRIPTION OF THE PROJECT COMPONENTS

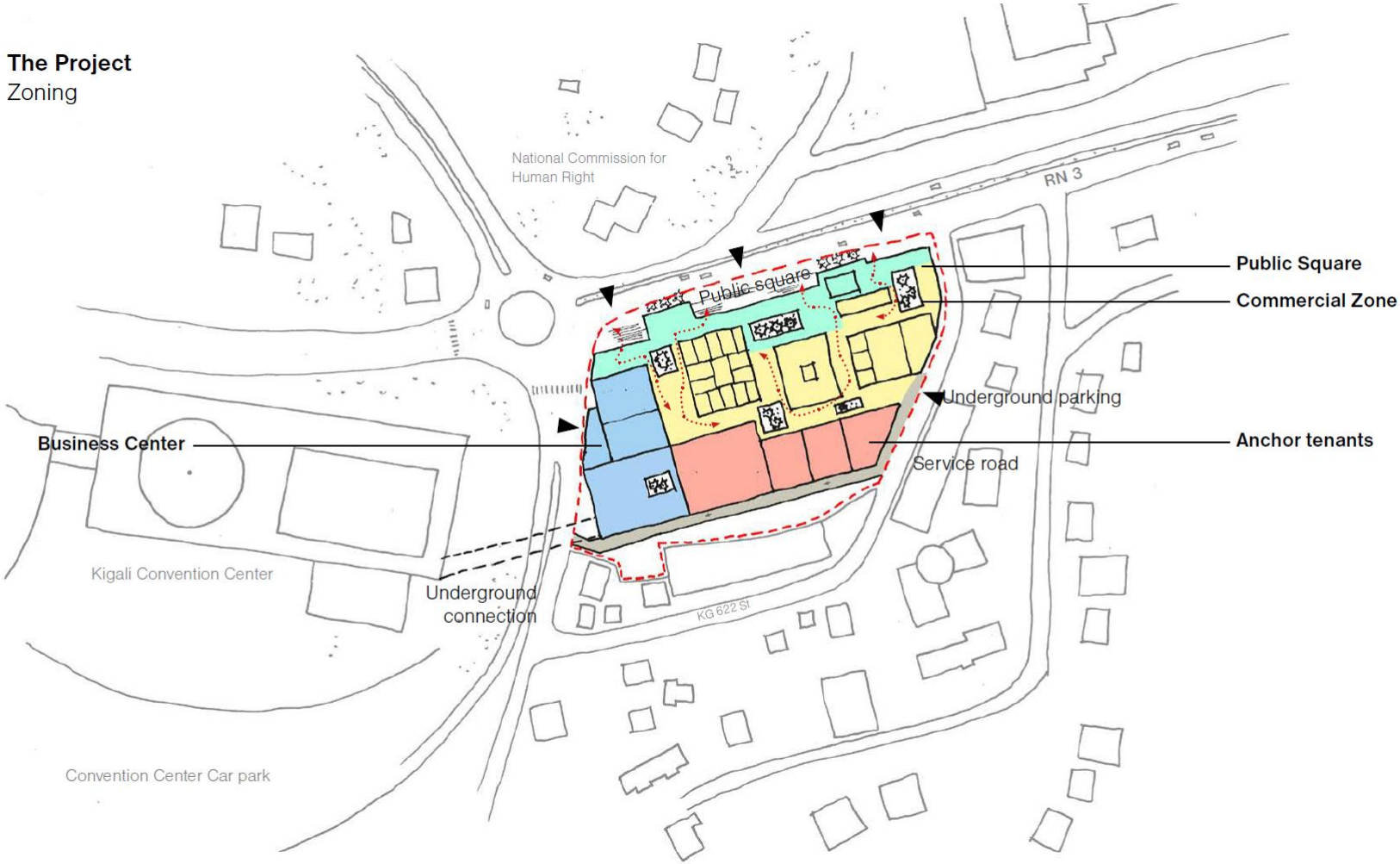
Existing features on site:

Figure 2: Existing features of the Kigali Mall Project site

Proposed project components:

Kigali Mall site layout:

Site layout is shown in the figure below:



The Project
Site Plan

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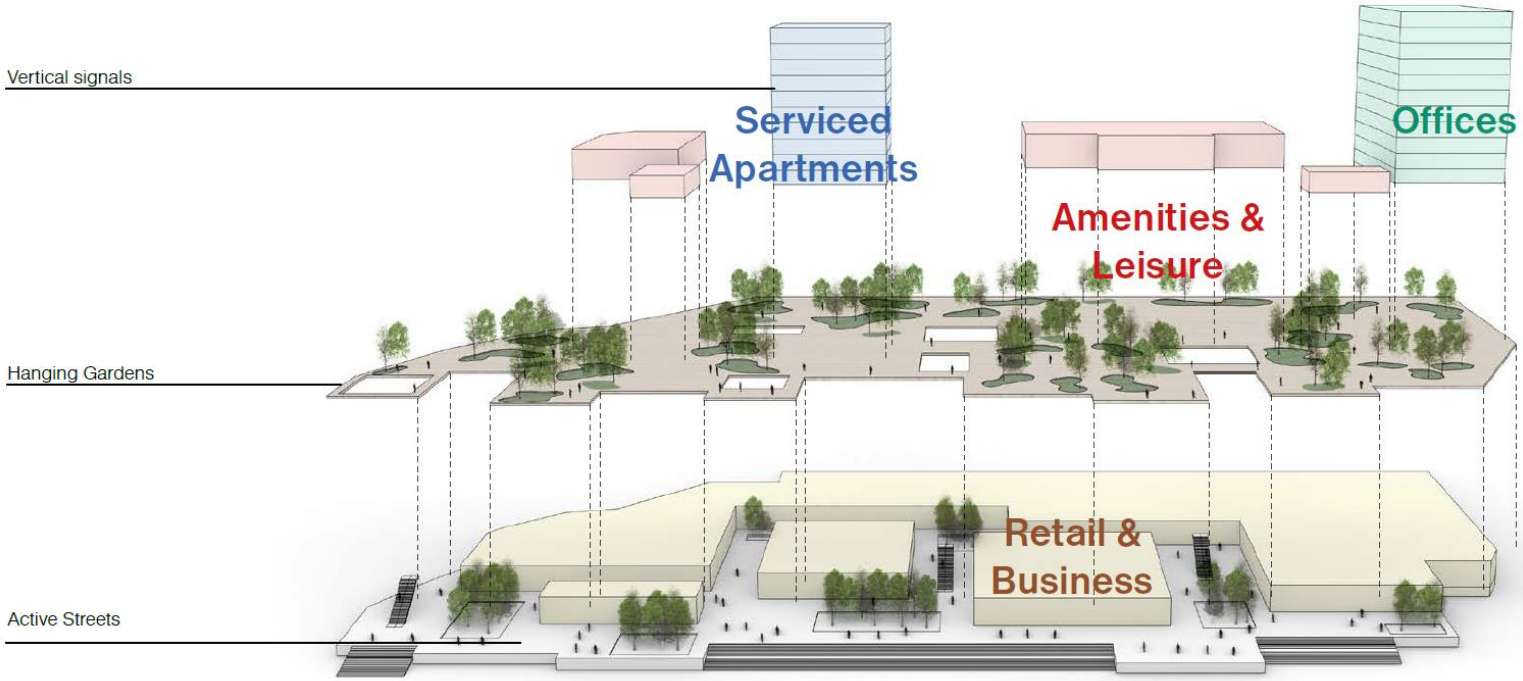
The Project
Programmatic intentions



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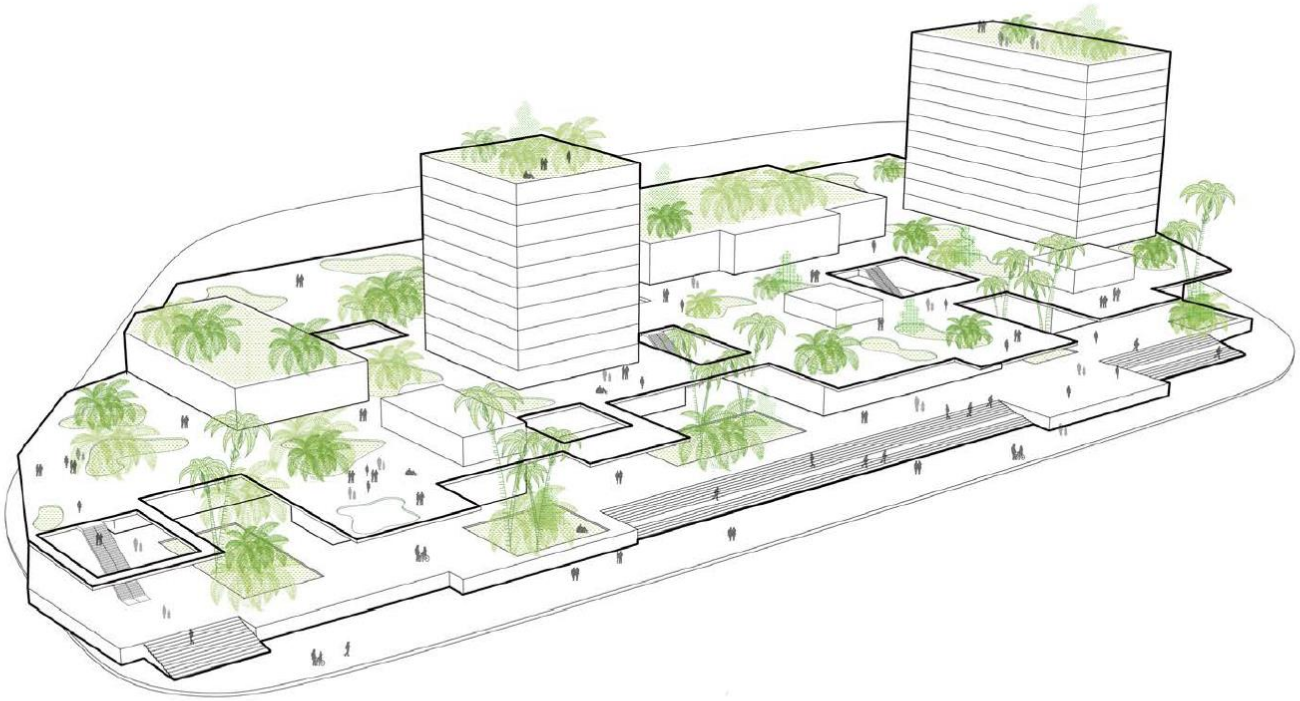
The Project

Intersection of Architecture and Nature



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Floor plans are shown in the figure below:

The Project

First Floor Plan | Hanging garden

The Project

Ambition sketches

A New Ecosystem at Kigali's Heart | Groupe Duval - Coldefy - Horwath HTL

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As seen from the figures above, Kigali mall project is proposed to have a number of zones that comprise of; Business center, commercial zone and public square.

- The ***Business center area*** shall comprise of; 3 active plazas with shops in the fashion square, market place and experience centres. This will be mainly the Ground and first floor that will comprise of Anchor tenants such as; chain store located at a shopping mall so as to give maximum exposure to smaller, satellite stores, supermarkets, restaurants, cinema, health fitness areas, coffee shops, hanging gardens.
- ***Commercial zone*** shall comprise of; two towers of more than 10 floors. One tower with offices and serviced workspace and the other tower with serviced apartments.
- ***Public square*** shall comprise of open space for leisure activities, event performances and physical activities.

Utilities

Utilities- Kigali Mall as such a complex project shall require utlilties for its functionalities, ultilies which consist of; water connectivity, electricity, optic fibre, wastewater management, solid waste management, lifts.

At the time of this EIA study, this project was at the initial feasibility study with limited detail on the capacity the Mall can contain, water consumption, power consumption broadband consumption, liquid and solid waste generation, hence not possible to discuss here in detail.

CHAPTER 3: RELEVANT POLICY, LEGAL AND INSTITUTIONAL ARRANGEMENTS

This chapter describes policies, laws, regulations and institutional framework relevant, to the CEBE project.

3.1. NATIONAL POLICY AND LAWS

3.1.1 National Strategy for Transformation (NST1) 2017-2024

Rwanda's Vision 2020 is coming to an end, with its most recent implementation instruments EDPRS 2, Sector strategic plans and District Development Plans ending in June 2018. The country has embarked on Vision 2050 with five broad prioritites, most relevant to the Kigali Mall project is the Priority 2 "Developing modern infrastructure and livelihoods" and Priority 3"Transformation to prosperity". These priorities emphasise the importance of; efficient public and private services, increased competitiveness in business and financial services, construction industry, modern and smart cities, green and eco-friendly cities and neighbourhoods.

The NST1 is the implementation instrutment for the remainder of the country's Vision 2020 and the first four years of Vision 2050. As part of the NST 1 priority areas and interventions proposed are:

- Developing the hospitality industry and build capacity fo the private sector to provide high levels of service delivery,
- Attract big events and conferences by working with the private sector and strengthening the Kigali convention bureau.

Kigali Mall project positions itself to contribute to these priority interventions by establshing real estate that provides services closest to guests attending big events and conferences at the Kigali Convention centre and also to the local Rwandan community by opening up space to; combinations of offices and serviced workspace, serviced apartments, retail business areas, public space as a way of complimenting the Meetings, Incentives, Conference, Exhibitions (MICE) activities adjacent to the Kigali Convention centre.

The NST1 also focuses the need to ensure smooth implementation of environmental policies and regulations of sectors that include infrastructure. Emphasis will be put in strengthening monitoring and evaluation such as EIAs, pollution, waste management. The Developer understands the importance of environmental performance hence commissioning this EIA study.

3.1.2 Environmental law and Ministerial orders

Based on the Law No.48/2018 on environment, a list of projects that must undergo an environmental impact assessment (EIA) before authorization for their implementation is established by an order of the minister. Its further states that every project that may have significant impact on the environment must undergo an environmental audit during and after its implementation. This law also states that the EIA and Audit must be approved by the Authority in charge of conservation and environment (in this case Rwanda Environment Management Authority-REMA) or another state organ authorised in writing to do so by the Authority.

As stated in the law mentioned above, the Ministerial order No.001/2019 establishes the list of projects that must undergo environmental impact assessment, instructions, requirements and procedures to conduct EIA. Among the list of projects that must undergo a full EIA, is a publicly accessible facility covering at least 1500m^2 total floor area and built plot size exceeding 1000m^2. As indicated in the sub-chapter 1.1 above, Kigali Mall is proposed to cover a built in area of most of its entire plot of 26,885m^2, comprising of components such as; hotel of serviced apartments tower of floor area 9,000m^2, of the

office tower of floor area of 5,500m^2, cinema floor area of 1,820m^2 and hold a capacity of more than 500 people, making it eligible to undergo an full EIA.
As required by this Ministerial order, an expert from the published list of environmental assessment practitioners has been recruited to conduct this study.

3.1.3 National Climate change adaptation and mitigation strategies

Reference made to the Green Growth and Climate Resilience National Strategy for Climate change and Low carbon development (GGCRS 2011), one of the quick wins in addressing issues raised by this strategy is Implementing resource efficient designs of buildings which may include; energy efficiency lighting, energy and water metering, wastewater recycling and recycling of other waste products, reduce emissions. In this regard, GGCRS proposes that Rwanda adopts energy and water efficiency standards into building codes and fully utilise urban waste as a high-value resource system.

Furthermore as part of the Intended Nationally Determined Contribution (INDC) for Rwanda towards the Paris Agreement 2015 on combating climate change and accelerating and intensifying actions and investments needed for sustainable low carbon future, some of the Adaptation of green industry and private sector development was to; employ efficient and zero waste technologies, practices and designs, adopt energy and water efficiency standards into building codes, employ low carbon urban planning, fully utilize urban waste as a high value resource stream.

Kigali Mall project is therefore required to take into consideration these adaptation and mitigation measures against climate change and sustainable low carbon future during the design of the project.

3.2. AfDB group's Integrated Safeguards System (ISS)

International environmental and social safeguards are almost similar, for example the World Bank, IFC, AfDB share similar overarching operational safeguards. This study referred to the AfDB ISS as guidance towards International safeguard requirements.

Of the five Operational safeguards (OS), three were found relevant to the activities in the proposed project. i.e. OS 1, OS 4 and 5.

OS 2 "Involuntary resttlement, land acquisition, population displacement and compensation" was not triggered under this project since that project plot is owned by GoR which has entered into an MoU with the Developer to sell this land on condition that the feasibility study and preliminary designs are approved by GoR.

OS 3 "biodeversity, renewable energy and ecosystems" was also not triggered since the project area has for a while been occupied by administrative institutions(.i.e MINIJUST, Supreme Court, NPPA), a completely covered by built-up area in cement mortar, brick work and concrete infrastructure. This all implies that the project area does not have indigenous flora or fauna species, is not near a protected ecosystem and therefore no critical biodiversity will be affected.

3.2.1. OS1: Environmental and Social Assessment

OS1 *Objectives are to* - (i) Mainstream environmental, climate change and social considerations into country strategy papers and regional integration strategy papers. (ii)To identify and assess environmental and social risks and impacts including those related to gender, climate change and vulnerability of bank lending and grant-financed operations in their areas of influence, (iii) Avoid or, if avoidance is not possible, minimise, mitigate and compensate for adverse impacts on the environment and on affected communities, (iv) Provide for stakeholders' participation during the consultation process so that affected communities and stakeholders have timely access to information in suitable forms about Bank operations, and are consulted meaningfully about issues that may affect them, (v) Ensure the effective management of environmental and social risks in projects during and after implementation; and (vi) Contribute to strengthening regional member country (RMC) systems for environmental and social risk management by assessing and building their capacity to meet AfDB requirements set out in the Integrated Safeguards System(ISS).

Its requirements are to conduct a process of environmental and social assessment for developing, as an integral part of project documentation, an appropriate plan for managing possible impacts.
The scope of the Environmental and social assessment includes; the project's area of influence (both upstream and downstream), a comprehensive scoping of the project's components, consideration of alternatives, and assessment of cumulative impacts, where relevant. The assessment covers all stages of the project, from construction and operation through to closure/decommissioning. Scoping of a project considers the size, processes, site design, construction and expansion sequencing and any new infrastructure. During the scoping phase, the assessment determines the range of likely potential risks and impacts and also determines whether specific requirements of the Bank's Operation Safeguards apply.
Regarding local legislation and country system, to the extent possible, the assessment complies with the relevant legislation and standards applicable in the local jurisdiction, bearing in mind the equivalence of standards with those of the Bank. It accepts another institution's assessment only if its standards are equivalent or if supplemental due diligence is done to meet AfDB requirements.
The level of assessment and management required should be proportionate to the level of risk that the project poses—as identified during categorisation and scoping—and the management measures adopted should be capable of being adapted to changing circumstances during the full project cycle.
During project implementation, the developer is responsible for the implementation of the EMP and reports to the Bank on key management or monitoring tasks set out in the EMP.

The Developer understands the importance to comply with the OS 1, hence the reason for preparing this EIA and planned implementation of the EMP.

3.2.2. OS2: Involuntary resettlement: Land acquisition, population displacement and compensation

OS 2 objectives are: to address how the project shall avoid/ minimize adverse social and economic impacts from land acquisition by; avoiding/ minimising displacement, providing alternative project designs, avoiding forced eviction, providing compensation for loss of assets at replacement cost and ensuring that resettlement activities are implemented with appropriate disclosure of information, consultation, and the informed participation of those affected. It is also required to improve or restore

livelihoods and standards of living, improve living conditions among displaced persons by providing adequate housing and security tenure.
Its scope applies to two types of displacement; (i) Physical displacement and (ii) Economic displacement from land related transactions such as; (a)Land rights acquired through expropriation, (b)Land right acquired through negotiated settlements which could result in expropriation if negotiations failed, (c)Project activities resulting in involuntary resettlement on land use or access to natural resources, (d)Project activities requiring eviction of people occupying land without formal, (e) traditional or recognizable usage rights, (f)Restrictions on access to land or use of resources including communal and natural resources.

The project land is owned by GoR, it currently has Administrative buildings occupied by the Supreme court, the National Public Prosecution Authority (NPPA) and formerly the MINIJUST. While implementation of the Kigali Mall project shall mean relocation of these institutions, GoR has entered into a MoU with the Developer with condition that if the feasibility study and preliminary designs of the project are satisfactory to GoR then this land can be acquired by the Developer from GoR at a valued cost. It is under these agreements that GoR will be responsible for relocating these institutions hence avoiding a trigger of land acquisition, population displacement and compensation.
Furthermore, the Developer has restricted the project to the boundaries of the UPI:1/02/08/03/681 plot only to avoid any possible expropriation of neighbourhood.

3.2.3. OS3: Biodiversity, renewable resources and ecosystem services

OS 3 objectives are: i) identify and implement opportunities to conserve and sustainably use biodiversity and natural habitats, and (ii) observe, implement, and respond to requirements for the conservation and sustainable management of priority ecosystem services.
Specific objectives are to: (i) Conserve biological diversity and ecosystem integrity by avoiding or, if avoidance is not possible, reducing and minimising potentially harmful impacts on biodiversity; (ii) Endeavour to reinstate or restore biodiversity, including, where some impacts are unavoidable, through implementing biodiversity offsets to achieve “not net loss but net gain” of biodiversity; (iii) Protect natural, modified, and critical habitats; and (iv) Sustain the availability and productivity of priority ecosystem services to maintain benefits to the affected communities and sustain project performance.
As part of the environmental and social assessment, the Developer identifies and assesses the potential opportunities for, risks to, and impacts on biological diversity and ecosystem services, including direct, indirect, cumulative and pre-mitigation impacts.

The project area has for a while been occupied by administrative institutions(.i.e MINIJUST, Supreme Court, NPPA), completely covered by built-up area in cement mortar, brick work and concrete infrastructure. This all implies that the project area does not have indigenous flora or fauna species, is not near a protected ecosystem and therefore no critical biodiversity will be affected.

3.2.4. OS4: Pollution prevention and control, hazardous materials and resource efficiency

OS4 outlines the main pollution prevention and control requirements for the Developer to achieve high-quality environmental performance, and efficient and sustainable use of natural resources over the life of a project.

OS4 objectives are to; (i) manage and reduce pollutants resulting from the project including hazardous and non-hazardous waste so that they do not pose harmful risks to human health and the environment, and (ii) set a framework for efficiently using all of a project’s raw materials and natural resources, especially energy and water.

Its requirements include; (i) resource efficiency in its consumption of energy, water, as well as other resources and material inputs, with a focus on areas that are considered core business activities, (ii) consider alternatives and implement technically and financially feasible and cost-effective options to reduce project-related Green House Gas (GHG) emissions during the design and operation of the project (iii) pollution prevention of either hazardous or non-hazardous waste.

Construction works of Kigali Mall shall involve heavy equipment that generate GHG emisions. The Mall shall host different activities (e.g. restaurants, supermarkets, apartments, offices, air conditioners, cooking and refrigeation systems) that are also likely to generate solid and liquid waste, GHG hence triggering this OS 4.

3.2.5. OS5: Labour conditions, health and safety

This OS outlines the main requirements for borrowers or clients to protect the rights of workers and provide for their basic needs. The specific objectives are to: (i) protect worker's rights; (ii) To establish, maintain, and improve the employee-employer relationship. (iii) To promote compliance with national legal requirements and provide supplemental due diligence requirements where national laws are silent or inconsistent with the OS. (iv) Align Bank requirements with the ILO Core labor standards and the UNICEF Convention on the Rights of the child, where national laws do not provide equivalent protection. (v) Protect the workforce from inequality, social exclusion, child labour and forced labour and (vi) Establish requirements to provide safe and healthy working conditions.
Looking at workers rights and conditions during construction and operation of the project is essential, hence the need for this OS 5.

In reference to the different Operation safeguards discussed above, the following table indicates those that are triggered by the project activities at the proposed sites.

Table 1: Safeguards triggered by the project

Safeguard Policies Triggered by the Project	Yes	No
OS1: Environmental and Social Assessment Construction and operation activities of the Kigali Mall will bare risk/ impacts on the human, physical and social environment existing, hence triggering this Operational Safeguard.	[X]	[ ]
OS 2: Involuntary Resettlement: Land Acquisition, Population Displacement and compensation The MoU and any other arrangements between GoR, the current land owner and the Developer disqualifies the possibility of this project triggering this operation safeguard.	[ ]	[X]
OS3: Biodiversity and Ecosystem services The project area has been occupied by administrative institutions(.i.e MINIJUST, Supreme Court, NPPA), completely covered by built-up area in cement mortar, brick work and concrete infrastructure, with no natural or critical habitat, without legally protected and internationally recognized areas, hence not triggering OS 3.	[ ]	[X]
OS4: Pollution prevention and control, hazardous materials and resource efficiency Construction works and operation activities for the Kigali Mall will lead to; generation of solid and liquid waste, Green House Gases (GHG), inefficient use of resources	[X]	[ ]

such as; water, construction material, power, hence the need to evaluate the project in the context of its achievements on OS4.		
OS 5: Labour conditions, Health and Safety Construction works on sites, supply of material, protection of material, the Mall operation activities shall involve; occupational health and safety, recruitment and management of workers . Working conditions on site and on operating the Mall shall be required to meet international and national labour standards, Occupation health and safety (OHSAS) standard, hence the the need to evaluate the project in the context of its achievements on OS5.	[X]	[ ]

3.3. INSTITUTIONAL FRAMEWORK

For the project to succeed, a number of key implementers shall be involved that include;RDB, RHA, CoK, REMA, REG/EUCL, WASAC, KTRN and the Developer (Duval great lakes Ltd). The roles and responsibilities of each of these implementers is elaborated hereafter.

Rwanda Development Board (RDB)

RDB is currently the government organ in charge of investments in the country. In regard to this project, RDB, on behalf of GoR, has entered into a MoU with the Duval Great Lakes Ltd to facilitate in developing a project that will establishes a mix of office and retail properties on the project site. RDB is therefore key in facilitating the review and approval of studies done by the Developer leading to transfer at a cost of the plot for development.

RDB also has a unit responsible for reviewing and approval of EIA studies and issuance of EIA certificates as part of authorisation for a project to commence and be implemented in sustainable manner. This EIA study shall therefore be submitted to this unit in RDB for approval and certification.

Rwanda Housing Authority (RHA)

RHA is a public institution with the mandate of; organizing and spearheading rural settlement, urban settlement, public building construction, affordable housing, management of public office space and Government assets and regulation of the construction industry.

This being a project involving:

- Construction, RHA will play a key role in technical review of the feasibility studies and project designs proposed for the project for RDB to approve the project and proceed to transfer of land for project implementation.
- Displacement of public institutions such as the Supreme court, NPPA, in which case RHA will play an important role in relocating them before any construction commences.

City of Kigali (CoK)

Relevant to this project, CoK will:

- Participate in the technical design of the project in compliance to the Kigali master plan 2050 and building code, hence advising RDB on a technical point of view for the project to be approved.
- Review project designs and related studies before approving and issuing a construction permit.
- Carry out adhoc inspections of the project construction site to ensure compliance to the construction permit's requirements, building code and project designs as submitted.
- Issue an occupation permit upon completion of the construction and satisfaction that Mall meets design, structural, mechanical and electrical, plumbing standards for occupation.

REMA

REMA, is the authorized Government institution to determine modalities of protection, conservation and promotion of the environment in Rwanda. REMA has transferred the responsibility of reviewing the EIA report, issuing EIA certificate to a department in Rwanda Development Board (RDB).

The process of screening the project to assess its impact level (I, II or III) and determine whether it requires an EIA, EMP or none of these is the responsibility of RDB.

REMA shall however, periodically monitor the project activities to ensure mitigation measures are implemented and that it has no adverse impacts on the environment.

Rwanda Electricity Board (REG)/ Electricity Utilities Corporation Ltd (EUCL)

EUCL on behalf of REG is responsible for the electricity connectivity. It shall be responsible for relocating existing power cabling, onsite or traversing the site and cabinets on site or at the plot periphery to protect the project and also neighbourhood depending on existing electricity connection. It shall be the institution to go to for power connection of the mall.

Water and Sanitation Corporation (WASAC)

WASAC is responsible for portable water connectivity. It shall be responsible for relocating existing water pipes on site or at the plot periphery to protect the project and also neighbourhood depending on existing pipes traversing the site. It shall be the institution to go to for portable water connection of the mall.

KT Rwanda Network (KTRN)

KTRN is Rwanda's only 4G LTE infrastructure company that offers a wholesale provision of fast and stable universal mobile broadband network 4G LTE, providing both wireless and non-wireless connectivity (via optic fibre installation). KTRN is the company to go to provide fast broadband connectivity to the mall. It is also understood that the site has traversing optic fibre on site and along its border and Point of presence(POP) that provides access to network to key instittution in the vicinity, likes of the Supreme court, Parliament, RDB, Lemigo hotel and the immediate project plot neighbourhood. The Developer will need to engage KTRN to relocate this infrastructure from site and most importantly provide network to the mall.

Duval Greatlakes Ltd (the Developer)

Duval Great lakes Ltd, the Developer, will be responsible for:

- Carrying out the feasibility study, project designs, show financial capabilities to the satisfaction of GoR for site plot to be transferred to them at a cost.
- Application for all relevant permits.e.g. construction permit, EIA certificate.
- On approval by GoR, engage the relevant organs mentioned above to facilitate in identifying, relocation from site and supply of infrastructure services at the project site.e.g power, water, broadband network.
- Construction of the Kigali Mall.
- Operation of the Kigali Mall.

CHAPTER 4: BASELINE ENVIRONMENTAL CONDITION

4.1. PHYSICAL ENVIRONMENT

Physical environmental survey involves understanding the actual status of the area, in regard to; Climate (temperature, rainfall), relief, soil, water and air quality. Physical parameters discussed hereafter are directed to Gasabo District, where the Kigali Mall is located.

4.1.1. Climate

The climate was characterized by analyzing climatic data (rainfall) obtained from from the Kigali Aero Meteorological Station.

4.1.1.1. Temperature

From the Kigali Aero station, the mean minimum temperature is 15°C and a mean maximum reaches 26°C as shown in *Figure 9,* with the highest temperature in the months of July- August.

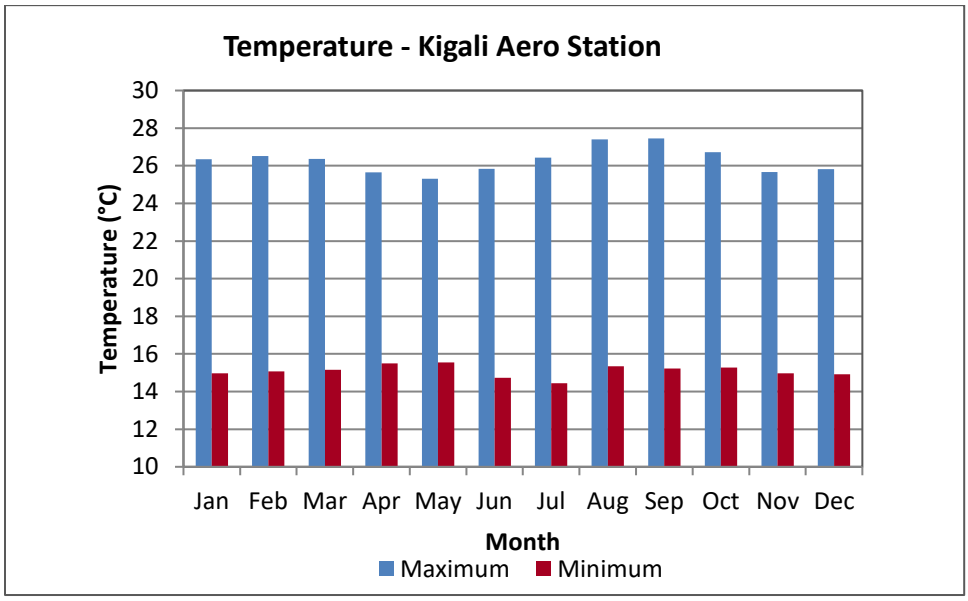

Figure 3: Seasonal temperature variation in Gasabo District (Source: Kigali Aero station, 2012)

4.1.1.2. Rainfall

Annual rainfall in most parts of the District Sectors of project intervention is in in the range of 1200-1400mm/year.

The seasonal pattern of the rainfall regime in Gasabo is such that there are two (2) rainy seasons extending from February to May and late September to November with generally high spatial and temporal rainfall variability (*Figure 10).* The seasonal variation indicate the relatively dry period between June and August with monthly rainfall amounts predominantly below 40 mm. July is the driest month in the catchment while the wettest month is April with the average rainfall amounts recorded as high as 163 mm.

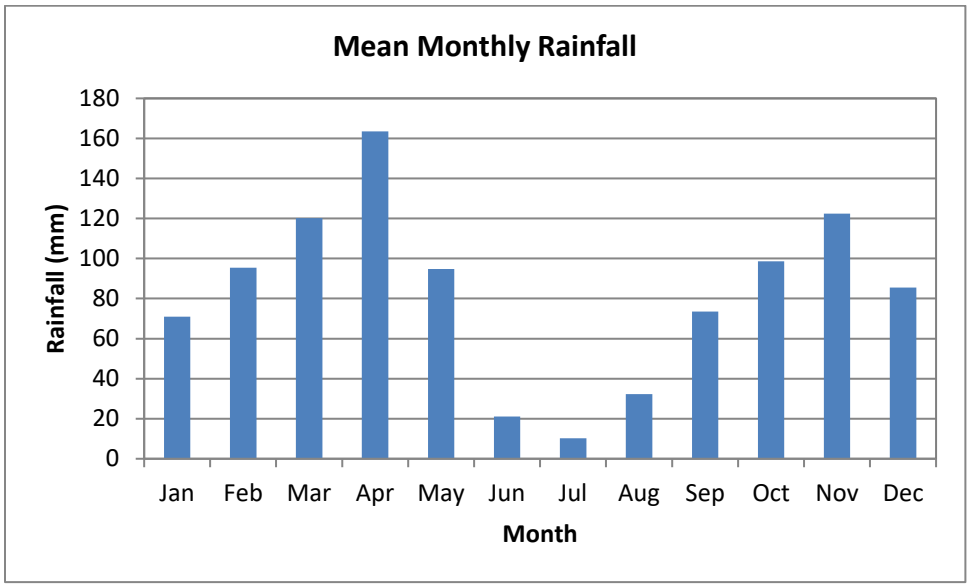

Figure 4: Seasonal rainfall pattern in Gasabo. (Kigali Aero Station, 2012)

4.1.2. Relief

The site comprises of a fairly flat area, at 1501.4m absl, with a Slope gradients varying from 0-6%.

4.2. BIOLOGICAL ENVIRONMENT

4.2.1. Existing flora and fauna

As seen in figure 2 above, the project area is covered in institutional buildings and pavers covering the parking, with small portions of green area mostly in ornamental trees and persparrum grass. It has no indigenous plants or animal species. There was no reason for any further investigation on the biological environment.

With reference to National ministerial order no. indicating protected plant and animal species in Rwanda and also the IUCN red list of threatened plant and animal species, the project area had none of these species existing on site at the point in time of this study.

4.3. SOCIO-ECONOMIC ENVIRONMENT

This section attempts to understand the current social economic profile of the project area of influence, deficiencies in the City of Kigali leading to the contributions of the project versus the likely effects of the proposed project.

With the project area currently under public administration Institutions, the study did not see the importance of applying data of the Integrated Household living conditions surveys (EICV 3 and 4) of Gasabo District and Kimihurura sector for the socio-economic baseline for the following reasons; (i) the Kigali mall project is proposed to serve beyond the District's needs towards Kigali city's needs, international participants of conventions, meetings and events at Kigali Conventional Centre and beyond.

The Socio-economic environment discusses areas of business, commercial, retail and leisure opportunities that the project intends to venture in, an overview of traffic tendencies around the project area that could influence or be affected the project operation and infrastructure traversing the site servicing the site and relevant neighbourhood.

4.3.1. Business, commercial and leisure status

Accommodation in the Hospitality sector

Reference made to the Statistics Year Book 2018 of Rwanda, where it is stated that the number of accommodation rooms by Hotels in Rwanda by 2017 in Rwanda was 10,766rooms, while the number of visitor arrivals in Rwanda in 2017 for specific purposes of; Business/ conference/ official, Visiting friends and relatives, Holiday/vacation totalled to 1,052,306. Of these the number of visitors 2017 for business/ conference/official was 460,444. With such a number it is clear that there is need for more hotel rooms or serviced apartments to host major MICE conferences, meetings, events such as AfDB, Commonwealth summits.

Commercial buildings

Furthermore, data from the IPAR research conference on "City of Kigali Commercial Real Estate study findings" done June 2019 mainly on the occupancy of commercial buildings, highlighted the following:

- The mean City of Kigali average occupancy rate of Commercial buildings was at 85%, implying 15% non-occupancy. The highest mean occupancy was in Remera at 93.1%, followed by Nyabugogo at 89.5%, Kacyiru at 89.3% and least of all Kicukiro of the commercial centres studied;
- Tenants preferences when choosing commercial buildings to rent showed the highest at 46.3% on "proximity to clients of my business", 18.2% to "prestige that comes with the location", 14.5% for cheaper prices of floor area and 12.5% proximity to complementary services to their business.
- Median commercial building rents indicated Kimihurura to have the highest rent at 946,500 per unit, Remera at 341,667Rwf per unit, Nyarugenge city centre at 311,500Rwf per unit, Kacyiru at 300,000Rwf per unit.
- Median rent per square meter was highest in Nyarugenge at 15,000Rwf/m^2, Gisozi at 11,750Rwf/m^2, Nyabugogo at 8,500Rwf/ m^2, Kacyiru at 4,166Rwf/m^2, Kimihurura at 2,778Rwf/m^2.

Analysis of the median rent per square meter in Kimihurura where the project shall be established ma not necessary reflect an indication of the rent fees to refer to in the project design especially since this rent fee does not reflect the quality of the building, prestige of location and quality of services proposed for the project and the neighbouring buildings such as Kigali Convention Centre, RDB, Parliament building, Kigali Heights, Kigali Business Centre, Career centre, Lemigo Hotel.

Deductions from this data was interpreted as such relative the Project's proposed serviced offices, commercial and retail space; in design, the project may consider the 15% non-occupancy, proximity to clients of targeted tenants, relatively affordable rental prices per floor area, complementary services to businesses.

It is also important to note that Kigali has mixed use commercial buildings but has not yet acquired a fully-fledged commercial mall setting. This project could prove to be the first ever Mall in Kigali city.

4.3.2. Traffic trends

From field observations of traffic movements on the KN5 Road along the proposed project site, the following information was captured:

- Traffic congestion hours during the day occurred mostly from 5pm to 8pm, as people are returning from work heading back home.
- Traffic is managed by a single round about which gets congested during the peak hours mentioned above. Furthermore, means of a driver negotiating at this roundabout to access the hind side of the project site proposed for the Kigali Mall entrance is not easy and could result in traffic accidents or even infringe traffic movement thereby contributing to the traffic jam.
- Proximity of the Parliament, Kigali Convention centre and their events or conference activities occasionally interrupts traffic in this area causing congestion, which could be a limitation to the Mall's services.

A more robust traffic survey of the roads accessing the project site is required to inform the project design on how best traffic can be managed with minimal effect on current traffic surrounding the site.

These findings mentioned can however be used to build on the traffic survey and the project design.

4.3.3. Infrastructure services at site

Field observation and key stakeholder consultations with relevant infrastructure service providers such as; REG/EUCL, WASAC, KTRN were able to give the study an outlook of the infrastructure traversing the project site that will require urgent attention during project design.

Water network- WASAC was able to inform the study that site has 3 types of water pipes; (i)The primary main 300 PVC along the KN5 Main road at the periphery of the site, (ii) the Secondary Distribution pipe of 90PVC to the project site and neighbourhood of Rugando cell and (iii) tertiary pipes supply the existing Administrative institutions, Supreme Court, high court, NPPA. (*Water network map of site can be referred in Annex 2*)

Broadband internet connection- KTRN informed the study that site is a Point of Presence, with the surrounding institutions connecting internet services from the site. Institutions such as; Supreme Court, High court, NPPA, Parliament, RDB, Lemigo hotel.

Electricity- The site has a Ring Main Unit that connects power to the existing Administrative institutions, Supreme Court, high court, NPPA.

Project design shall need to identify networks of these infrastructure on site in collaboration with the relevant institutions and companies in order to cause minimal disruption of neighbourhood activities.

CHAPTER 5: STAKEHOLDERS CONSULTATION AND PUBLIC PARTICIPATION

5.1. STAKEHOLDER'S ENGAGEMENT DURING THE ESIA

The consultant begun by mapping out key stakeholders who could be affected by, or who would influence project activities.

Information collected from the preliminary desk review, preliminary scoping consultations and preliminary field visits to the project site, guided the consultant in identifying the project stakeholders.

The stakeholders identified were from:

1. Developer- Duval Great Lakes Ltd
2. Rwanda Development Board (RDB),
3. Rwanda Housing Authority (RHA),
4. City of Kigali (CoK),
5. REG/ EUCL,
6. KT Rwanda Network (KTRN),
7. WASAC.
8. Various security organs.

Methods applied:

During the Stakeholder's engagement, the study applied different participatory methods, namely;

- Interviews,
- one-to-one discussions with Key Informants (KIs).

Stakeholder Consultation procedure:

All discussions begun with the Consultant introducing the firm to the stakeholder and the purpose of the discussion. Stakeholder engagement agenda generally followed this structure:

- *Project introduction*- This included introducing; the Project objectives, Components proposed project interventions and areas of influence. (only for those that did not fully understand the project design status)
- *Opinions o*n proposed project interventions for each component.
- *Suggestions on their expectations* of the project intervention areas
- *Benefits expected from the project.*
- *Risks and adverse impacts* from project activities
- *Proposed mitigation measures or adaptation measures* to the adverse impacts.

Furthermore, to this, consultations done by the Developer with some of these key stakeholders during a workshop on a New Ecosystem at Kigali's heart, the name of Kigali Mall at the time, on the project concept, were also considered as a source of opinions, risks/ impacts of the project.

Issues raised and measures proposed

Opinions and questions from the stakeholders were recorded and where necessary response given to questions raised. Follow up on those questions that were not answered was also included. Summary of the common issues raised by stakeholders was presented in *the table 3* below.

Table 2: Summary of issues raised during stakeholder consultation

Issues at hand	Stake holders	Suggested adaptation/mitigation measures by stakeholders and Response by the Developer to issues at hand, where able to
• As a destination for the growing annual visitors in Kigali to spend quality time, the ***Mall should plan to offer services that are lacking in the neighbourhood***. entertainment. Sports facilities, duty free shops proposed by the project.	RDB	• The Developer proposes Anchor tenants at the mall of brands distinguishing themselves from the existing supply in Kigali. Anchor tenants are chain stores located at a shopping mall so as to give maximum exposure to smaller, satellite stores Such tenants could be international supermarkets, stores, restaurants, fast food.
• The ***project design harmonised to the Kigali Convention Centre landmark***.	City of Kigali (CoK)	• The Project design will seek approval for a building permit at which point the CoK will check compliance to this request. • Furthermore, pedestrian direct connection is discussion of the project design.
• ***Traffic congestion and noise pollution*** could adversely affect the current surroundings.	City of Kigali (CoK)	• Traffic assessment around the site is crucial to inform the project design. • Noise control shall be considered in the project design
• ***Caution*** on proper project planning around ***existing and required utilities and infrastructure services***, such as; water, optic fibre and electricity.	City of Kigali (CoK), REG/ EUCL, WASAC, KTRN	• The Developer to work with the relevant institutions and companies to identify, relocate and reconnect utilities and infrastructure services traversing the site and its boundaries.
• ***Consider green building certification in project design and implementation*** by applying technologies that are environmentally friendly. solar energy use	RHA and CoK	• The Project already proposes hanging green gardens as a means of offsetting tree and vegetation losses. • Design needs to consider energy saving technology, water saving technology.
• In case Duty free shops are included in the project, ***proper controls in place to avoid abuse of Duty free.***	RDB	• Controls in place to avoid Duty free abuse with the support of RRA staff at the Mall and other relevant institutions. e.g. Diplomatic credential verification
• ***Connectivity of the Mall to the adjacent Kigali Convention centre activities***	RDB	• pedestrian direct connection is discussion of the project design.
• ***Inconvenience arising from relocation of existing Institutions*** along with their staff from the site, Institutions such as; Supreme court, High court, NPPA. Inconvenience to		• Upon approval of the project by GoR, the Developer might require GoR to set a reasonable period (3-4months) before project commencement in which announcements are made through

Issues at hand	Stake holders	Suggested adaptation/mitigation measures by stakeholders and Response by the Developer to issues at hand, where able to
employees and those seeking services from these Institutions		public media of planned relocation of the existing Institutions on site, dates and venue of relocation. To allow adjustment by these institutions, their employees and public that regularly seek their services.
• Cost of ***demolition of existing buildings and infrastructure services***	RDB/ RHA	• It has been suggested that the Developer along with RHA could auction off the task of demolition of existing buildings and disposal of debris.
• ***Relocation of Optic fibre causing interruption of broadband internet connectivity*** of businesses and administrative activities surrounding site and dependent on the Point of Presence (PoP) on the site.i.e. Parliament, RDB, Lemigo Hotel.	KTRN	• The Developer shall contact KTRN to relocate this PoP, reconnect the neighbouring Institutions, hotels and clients and also the site. • From the study's consultations with KTRN, it was relocation of fibre could be estimated at 20,000,000Rwf and reconnections will take 1-2 months. However, disconnected clientele can be temporarily reconnected to other KTRN networks as the relocation works go on.
• ***Relocation of portable water pipes traversing the site*** resulting in interruption of livelihood in Rugando and beyond dependent on these water connections.	WASAC	• The Developer shall need to work in collaboration with WASAC before construction commencement in identifying the existing primary main at the boundary, relocation of the secondary distribution pipe and tertiary pipes on site.
• ***Relocation of Electricity Ring Main Unit and underground cables*** at the site and those traversing the site resulting in interruption of livelihood in Rugando and beyond dependent on these power connections.	REG/EUCL	• The Developer shall need to work in collaboration with EUCL during project design in identifying the Electricity Ring Main unit (RMU) on site, the underground cable network and whether the existing RMU will remain in its position or moved, whether a new will be required. Modern RMU designs blending in with building designs have been built at RDB and KBC. It is such a modern RMU that might be proposed for the Kigali Mall project in case there is need to establish a new one.
• ***Parking issue at the Mall could cause traffic congestion, affect KCC operations, inconvenience customers and tenants of the Mall if not well planned.***	CoK	• The Developer proposes underground parking and entrance and exit at the back side of the site adjacent to Fair view building and Lemigo Hotel.

Issues at hand	Stake holders	Suggested adaptation/mitigation measures by stakeholders and Response by the Developer to issues at hand, where able to
		• Most important here is the developer to commission a traffic assessment study to advise the project design before seeking building permit.
• ***Storm water management*** during construction and operation works likely to affect the neighbours at the boundary of the site	CoK, Kimihurura sector, Lemigo hotel, other Project Neighbours	• Design of the Kigali Mall shall consider a stormwater management plan during construction and operation phase of the project, on how to collect ground run-off and roof run-off to channel it to the existing drainage channels along the existing roads at the KCC and down Rugando cell as a means of minimising erosion and flooding on site and downhill. • Design work may consider underground holding tanks for roof rainwater for reuse in irrigating green areas and hanging gardens of the mall. This will reduce volume from the site, hence reducing erosion and flooding downhill.
• ***Soil erosion and flooding*** from the excavation works of the site	CoK, Kimihurura sector, Lemigo hotel, other Project Neighbours	• Stormwater management plan mitigation measures mentioned above will be helpful in avoiding or minimising erosion and flooding.
• ***Mud, dirt, garbage littered on the KN5 Airport road*** from trucks transporting debris, garbage, construction material and soils from and to the site mainly during the construction stage	CoK, Kimihurura sector, other Project Neighbours	• The Developer shall ensure all loaded trucks are covered with canvas, either those delivering material or those disposing off debris and garbage, to avoid litter. • Trucks from the site will require cleaning of their tyres to reduce mud from the site on to the surrounding roads especially the KN5 road. • In addition to this, the Developer's contract shall ensure dirtied roads are cleaned regularly in the course of the day to remove mud and dirt caused by the project. • The Back side of the site adjacent to the Fairview building and Lemigo Hotel could be the entrance and exit for trucks and other automobiles of the construction works and also eventually during the Mall operation.
• Foul smell from ***poor management of Wastewater*** generation and treatment on site	CoK, Kimihurura sector, Lemigo hotel, other Project Neighbours	• The Design team shall look at number of wastewater treatment

Issues at hand	Stake holders	Suggested adaptation/mitigation measures by stakeholders and Response by the Developer to issues at hand, where able to
		systems and proposes the most appropriate system. • To be cost efficient while promoting green building, the Developer may consider a system that allows for reuse of treated water for flashing the toilet and irrigation of green areas and the hanging gardens.
• Foul smell from ***poor management of Solid waste*** generated by project activities	CoK, Kimihurura sector, Lemigo hotel, other Project Neighbours	• The Developer might consider Solid waste collection and disposal designed to include; sorting at the source, reuse of certain waste, disposal in sorted bins, separate collection bins labelled with categories of waste and finally daily disposal of non-reused waste at the designated dumpsite in Nduba.
• ***Occupational health hazards*** during construction and operation phases of the project	CoK	• It is proposed that the project at all times during construction and operation complies to the requirements of the National labour law, adopt relevant guidelines of the IFC Environmental, Health and safety general guidelines specific to Occupational health and safety and furthermore exercise requirements of ISO 45001 OHSAS.

5.2. STAKEHOLDER ENGAGEMENT PLAN DURING PROJECT IMPLEMENTATION

In order to clearly develop a systematic and effective means of engagement, stakeholders should be identified in relation to the project components to be undertaken and mapped out to understand their interests in these development activities.

Stakeholders identified and mapped for inclusion in engagement activities under the Project meet one or more of the following criteria:

i. have an interest in the various Project activities;
ii. would potentially be impacted by or have an influence on the various Project activities (negatively or positively); or
iii. Could provide commentary on issues and concerns related to the various Project activities.

Stakeholders were categorised, based on their various needs, interests, and potential influence on the project as outlined in:

Table 3: Stakeholder mapping

Stakeholder Group	Project Interaction	Stakeholders
Central Government	• Signing of MoU for the Kigali Mall project with the Developer on behalf of GoR. • Approval of project feasibility and design studies for land transfer to the Developer at a cost. • Company Registration of the Developer; • Authorisation of the EIA certificate. • Relocation of Existing Institutions on project site. • Permits and exonerations.	Key Stakeholders: • Rwanda Development Board (RDB). • Rwanda Housing Authority (RHA). • Rwanda Revenue Authority (RRA) • Rwanda Environment Management Authority (REMA).
Local Government	• Technical review of Project feasibility and design studies before project approval • Issuance of Building and occupation permits • District-level permitting and compliance enforcement; • Grievance Management.	• City of Kigali (CoK), • Gasabo District, • Kimihurura Sector and • Rugando Cell
Neighbouring business and residences	• Affected or benefitting by project impacts such as; job opportunities, appreciation of rentals near the mall, noise pollution, storm water floods, muddy roads, traffic disruption.	• Kigali Convention Centre (KCC) • Fair view, • Lemigo Hotel. • Simba building. • Rugando neighbouring community.
Utilities and infrastructure service company	• Portable water connection • Electricity connection • Broad band internet connection	• WASAC. • EUCL. • KTRN.
National and Local NGOs:	• May have useful data and information from experience in the communities; • May supplement project benefits;	Community Based Organizations, National-category NGOs, International NGOs and Pressure Groups i.e.Transparency International Rwanda, etc

Stakeholder Group	Project Interaction	Stakeholders
Media, Political Parties/groups, Religious Organisations	• Cascading project information to the public; • Influence on public views and opinions on the projects;	• National and international Media (newspapers, television and radio stations). • Religious denominations.
Businesspeople and Companies	• Supply of Project inputs and management of outputs; • Professional and technical services to the projects; • Financial management.	• Contractors. • Suppliers and service providers. • Other businesses operating within project communities • Local and international banks.
Law Enforcement and security Agencies	• Security	• Rwanda Police. • Private security organs.

The following Stakeholder Engagement Plan (SEP) outlines the main objectives and types of engagements required with the identified main stakeholders during project implementation.

Table 4: Stakeholder engagement plan during project implementation

Stakeholder Group	Objective of Engagements	Project Phase	Required Actions	Responsibility
Central Government	• Project study approvals for Developer's land acquisition and project commencement • Obtain support regarding licensing, permitting processes and any tax exonerations; • Ensure compliance with set Environmental Regulations and Guidelines; • Conduct quarterly updates on building progress and maintain a positive and ongoing relationship;	All Phases .i.e. planning, implementation and operation	• Apply for all required licenses and permits (i.e. RDB, REMA, RRA); • Apply for any requisite extension, renewal or variation of licenses or permits; • In case of Duty-free stores at the Mall, consult and comply with controls as advised by RRA; • Conduct and submit reports of annual environmental audits to REMA; • Submit regular Wastewater effluent monitoring reports to REMA as scheduled; • Adhere with to applicable national regulations; • Consult REMA on any emerging environmental issues that may require their guidance.	• Duval Great lakes Ltd, the Developer.
Local Governments	• Obtain information, approvals and guidance for construction and occupation permit. • comply with set Environmental Regulations and Guidelines	Planning and Construction Phase	• Apply for all required licenses and permits; • Apply for any requisite extension, renewal or variation of licenses or permits;	• Duval Great lakes Ltd • Contractors • Supervising Consultants
Neighbouring business and residences	• Regular meetings to foster understanding of the Projects and ensure community security;	All Phases	• Conduct quarterly updates to the neighbouring communities on existing projects;	• Duval Great lakes Ltd • District • Sector
Utilities and infrastructure service company	• Project interruption of utility networks on site.i.e. water pipes, electricity cables and RMUs, optic fibre.	Planning phase and commencement of construction phase	• Work in collaboration with these companies to identify locations of the utility networks, relocate them without destroying them.i.e. water pipes, electricity cables and RMUs, optic fibre.	• Duval Great Lakes Ltd. • WASAC • EUCL • KTRN

Stakeholder Group	Objective of Engagements	Project Phase	Required Actions	Responsibility
National and Local NGOs:	• Build and maintain a trusted relationship; • Collaborate on relevant activities for the benefit of the communities.	Construction and Operation Phases	• Hold regular conversations with representatives from relevant NGO groups to ensure they are well-informed during the Project's life	• Duval Great lakes Ltd
Media Political Parties/groups, Religious Organisations	• Improve public/ civil society/political perceptions about the Project; • Have opportunities for public outreach/advertisements; • Seek to ensure that stakeholders develop a sound understanding of the Project. • Manage expectations in relation to social and economic benefits. • Understand needs around capacity building and where the Projects may be able to assist. • Understand the details of the development needs of local institutions.	Construction and Operation Phases	• Conduct bi-annual dedicated media briefings to provide project updates, details of the Project's social and environmental performance. • Invite the media to important events organised or promoted by Project to show case success project stories.	• Duval Great lakes Ltd •
Businesspeople and Companies	• Build and maintain mutually beneficial relationships; • Improve perceptions about the Project;	Construction and Operation Phases	• Conduct annual contractor and supplier briefings on E&S risk management process; • Obtain views and comments from Contractors regarding the process and address these.	Project with Contractors, Suppliers and Supervising Consultants
Law Enforcement and security Agencies	• Build and maintain a positive and ongoing relationship with the regular and traffic police.	All Phases	• Quarterly meetings to monitor security and safety situations affecting projects	• Duval Great lakes Ltd

CHAPTER 6: IMPACTS EVALUATION

Based on the different study methods of this EIA (i.e. Stakeholder consultation, literature review, baseline data, expert opinions from design team), the impacts anticipated were evaluated with the aim of determining positive and negative project impacts.
This chapter comprises of two sections:

- Section 6.1- where positive impacts of the project interventions are discussed and
- Section 6.2- where impact analysis of anticipated adverse/negative impacts or risks are discussed.

6.1. Environmental and social Positive impacts

Table 5: Environmental and social positive impacts

Item	Environmental positive Impacts	Social positive impacts
The Mall will be the first ever commercial mall in Kigali with mixed use activities.	None	- Kigali Mall will open space to; Shops, Office space, service apartments, leisure activities (gym, cinema, bowling), restaurants, bars. - By offering meeting rooms for spill over meetings at KCC, shopping areas, leisure areas, serviced apartments to foreign and local participants attending conferences, meetings, events, right adjacent to the KCC. - The Project will contribute to increase in available office space; however, the Developer will need to be cautious of the cost of rent per square metre and the fact that as of now 15%of commercial building are not occupied.
Service apartments on a G+10 floor tower	None	- The Project will contribute to increase of accommodation facilities, from 10,766rooms as by 2017, required to serve visitors attending MICE, Visiting friends, for tourism.
The Mall anticipates attracting Anchor tenants	None	- chain of stores of international brands different from the common stores in Kigali, hence drawing foreign and local visitors to spend on quality products commonly identified with well-known brands.
Duty free shops at the Mall	None	- Diplomats and foreign delegates will now have access to buy Duty free items within the city instead of waiting to get through to the Airport to get Duty free item access.

Item	Environmental positive Impacts	Social positive impacts
Foreign Architectural touch to the Project design	None	- The Mall design will improve the architectural scenery of the Kigali horizon adding to the KCC landmark adjacent to it and blending in with the KCC.
Public space area at the Mall	None	- The Mall will also accommodate public space for open events, open public interactions, a scene not very common in Rwandan buildings
Hanging gardens proposed for the Mall	- This shall offset impact of loss of trees and vegetation on site and in other urban buildings. It shall also give the Mall a form of green environment.	None
Employment during the construction and operation of Kigali Mall	None	- During planning and construction of the project, job opportunities for all skilled and unskilled labour. i.e. Architects, engineers, Environmentalists, specialised experts, masons, plumbers, welders, casual labourers. - Furthermore, employment is expected from tenants of the mall. i.e. the stores, restaurants, office areas, serviced apartments, gyms, etc...
Procurement of both local and foreign construction material for the project and products for sell at the mall	None	- Acquired revenues from taxes off construction material during construction, taxes from sells and salaries from business owners at the Mall.

6.2. Adverse Impact analysis

Based on the different study methods of this EIA (i.e. baseline study, field observations, public consultation/ stakeholder's engagement, literature review, expert observations, GIS mappings of the area), the impacts anticipated were evaluated with the aim of determining which are negative impacts.

Project activities either on their own or in combination with each other, result in potential risks or impacts, either from the project onto the environment or from the environment onto the project.

This chapter bares two sections:

(i) Section 1- elaborates anticipated negative impacts;
(ii) Section 2- the analysis of risk or impact significance comprising of; the ***Impact*** and ***likelihood*** of risk/impact occurrence ***resulting into the impact significance***.

Section 1- Anticipated negative impacts

Table 6: Anticipated negative impacts

Operational Safeguard (OS)	Risk/ impact	Elaboration of Impact
OS 1: Environmental and social assessment	Soil erosion	Excavation works in preparation of the foundation and underground parking will involve removal of soils kept in soil piles, which if not controlled, during rainy days could be washed away by rainfall run-off causing floods on site and of the immediate neighbourhood, likes of; the KN5 Airport road, Fair view building, Lemigo Hotel, Simba building and channels of the adjacent road by KCC.
	Flooding of site and neighbourhood from storm water	
	Mud, dirt, garbage littered on the KN5 Airport road	Trucks transporting debris, garbage, construction material and soils from and to the site mainly during the construction stage are likely to leave mud, dirt and garbage on the clean KN5 Airport road, if no precautions are taken by the Contractor and Developer.
	Destruction of utilities and existing infrastructure services on the site plot and its boundaries	As seen in socio-economic environment and stakeholder consultation sub-chapters, the site is traversed by; - *Water connections*- As per WASAC, a Primary Main pipe at its boundary with the KN5 Airport road, a secondary distribution 90PVC pipe supplying the Institutions on site and the immediate neighbourhood in Rugando cell and tertiary pipes connecting the different buildings on site to the secondary distribution pipe. Destruction during construction would cut off connectivity of the neighbourhood;

Operational Safeguard (OS)	Risk/ impact	Elaboration of Impact
		- *Electricity connections*- As per the site visit and consultations with EUCL, there exists a Ring Main Unit and underground electric cables on site that are focus of electricity connection of the Institutions on site and the neighbourhood. Destruction during construction would cut off connectivity of the neighbourhood; - *Broadband internet connection*- Consultations with KTRN the company in charge of optic fibre internet connectivity in the country, informed the study that the site is traversed by optic fibre and along its border and it is a Point of presence(POP) that provides access to network to key institution in the vicinity, likes of the Supreme court, Parliament, RDB, Lemigo hotel and the immediate project plot neighbourhood. Destruction during construction would cut off connectivity of the neighbourhood.
	Relocation of existing Institutions; Supreme court, High court, NPPA.	- Inconvenience arising from relocation of existing Institutions along with their staff from the site, Institutions such as; Supreme court, High court, NPPA. Inconvenience to employees and those seeking services from these Institutions.
	Noise pollution	Construction works could result in increased noise in the area from use of heavy equipment during, excavation works, compaction of soils, vibration work, increased people activity on site. Furthermore, during the Mall operation, noise pollution if not controlled might arise from; - Stores playing different music loudly to attract customers; - Cinema activities with loud sound effects; - Kids play areas; - Restaurants and bars; - Gym activities and bowling areas, - People in the public space area. All these could prove to be noise pollution to customers and employees in the Mall, the neighbourhood if not controlled, thereby deterring customers from using the Mall and therefore not good for business and the neighbourhood.

Operational Safeguard (OS)	Risk/ impact	Elaboration of Impact
	Traffic congestion and accidents	Construction works means supply of construction material, disposal of debris, which is done by trucks (large or small). This is likely to increase traffic on the KN5 Airport road, at the KCC round about, which could add more load to already busy road with early morning and evening traffic jams on this road and possible traffic accidents from increased heavy truck traffic. As observed in the socio-economic environment sub-chapter 4.3.2, the site already faces the following traffic issues: - Traffic congestion hours during the day occurred mostly from 5pm to 8pm, as people are returning from work heading back home. - Traffic is managed by a single round about which gets congested during the peak hours mentioned above. Furthermore, means of a driver negotiating at this roundabout to access the hind side of the project site proposed for the Kigali Mall entrance is not easy and could result in traffic accidents or even infringe traffic movement thereby contributing to the traffic jam. - Proximity of the Parliament, Kigali Convention centre and their events or conference activities occasionally interrupts traffic in this area causing congestion, which could be a limitation to the Mall's services. Mall activities bring many people, many vehicles and therefore increasing traffic and congestion to the already existing traffic issues existing if not considered at this point in project design.
	Fire out breaks	Welding, electrical installations and testing, mechanical automobile repair on site during construction are likely sources of fire outbreak. Electronic appliances, kitchens in restaurants, bars, gym, service apartments, different stores, offices are all liable to electrical circuits, which could be a source of fire out breaks on the Kigali Mall if not mitigated.

Operational Safeguard (OS)	Risk/ impact	Elaboration of Impact
	Abuse of Duty-Free shopping	With the project proposing Duty free shopping for access to only those that eligible to it, such as; diplomats and foreign delegates, there is a likelihood of misusing this opportunity for ineligible customers to benefit from untaxed cheaper cost to items, by the help or ignorance of store employees. This resulting uneven competition with other stores selling the same items and also resulting in loss of revenues from taxes off these goods.
	Cumulative impacts	Kigali Mall is likely to contribute to cumulative impacts accumulating from activities around the site, such as; the effect of increased number of people at this shared spot in Rugando Cell (i.e. KCC, Kigali Mall, Lemigo Hotel, Simba market, Parliament building), resulting in cumulative increase in noise, traffic, sewerage generation, stormwater impact, consumption of electricity, internet band width causing a burden towards already existing receptive infrastructure services if not captured right at the planning and design stage.
OS 4: Pollution prevention and control, hazardous materials and resource efficiency	Dust pollution	Site clearing and excavation works during construction will involve removal of existing vegetation, exposing the soils and pilling soils, which is likely to result in dust generation affecting the air around the KCC, KN5 Airport road, Parliament building, Lemigo hotel, fair view building and other neighbours.
	Green House Gas emission	CO_2, NO_x gases from heavy equipment during construction, gases released by appliances used at the mall during project operation could contribute negatively towards GHG emissions to the environment by polluting the air.
	Solid waste pollution	Solid waste will be generated during construction and operation project phases. During construction, solid waste such as; construction debris, paper, scrap metal, wood, organic waste shall be generated. During operation, solid waste such as; paper, scrap metal and wood, organic waste, spoilt computers, spoilt equipment, will be generated. Such waste generation needs to be managed to avoid; pollution of the environment like soil pollution, bad odour from garbage, or even become sources of vectors causing diseases to the neighbouring population.

Operational Safeguard (OS)	Risk/ impact	Elaboration of Impact
	Liquid waste pollution	Human waste will be generated during construction and operation phase. Human waste from the use of wash rooms at the Mall and kitchens needs to be managed to avoid; soil and ground water contamination, transmission of human diseases like dysentery and other water related diseases arising from such liquid waste and also foul smells from wastewater effluent discharge to existing stormwater channels along the site boundaries.
	Loss of usable construction material from demolishing of existing buildings.	By demolishing the existing buildings on site in preparation for the establishment of the Mall, construction material still intact like; roof tiles, windows, doors, floor tiles, sanitary material, lighting material, air-condition equipment, pavers, could be lost without fetching money returns. Existing buildings include; former MINIJUST, current Supreme court, High court, NPPA.
	Misuse of resources such as; water, power during operation of the Mall.	Leaving lights on, machines running and water taps when not in use is likely to occur during construction and operation of the project. This means misuse of resources, increased competition of shared resources that could be minimised with adaptive and mitigation measures applied.
	Soil contamination from project activities	Cement water contamination, oil spillage could likely source of contamination of soil during construction works and operation manufacture and maintenance works, if not controlled.
OS 5: Labour conditions, health and safety	Occupational health hazards	During the construction phase and operation phase of the Kigali Mall, there is a likely risk of workers' exposure to accidents from heavy equipment during site clearing and excavation, lifting material, falling material, electrocution while welding, splitting of timber, accidents from sharp objects, accidents from falling off high places for example while fixing the roof and painting, exposure to dust and drinking unboiled water on site, accidents from sharp equipment while repairing equipment, electrocution from machines for manufacture and repair works. All these could have safety effects on human health of the employees on site if employees' safety is not considered by the project.

Operational Safeguard (OS)	Risk/ impact	Elaboration of Impact
	Safety issues of people with disabilities (PWDs) in the design and implementation of the project.	The inability of PWDs to access the building, move from one floor to another, ensure quick escape during emergencies, are all not things of the past in modern building architecture. The Project is obliged to address safety and access of PWDs at any point of the Mall.
	Thefts and any security issues from project activities	Projects under construction often attract theft of material by workers or even the neighbourhood. The Contractor and Developer shall need to devise means of curbing them. Furthermore, with the completion of the Mall and eventually during its operation, it will host a huge number of people at every point in time during the day, it will host considerable quantities of equipment, products for sell, which all require security from possible criminal or terrorist attacks.
	Possible child labour	It is likely that relaxed monitoring of recruitment of casual labour during construction, could result in employment of workers under the national employment age of 16 years, therefore breaching the National labour code and leading to a bad image of child labour classification of the project.
	Poor site working conditions	During construction works, there is a risk that contractors and project operatives are likely to come short on a number of worker's rights including; selective contracts with workers, payment of workers on time, working longer hours than 9hours per day acceptable nationally, safety wear for workplaces that require them, fire risk management, security of employees on site and sanitation on site (e.g. clean toilets, water on site, boiled drinking water), hence making it an unconducive environment for working.
	Gender inequality in regard to employment	Even though Rwanda has gone a long way in closing the gap in gender inequality, showing shared responsibilities in decision making, leadership by both female and male, there is a likelihood of inequality of gender in employment especially in the construction phase. With most of the construction works involving engineering or heavy lifting, men might be preferred over women during employment, a hinderance to gender equality if not tackled by the Developer.

Section 2- Impact analysis

The following criteria are used to evaluate the significance of the risk/impact:

Probability (Likelihood)-This is the likelihood or the chances that the impact will occur, and is classified as:

- 1-20% Rare: Score: 1
- 21-40% Unlikely: Score: 2
- 41-60% Possible: Score 3
- 61-80% Likely: Score 4
- 81-100% Certain: Score 5.

Extent and location- Magnitude of the impact is classified as:

- Site: Impacted area is only at the site – the actual extent of the activity. (Score:1)
- Local: Impacted area is limited to the site and its immediate surrounding area. (Score:2)
- National: The impact can be considered to be of national importance. (Score:3
- Regional: Beyond the country borders and on trans boundary resources. (Score:4)

Duration- This measures the lifetime of the impact occurrence, and is classified as:

- Short term: The impact will be for 0 – 2 years, or only last for the period of construction. (Score:1)
- Medium term: 3-6 years. (Score:2)
- Long term: 7-10 years. (Score:3)
- Permanent: beyond 10 years. (Score:4)

Severity- This is the degree to which the project affects or changes the environment, and is classified as:

- Negligible:(Score:1)
- Minor: Score 2
- Moderate: Score 3
- Major: Score 4
- Extreme: Score 5

Potential of reversibility- This is the degree to which the project will cause impacts that are irreplaceable, and is classified as:

- Low: Reversible with no effort. (Score:1)
- Medium: Reversible with effort. (Score:2)
- High: Partially reversible with effort (Score 3)
- Critical: Irreversible. (Score:4)

Significance level- Based on the above criteria, the significance of the identified issues is determined.
The significance will be rated by combining the consequence of the impact and the probability of occurrence.
(i.e. Impact x probability = significance level).

Significance of the risk was rated in the following manner:

Negligible: Score of 1-20	Minor: Score of 21-40	Moderate: Score of 41-60	Major: Score: 61-80

Only risks of minor, moderate and major significance from the risk matrix in the table below, were considered for mitigation measures in the proceeding chapter 8.

Table 7: Risk/ Impact Matrix

Risk/ impact	Likelihood	Impact				Sum of Impact	Rating	Colour rating of significance	Significance of risk
		Location	Duration	Severity	Level of Reversibility				
Soil erosion	4	2	1	3	2	8	32		Minor
Flooding of site and downhill from storm water	5	2	2	3	2	9	45		Moderate
Mud, dirt, garbage littered on the KN5 Airport road	5	2	2	2	2	8	40		Minor
Destruction of utilities and existing infrastructure services on the site plot and its boundaries	5	3	1	3	2	9	45		Moderate
Relocation of existing Institutions;	5	3	1	2	2	8	40		Minor

Risk/ impact	Likelihood	Impact				Sum of Impact	Rating	Colour rating of significance	Significance of risk
Supreme court, High court, NPPA.									
Noise pollution	**5**	**2**	**4**	**3**	**2**	**11**	**55**		**Moderate**
Traffic congestion and accidents	**5**	**2**	**4**	**3**	**2**	**11**	**55**		**Moderate**
Fire out breaks	**4**	**2**	**4**	**4**	**4**	**14**	**56**		**Moderate**
Abuse of Duty-Free shopping	**4**	**3**	**4**	**3**	**2**	**12**	**48**		**Moderate**
Cumulative impacts	**3**	**2**	**4**	**3**	**2**	**11**	**33**		**Minor**
Dust pollution	5	2	1	3	2	**8**	**40**		**Minor**
Green House Gas emission	3	3	4	3	3	**13**	**39**		**Minor**
Solid waste pollution	5	2	4	3	2	**11**	**55**		**Moderate**
Liquid waste pollution	5	3	4	3	2	**12**	**60**		**Moderate**
Loss of usable construction material from demolishing of existing buildings.	5	3	1	3	3	**10**	**50**		**Moderate**

Risk/ impact	Likelihood	Impact				Sum of Impact	Rating	Colour rating of significance	Significance of risk
Misuse of resources such as; water, power during operation of the Mall.	5	1	4	2	2	**9**	**45**		**Moderate**
Soil contamination from project activities	4	1	1	3	3	**8**	**32**		**Minor**
Occupational health hazards	5	1	4	4	3	**12**	**60**		**Moderate**
Safety issues and consideration of people with disabilities (PWDs)	4	3	4	3	2	**12**	**48**		**Moderate**
Thefts and any security issues from project activities	5	2	4	3	2	**11**	**55**		**Moderate**
Possible child labour	3	4	1	4	2	**11**	**33**		**Minor**
Poor site working conditions	4	1	1	3	2	**7**	**28**		**Minor**
Gender inequality in regard to employment	3	1	1	3	2	**7**	**21**		**Minor**

CHAPTER 7: ALTERNATIVES ANALYSIS

Two (2) alternatives including the zero or no-project alternative were analysed for each aspect and from them a preferred choice of one of the alternatives picked based on environment and social benefits over other alternatives as elaborated in the *table 9* below.

Table 8: Alternative analysis

Item	Alternative 1	Alternative 2	Zero or No-project alternative	Preferred choice of Alternative with reasons
Establishment of Kigali Mall	Establishment of Kigali Mall will bring the following benefits: - The first ever commercial mall in Kigali as opposed to the common commercial buildings. - The Mall offer space for stores, shops, Anchored tenant foreign chain of stores, office space, serviced apartments, leisure areas (like cinema, gym, bowling), public space for events, restaurants and bars. - It shall compliement services offered by KCC for MICE. - It shall create job opportunities from planning, construction to operation phase. - It is probably an economical way of using the plot area compared to the current Institutional use considering the hotspot commercial status of the area.	None	No new project would imply the following: - None of the benefits mentioned in Alternative 1 will be realised. - Current buildings on site will remain even with their out of date architectural status for example with no ramps and lifts to cater for the Disabled, hence not suitable for the growing Kigali masterplan. - GoR will continue to spend on repairs for these old buildings, care taker them. - However, with no-project alternative, the status quo remains, hence no project negative impact on noise, traffic, solid and liquid waste.etc.	*Alternative 1 appears most appropriate* for reasons of its benefits and also for the liability the keeping the site with the existing building cause to GoR.

Item	Alternative 1	Alternative 2	Zero or No-project alternative	Preferred choice of Alternative with reasons
Office and service appartments proposed in Mall project design	- Proposed project designs currently comprise of two towers, each of Ground +10 floors. One tower for offices, meeting rooms and another tower for service apartments. This is partly to complement services provided by KCC for MICE but also local public.	- Proposal to reduce the floor area for offices of the G+10 floor tower to avoid losses, considering the IPAR real estate survey 2018 put Kigali Commercial buildings at a 15% non-occupancy as mentioned in the Socio-economic environment *sub-chapter 4.3.1*. - Consider reasonable low pricing on rent per square metre after market survey of prices in Kigali, in order to attract more clientele.	Not Applicable.	The study proposes project design considers *Alternative 2 during the planning of the project for reasons 15%non-occupancy of commercial buildings in Kigali and the high rental prices.*

Item	Alternative 1	Alternative 2	Zero or No-project alternative	Preferred choice of Alternative with reasons
Utilities and Infrastructure services on site	- With water, electricity and optic fibre traversing the project site, the first alternative is to work with utility companies to relocate them off site hence keeping the Developer's sovereignty of what happens on the site as opposed to having these utilities and infrastructure services operating some of their distribution network from some positions on site.e.g. Power connectivity, Broadband internet connectivity. - It also means by relocating these services, they don't have to take up built-up space on site.	The alternative of not relocating or striking a balance in order to minimise relocation work involved for some of the utilities and infrastructure (i.e. Electricity Ring main unit and optic fibre POP on site) could be mean; - Less disruption of connectivity of other connected institutions, businesses and neighbourhood. - Minimising 20 million cost estimate of relocating broadband internet connectivity.	Not Applicable.	This study proposes *Alternative 2* is pursued at planning and before commencement of construction, mainly for purposes of minimizing utlitlies and infrastructure relocation impact on the project and neighbours dependent on them.

Item	Alternative 1	Alternative 2	Zero or No-project alternative	Preferred choice of Alternative with reasons
liquid waste management	Project design proposed mechanized packages as one of the options of wastewater treatment system. Examples given were the; Activated sludge system, Membrane Bed Biofilm Reactor (MBBR) or Sequential Batch Reactor (SBR). The Advantages of these systems are: - Uses biological methods to treat waste with minimal use of chemicals. - Effective treatment of wastewater with effluent discharge that meets acceptable levels to the environment. - Cover a small area. Disadvantage of these systems are: - Expensive to procure - Require technical skills to operate and maintain. - Use power to function. - Could be a source of foul smell, if not maintained.	The other option was a constructed wetland treatment system. The Advantages of this system are: - Doesnot use power to function. - Does not require technical skills to maintain. Disadvantages of the system are: - Covers a large pieces of land. - Could easily be a source of foul smell, if not maintained. - Could be a breeding ground for mosquitoes hence a source of malaria.	Option of "doing nothing" would mean wastewater would be discharged without treatment, thereby polluting the environment (water and soil), creating a foul smell in the area and causing water related diseases to the people on the campus and beyond.	*Alternative 1 was proposed on the grounds that*: - In context to site area, land should be economized and hence the system that covers smaller space is suitable. - Many projects with Mechanised treatment systems have so far been implemented in Rwanda, meaning that technical skills to operate and manage the system are readily available. - With this Alternative chosen, there would be no worry of malaria.
Resource efficiency at the Mall	The project may choose to design the complex with conventional technology for plumbing and electricity that does not include power or water saving. This technology is cheaper than energy and water saving.	The alternative of using energy, water saving technology and reuse of treated wastewater for flushing toilets and garden irrigation.	Not applicable.	The study proposes *Alternative 2* on the grounds that it would be meeting requirements of a green building, contribute towards efficient resource management (water and electricity) and an indication of environment protection.

CHAPTER 8: ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

Specific avoidance and mitigating measures are suggested that should be adopted by the project to minimize the anticipated negative impacts. The ESMP described in *Table 10* provides a way forward for implementation of the identified mitigation measures. The Developer shall be responsible for overall implementation of the ESMP. The estimated costs for implementation of the mitigation measures are just indicative.

Table 9: Environmental and Social Management Plan

No.	Risk/ impact	Mitigation measures	Responsibility	Cost (USD)
1	Soil erosion	The study proposes the following measures: • Compaction of soils for completed workplaces, • Revegetation with grass and trees of the green areas planned on site, • Design an elaborate stormwater management plan to collect water, reduce its speed, contain it on site and only excess flows delivered to existing stormwater channels on the roads surrounding the back and sides of the plot (i.e. road along the KCC, down Rugando Cell) but avoid draining into the KN5 Airport road. • Design work may consider underground holding tanks for roof rainwater for reuse in irrigating green areas and hanging gardens of the mall. This will reduce rain run-off volume from the site, hence reducing erosion and flooding downhill.	• Design and supervision firm • Contractor	No ESMP cost. Cost is inclusive in the design contractor cost
2	Flooding of site and downhill from storm water			No ESMP cost. Cost is inclusive in the design contractor cost
3	Mud, dirt, garbage littered on the KN5 Airport road	• The Developer shall ensure all loaded trucks are covered with canvas, either those delivering material or those disposing off debris and garbage, to avoid litter. • Trucks from the site will require cleaning of their tyres to reduce mud from the site on to the surrounding roads especially the KN5 road. • In addition to this, the Developer's contract shall ensure dirtied roads are cleaned regularly in the course of the day to remove mud and dirt caused by the project.	- The Developer - Design and supervision firm - Contractor	No ESMP cost. Cost is inclusive in the design contractor cost

No.	Risk/ impact	Mitigation measures	Responsibility	Cost (USD)
		- Also, to avoid dirt on KN5 Airport road, the Back side of the site, adjacent to the Fairview building and Lemigo Hotel, could be the entrance and exit for trucks and other automobiles of the construction works and also eventually during the Mall operation.		
4	Destruction of utilities and existing infrastructure services on the site plot and its boundaries	- The Developer shall need to collaborate with EUCL once preliminary designs are complete, in order to determine how to avoid or minimise the impact of relocating the existing Electricity Ring Main Unit on site. - The Developer shall need to collaborate with WASAC once preliminary designs are complete, in order to determine how to avoid or minimise the impact of relocating the existing 90 PVC Secondary distribution water pipe traversing the site and avoid interrupting the Primary main water pipe at the site boundary along the KN5 road. - The Developer shall need to collaborate with KTRN once preliminary designs are complete, in order to determine how to avoid or minimise the impact of relocating the existing Point of Presence (PoP) of Broadband internet on site supplying various institutions, businesses in the surroundings.	- The Developer. - The project design team. - The contractor. - The supervising firm	20million Rwf (equivalent to 21, 622 USD) estimated for Broadband internet PoP relocation. Cost of other utilities will be determined after preliminary project designs are complete.
5	Relocation of existing Institutions; Supreme court, High court, NPPA.	• Upon approval of the project by GoR, the Developer may request GoR to set a reasonable period (3-4months) before project commencement in which announcements are made through public media of planned relocation of the existing Institutions on site, dates and venue of relocation. This will allow adjustment by these institutions, their employees and public that regularly seek their services.	- The Developer	No ESMP cost.

No.	Risk/ impact	Mitigation measures	Responsibility	Cost (USD)
6	Noise pollution	- During Project design, the Developer may consider zoning businesses likely to be noisy away from others, for example, cinema, gym, kids and adult play areas, Food court areas, bars and restaurants. This will minimise nuisance of noise affecting customers and employees of the different businesses in the Mall. - The Mall may consider centralising music under its control to avoid every store playing its own music, sometimes loudly, hence creating chaotic noise, a deterrent to customers and mall store employees. - Businesses likely to generate loud noise can be required to install soundproof material. - Mall design may consider solid walls to avoid noise emissions towards the KCC and other sensitive areas in the project surrounding, also consider design orientation of open public space towards positions of less noise impact to the surroundings. - The Developer will need to procure the services of a noise expert during design to give guidance on noise control at the project. - Noise levels need to be monitored at least annually during construction and operation phase to avoid noise emission from project activities beyond acceptable levels. i.e. As per IFC general EHS guidelines 55dBA during daytime and 45dBA during night-time.	- The Developer. - The project design team. - The contractor. - The supervising firm	8,300 USD per Noise level monitoring at least done once a year.
7	Traffic congestion and accidents	• Traffic assessment study is required at project planning stage to give guidance on how traffic shall be managed at the Mall to avoid or minimise the Project impact on current traffic around the site especially at KN5 Airport road. • This Study proposes Entrance to the Mall is placed at the back adjacent to Fair View building. Exit of the Mall is proposed adjacent to the Simba supermarket into the KN5 Airport road. • This study also proposes the Developer collaborates with the National traffic department in order for the road between the project	• The Developer. • Design firm • Contractor	No ESMP cost. Cost to be inclusive in the design contractor cost

No.	Risk/ impact	Mitigation measures	Responsibility	Cost (USD)
		site and KCC is made a One-way road from the back of KCC and no traffic is allowed to access it from the KN5 roundabout Infront of KCC. This will minimise traffic manoeuvres from the roundabout into the Mall that could otherwise cause traffic congestion and accidents. • Consider expansion of the road between the site and Lemigo Hotel to a double carriage one-way road. • It is also proposed that the project establishes traffic signals, speed limits towards the Mall entrance and exit, humps, traffic personnel on the entire Mall, to guide traffic during peak hours and minimise accidents on affiliated campuses. • The Developer may consider opening the Mall to the public after 8:30am in the Morning to avoid interrupting the existing traffic as people have to be at their workplaces by 8am. This proposed time shall not affect employees of stores to the Mall who can have access earlier than this proposed time.		
8	Fire out breaks	• Project design to include fire safety measures such as: fire extinguishers, fire blankets, hose reels, hydrants, sprinklers and a water storage tanks that can be used in case of emergence. The Design also has to have signage in the Mall of Assembly points, escape routes and exits in both Native, English and French language. • In addition to the project design measures, the study recommends the following; o the contractor and project operator prepare and implement a Health and safety policy, o fire safety drills are conducted regularly during construction and project operation,	• The Developer. • Design firm • Contractor	No ESMP cost. Cost is inclusive in the design contractor cost

No.	Risk/ impact	Mitigation measures	Responsibility	Cost (USD)
		○ fire resistant Personal Protection Equipment (PPE) are availed to people in fire prone workplaces.		
9	Abuse of Duty-Free shopping	• In case of establishment of Duty-free shops at the Mall, the Developer and these designated shops will need to collaborate with RRA on procedure of who and what items are eligible to duty free, how buying and selling will be done at Duty free shops.	• The Developer. • Duty free designated stores. • RRA	No ESMP cost applicable.
10	Cumulative impacts	• It is proposed that the Developer, engages responsible Institutions and Companies .(i.e. CoK, WASAC, EUCL, KTRN) on how to collectively manage the cumulative impact from the existing and planned projects within the project surroundings (KCC, Parliament, Lemigo, Kigali Heights) such as; increased traffic, noise, sewerage, storm water, use of electricity and internet band width on existing	• The Developer. • CoK.	No ESMP cost applicable.

No.	Risk/ impact	Mitigation measures	Responsibility	Cost (USD)
		infrastructure. This can be considered in the update of the Area master plan.		
11	Dust pollution	• Soil compaction of completed portions of work to reduce raising of dust, mostly during construction. • Regular water spraying on site to reduce raising of dust. • Covering of soil stockpiles and hauling trucks transporting construction debris to avoid raising dust. • For dust level monitoring purposes, Air quality monitoring for particulate matter (PM) is necessary to ensure the dust levels do not exceed levels indicated in the general IFC EHS guidelines and the WHO ambient air quality guidelines, to cause air pollution and health hazard to the neighbourhood.	• Contractor	6,800 USD for Air quality monitoring and emission analysis that can be carried at least once a year
12	Green House Gas emission	• It is proposed that a policy of the developer to contract automobiles in good condition with vehicle inspection certificates, which is the first step towards reducing on GHG emissions from automobiles. • Periodic Air emission monitoring for GHG emission levels is recommended to ensure the suspect businesses polluters (if any) do not exceed acceptable levels indicated in the IFC general EHS guidelines for at least Sulphur dioxide (SO_2), Nitrogen Dioxide (NO_2), Particulate Matter (PM).	• Contractor • The Developer.	

No.	Risk/ impact	Mitigation measures	Responsibility	Cost (USD)
13	Solid waste pollution	• For solid waste management, the study proposes the following measures are adopted: ○ Application of cleaner production techniques to manage solid waste that involve; sorting waste at the source by providing separate waste bins for the organic waste, plastics, glass and paper. ○ For excess non-reusable waste at the Mall, engage RURA licensed companies to collect and dispose of waste from the campus to the designated Nduba damp site.	• The Developer	18,000,000 Rwf[1] (equivalent to 19,459USD) annual cost for daily collection and disposal of solid waste from the Mall.
14	Liquid waste pollution	• In the context of the project area, limited land and location in a commercial and administrative zone, this study recommends a package mechanised treatment plant, for example, sequential batch reactor (SBR) or moving bed bio film reactor (MBBR) for the treatment of grey wastewater from kitchens and bathrooms and black water from toilets. • The study also recommends the project considers in its design a plumbing system that allows for reuse of treated effluent water from the treatment plant back to the toilet for flushing purposes and irrigation of hanging gardens. This will reduce the volume of water used and treated at the Mall. It will also contribute a lot to green building certification of the Mall.	• The Developer. • Design firm	1,117USD annual cost for quarterly wastewater monitoring of effluent from the system. Cost of the treatment system is part of the construction cost and will depend on designed components and estimated occupants at

[1] Referenced from cost of disposal of solid waste from Kigali Heights at 1,500,000Rwf/month equivalent to 18,000,000Rwf for a year.

No.	Risk/ impact	Mitigation measures	Responsibility	Cost (USD)
				peak hours of the Mall.
15	Loss of usable construction material from demolishing of existing buildings.	• The Developer may propose to GoR to auction off works of salvaging, selling of useful construction material on the buildings, demolition of the existing buildings. This will at least bring back substantial revenues rather than complete loss of these buildings.	• The Developer • GoR	No ESMP cost applicable.
16	Misuse of resources such as; water, power during operation of the Mall.	• Technical specifications in the tender document for fittings should emphasize the application of energy and water saving equipment and fittings. • Plumbing may consider applying installations that allow for reuse of treated wastewater for flushing in toilets. • Project design might consider use of solar for hot water.	• The Developer • Design firm	No ESMP cost.
17	Soil contamination from project activities	• It is recommended that workplaces for fuel refill, mechanical repairs have cemented floors. Sand bins in such places are necessary for absorption of spilled oils.	• Contractor	No ESMP cost. Cost is inclusive in the design contractor cost
18	Occupational health hazards	• The Contractor and also eventually the Developer shall prepare and implement a site Health and safety (HES) plan/policy that includes measures to: o Exclude the public from all construction's sites, where applicable; o Ensure a qualified and experienced Health, safety and environment (HSE) officer is on site to ensure compliance to the policy. o Ensure that workers use personal protection equipment (PPE). i.e. During construction have overalls, boots, helmets,	• Contractor • The Developer.	11,034USD annual remuneration of the recruited HSE officer. cost during operation for PPE will depend on number of

No.	Risk/ impact	Mitigation measures	Responsibility	Cost (USD)
		gloves safety belts for workers and scaffolding in case of work at heights higher than 2m and also during any repairs at operation stage. o Provide Health & Safety training relevant personnel and regular awareness of Health and safety to all workers; o Install instruction signage on occupation Health and safety (OHS), documented procedures and ensure compliance is adhered for all on site; o Ensure caution signage is available in areas likely to cause injury, such as; slippery areas during clean up, fire hazardous areas, falling objects during celling repairs. o Carry out weekly site inspection of compliance to Health and safety requirements, Keep records of near misses, minor and fatal accident reports; o Have a fire risk management plan and procedure with fire escape directions on site.		relevant employees, which is not yet established at this point in time.
19	Safety issues and consideration of people with disabilities (PWDs)	• Project designs should include access aids for PWDs to all sections of the Mall, such as; ramps, lifts, guardrails along the ramps and stairs, escape routes/exits in the building suitable for PWDs to use. • In addition to the mitigation measures in places in the project design, the study recommends also that special demarcated parking lots for the PWDs close to entrance of the building should be considered to make it shorter and easier for PWDs to approach the building.	• Design firm	No ESMP cost. Cost is inclusive in the design contractor cost

No.	Risk/ impact	Mitigation measures	Responsibility	Cost (USD)
20	Thefts and any security issues from project activities	The study recommends a number of additional security measures to be considered such as; • CCTV cameras installed at the Mall (interior and exterior), • Internal and external lighting of the Mall, • security checks at the entrance and exit of the Mall for both customers and employees, • boundary barriers demarcating the plot boundary and preventing trespassing, • use of access cards for only authorised personnel to sensitive areas of the Mall. • Security personnel within the Mall to maintain peace and security in the Mall. A police post might need to be included to the Mall design.	• The Developer • The Design firm • Contractor	No ESMP cost. Cost to be inclusive in the design contractor cost
21	Possible child labour	• Recruitment of workers during construction shall be based on submission of a copy of National ID, where those below the age of 16 years shall not be employed as per article 4 of the National law regulating labour in Rwanda No. 13/2009. • Ad hoc inspection of sites by District engineers shall include inspection of age of workers	• Contractor	No ESMP cost.

No.	Risk/ impact	Mitigation measures	Responsibility	Cost (USD)
22	Poor site working conditions	• Contractor should have a labour policy and its compliance that elaborates its stand on but not limited to: o Prohibition of Child labour, forced works, freedom of worker's opinion, o Contracts of employment that may include; probation period, employment period, obligations of employer and employee, salaries and payment procedure, conditions and procedure of termination, damages. o Leaves, health and safety policy at workplace, medical insurance, prevention policy. o Insurance policy of the site, works and workers on it.	• Contractor • Supervision firm	No ESMP cost.
23	Gender inequality in regard to employment	• It is preferred that for both skilled and unskilled labour, the contractor and developer show equal opportunities in employment of both qualified, experienced male and female.	• Contractor	No ESMP cost
	Total ESMP cost			**68,332USD**

CHAPTER 9: ENVIRONMENTAL AND SOCIAL MONITORING PLAN

In this chapter a monitoring plan is proposed in *Table 11* below indicating measurements of parameters, responsibility and cost estimates of monitoring these parameters.

Table 10: Environmental and Social Monitoring Plan

Risk/ impact	Mitigation measures	Parameters to be monitored	Indicators	Method	Frequency	Responsibility	Cost (USD)
Noise pollution	- Noise levels monitoring.	Sound Decibels (dBA)	Sound levels	Noise meter and modelling	Annually	- Developer - Contractor	8,300 USD per Noise level monitoring at least done once a year
Fire out breaks	• Fire safety management on campus	Fire safety management plan Cases of fire out breaks Fire safety training drills	Fire outbreak incidences	Site recordings	Monthly review	- Developer - Supervision firm - Contractor	Cost part of the project design and supervision contract
Dust pollution	• Dust level monitoring	Particulate Matter (PM), CO_2, VOC, SO_2, NO_2,Ozone	Gas emission levels	Electronic light scattering device	At least once a year	- Developer - Supervision firm - Contractor	6,800 USD for Air quality monitoring analysis
Green House Gas emission	• Periodic monitoring for GHG emission levels at chimneys of likely polluters (if any)						

Risk/ impact	Mitigation measures	Parameters to be monitored	Indicators	Method	Frequency	Responsibility	Cost (USD)
Solid waste pollution	• Sorting waste at the source. • For excess non-reusable waste at the Mall, collect and dispose of.	- Waste segregation on site. - Waste disposal	Separate bins for different types of waste.	Site inspection	Throughout project life cycle	Developer	18,000,000 Rwf[2] (equivalent to 19,459USD) annual cost for daily collection and disposal of solid waste from the Mall.
Liquid waste pollution	• A package mechanised treatment system, for example, sequential batch reactor (SBR) or moving bed bio film reactor (MBBR) or any other.	Effluent discharge parameters. i.e. BOD_5, Total suspended soils (TSS), Faecal coliforms	Records of Wastewater test results	Laboratory sample test	Monthly	Developer	1,117USD annual cost for quarterly wastewater monitoring of effluent from the system.
Occupational health hazards	• Contractor to prepare and implement a site Health and safety plan/policy. • Safety wear for workers	Safety gear versus number of workers. Records of accidents	Number of workers with safety gear. Number of accidents or near misses	Recording	Monthly	Contractor Supervising firm Developer	Cost is part of the construction and operation expenses

[2] Referenced from cost of disposal of solid waste from Kigali Heights at 1,500,000Rwf/month equivalent to 18,000,000Rwf for a year.

Risk/ impact	Mitigation measures	Parameters to be monitored	Indicators	Method	Frequency	Responsibility	Cost (USD)
Thefts and any security issues from project activities	• Mall security	Security of people on Mall	Incidences of insecurity and thefts	Recording incidences	Monthly	Developer	No cost applicable as records are taken in house by the Mall staff
Possible child labour	• Recruitment of workers, +16 years old, shall be based on submission of a copy of National ID.	Age of workers	National ID age indication	Employment records inspection	Quarterly through the construction phase.	Developer	No cost applicable.

CHAPTER 10: CONCLUSIONS AND RECOMMENDATIONS

10.1. CONCLUSIONS

The study identified a number of risks and impacts pertaining to the proposed project activities. The risks/impacts have been assessed and described in detail to gain an adequate understanding of possible environmental and social effects of the project, from planning, construction to operation/implementation, in order to formulate mitigation measures in response to negative aspects which have emerged. The Environmental Social Management Plan (ESMP) provides a way forward for implementation of the identified mitigation measures. The ESMP should be implemented as a prerequisite for a positive Record of Decision (RoD) by the appropriate authorities.

The estimated costs of implementing the mitigation measures are just indicative. Appropriate bills of quantities for each activity should clearly give the actual figures. In any case the consultant has used informed judgment to come up with these figures.

The Environmental Social Monitoring Plan provides parameters to be monitored and responsibility of the Developer and relevant institutions to follow up. The consultant is recommending that the Developer assigns an Environmental and social safeguard officer to undertake the monitoring of the mitigation measures for the project through its existence. This way the project will achieve sustainable project implementation.

Given the nature and location of the proposed project, the conclusion is that the project objectives bring positive benefits with adverse impacts of a nature and extent that can be avoided, reduced, limited or eliminated by the application of the proposed appropriate mitigation measures.

10.2. RECOMMENDATIONS

Based on the findings of this EIA study, the following recommendations were proposed to achieve an efficient and sustainable Kigali Mall project:

At Planning phase:

- For soil erosion and storm water management, at the design stage, a detailed storm water management plan shall need to be prepared in order to minimise impact of soil erosion and flooding the neighbourhood.
- In order to minimise adverse impacts arising from destruction of utilities (i.e water distribution pipes, Electricity Ring main unit and underground cables) and existing infrastructure services (i.e. Broadband internet connectivity) traversing the site plot and its boundaries, it is apparent that the Developer needs to collaborate with the relevant Institutions (i.e. WASAC, EUCL and KTRN) on the most optimistic way of identifying and relocating existing utilities and infrastructure.
- Upon approval of the project by GoR, the Developer may request GoR to set a reasonable period for public announcements of planned relocation of the existing Institutions off site, dates and venue of relocation for the public and employees to readjust to these changes.
- To control noise pollution, design of the Mall could include measures such as; zoning together businesses likely to generate loud noise, ensure sound proof material, centralise control of music and sound at the Mall and have noise level monitoring done annually.
- To minimise traffic congestion and accidents, design of the Mall could consider the following measures; Traffic assessment of site surroundings to guide the design team, entrance of the Mall at the backside adjacent to Fairview building, exit at Simba supermarket into KN5 road, request

for the road between KCC and the site to be transformed into a One-way road approach from the back of KCC, no Mall entry from the KCC roundabout, expansion of the road between the site and Lemigo Hotel towards KN5 Airport road to a double carriage one-way road, establishment of traffic signals and barriers to slow traffic before and after the Mall, consider opening the Mall after 8:30am.

- Incase Duty free shops are planned in the Mall design, collaboration with RRA on procedure of operation is required to avoid its abuse.
- In the context of the project area, this study recommends a package mechanised wastewater treatment system, for example, sequential batch reactor (SBR) or moving bed bio film reactor (MBBR) as most appropriate.
- As means of misuse of resources such as water and power, the study recommends that Technical specifications in the tender document for fittings should emphasize the application of energy and water saving equipment and fittings. And if possible, plumbing design may consider applying installations that allow for reuse of treated wastewater for flushing in toilets. Furthermore, project design may consider use of solar for hot water.
- For safety of People With Disabilities (PWDs), Project designs should include access aids for PWDs to all sections of the Mall, such as; ramps, lifts, guardrails along the ramps and stairs, escape routes/exits in the building suitable for PWDs to use and suitable parking lots for PWDs.

At Construction Phase:

- For proper management of debris disposal, the contractor shall separate construction debris at the source (i.e. concrete and cement debris from metals, glasses, plastics), in order to simplify its disposal. Construction debris shall be disposed at the District designated dump site.
- To avoid or minimise mud, dirt, gabage littered on the KN5 Airport road and anyother road used by the project, the contractor shall ensure all trucks disposing off and delivering have a canvas covering the back, tyres are cleaned before they get on the road and daily cleaning of dirtened roads during the course of each day.
- For fire risk management, the contractor shall have a clear fire safety management plan, with signage on site and later installed in buildings for application during the Mall operation stage, comprising of: fire escape route map at critical positions that are highly susceptible to fires, fire hydrants, demarcated points for fire extinguishing trucks to stand in case of any fires, fire exit points and directions on site and for every buidlings, fire extinguishers and hoses for each building, fire alarm system, an Assembly point and a regular training schedule of staff during the construction phase and passed on to the operation phase.
- To ensure Occupation Health and safety (OHS), the Contractor during construction and eventually the Developer during project operation shall prepare and implement a site Health and safety (HES) plan/policy that includes measures to: ensure that workers use personal protection equipment (PPE), provide Health & Safety training for all personnel, keep accident/ near miss reports and records, inform local communities about the work and dangers and have a fire risk management plan.
- To avoid possible child labour, recruitment of workers shall be based on submission of a copy of National ID, where those below the age of 16 years shall not be employed as per National law regulating labour in Rwanda.

- For proper working conditions on site, the Contractor should have a labour policy and comply to it that includes; prohibition of Child labour, forced works, freedom of worker's opinion,contracts of employment, leaves, health and safety policy at work place, medical insurance, prevention policy and Insurance policy of the site, works and workers on it.
- To boost gender equality in employment, it is preferred that for both skilled and unskilled labour, the contractor and developer show equal opportunities in employment of both qualified, experienced male and female.
- To reduce air pollution by dust and Green House Gases, the contractor shall ensure soil compaction is done on completed portions of work, regular water spraying, covering of stock piles and hauling trucks and atleast annual air quality monitoring tests and analysis shall be done.
- To reduce noise pollution, noisy activities during working hours 7-17h. Contractor shall use automobiles with Inspection certificates since they are in good condition emitting less noise. Noise levels shall also be monitored.
- To mininise losses on usable construction material from demolishing of existing buildings, the Developer in collaboration with GoR may decide to sub-contract, at a cost, the auctioning of reusable construction material and demolition of the buildings and disposal of debris.

At operation phase:

- For proper performance of proposed secondary wastewater treatment systems, the Developer project shall ensure periodic maintenance of the proposed wastewater systems and monthly test of effluent discharge. Records of these monitoring effluent quality tests shall be kept by the Mall management for any adhoc inspections or audits.
- Noise and air quality monitoring levels (where necessary) from Kigali Mall shall also be analysed annually.
- For solid waste management, proposed Cleaner production techniques such as; sorting waste at source, reuse and recycling of waste and proper disposal of non-reusable waste shall be encouraged on campus.
- To ensure Occupational health and safety on campus, the following measures shall be taken; Mall management shall prepare and implement a site Health and safety (HES) plan/policy, ensure a qualified and experienced Health, safety and environment (HSE) officer is on site to ensure compliance to the policy, ensure that workers use personal protection equipment (PPE) during operation stage or especially when making repairs that require PPE, provide Health & Safety training relevant personnel and regular awareness of Health and safety to all workers, Install instruction signage on occupation Health and safety (OHS), documented procedures and ensure compliance is adhered in every part of the Mall, carry out weekly site inspection of compliance to Health and safety requirements, Keep records of near misses, minor and fatal accident reports, have a fire risk management plan and procedure with fire escape directions on site.
- For security on site, the Mall is required to have the campus lit up, security guards in and out of the Mall, CCTV cameras on site, Metal detectors at entrances of all accesses to the Mall including staff entrances.
- An Environmental Audit of the project implementation shall be carried out annually and submitted to REMA for review.

REFERENCES

- *AfDB ISS, 2013:African Development Bank Group's Integrated Safeguards system (ISS).*
- *Duval Great Lakes Ltd, 2019:* Anew Ecosystem at Kigali Heart Workshop 13.09.2019.
- *Duval Great Lakes Ltd, 2019: Memorandum of understanding.*
- *Government of Rwanda (GoR), 2017: 7 years Government Programme: National Strategy for Transformation(NST 1) 2017-2024.*
- *Government of Rwanda, 2019*: Law No.48/2018 of 13/0/2018 on Environment.
- *Government of Rwanda, 2019.* No. 001/2019 Ministerial order of establishing the list of projects that must undergo Environmental Impact Assessment, instructions, requirements and procedures to conduct environmental impact assessment.
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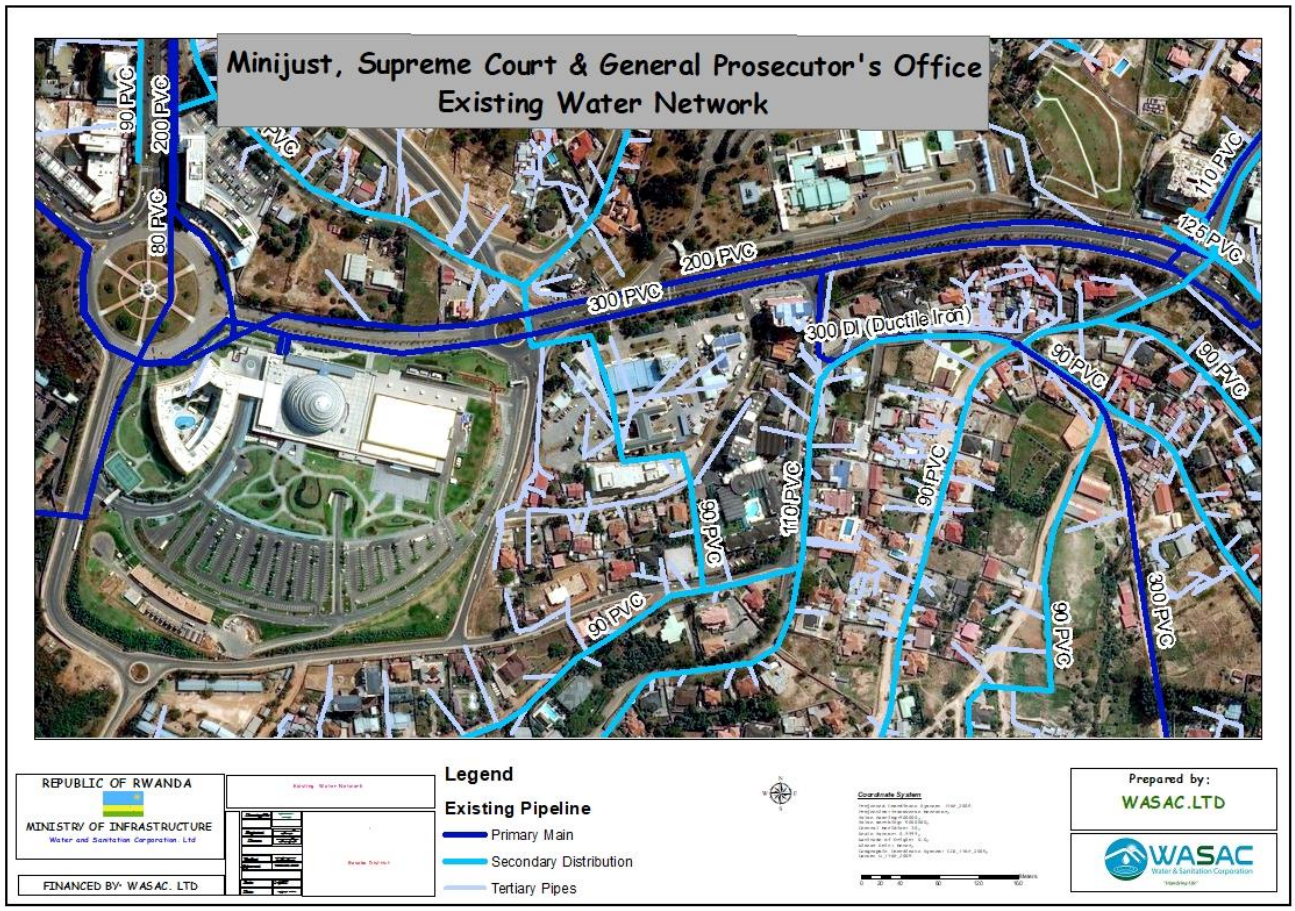
- *Ministry of Environment, 2018. Third National Communication Under the UNFCCC.*
- *National Institute of Statistics for Rwanda (NISR), 2018.* Rwanda Staistical Year Book 2018.
- *Rwanda Convention Bureau, 2019:* Rwanda Meeting planners Guide.

APPENDICES

APPENDIX 1: LIST OF PUBLIC or PARTICIPANTS CONSULTED

Name	Position/ Insitute	Telephone
Vicky Murabukirwa	Manging Director/Duval Great Lakes Ltd	0788307772
Jeffrey Kaberuka	RDB/ Legal Analyst	-
Claver Gakwavu	Director of Planning & Development/ EUCL	0788605760
Innocent Gashugi	WASAC	0738521483
Elijah Iragaba	Chied Technology and Information Officer/ KTRN	0783000309

APPENDIX 2: Existing WASAC Water network on site



APPENDIX 3: TERMS OF REFERENCES

Terms of Reference
For the Environmental Impact Assessment (EIA) for the Kigali Mall project in Gasabo district, Kimihurura sector, Rugando cell.

Introduction

Duval Great lakes Ltd, a Rwandan company proposes to construct the Kigali Mall on the plot identification number UPI:1/02/08/03/681 in Kimuhurura Sector, Rugando cell, covering an area of 26,885m^2, on the plot currently occupied by the Ministry of Justice.

With a Memorandum of understanding (MOU) between the Government of Rwannda (GoR) and Duval Great Lakes Ltd, in which GoR the owner of the project land intends to facilitate the private sector to carry out a project to develop a mix of office and retail properties on this site, Duval Great Lakes Ltd "the Developer" wises to develop the Kigali Mall.

Kigali Mall shall comprise of; retail and business area (with 3 active plazas; fashion square, marketplace and experience centre), offices and serviced workspace, serviced apartments, hanging gardens, an active street area for public space, leisure and physical activity area.

Reference is made to the 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, in determining whether the Kigali Mall project is liable to an EIA.
Based on this Ministerial order, all projects comprising of any of the following; buildings classified as residential, commercial, administrative or institutional sports facilities, social, cultural or public facilities fulling at least two of the following; having a capacity to host more than 500 people, a total floor area exceeding 1500 m^2, built in plot size exceeding 1000m^2, must undergo a full EIA.
Kigali Mall is proposed to cover a built-in area of most of its entire plot of 26,885m^2, floor area exceeding 1500m^2 and hold a capacity of more than 500 people, hence eligible to undergo a full EIA. Given the scale of activities involved in the construction and implementation of this project, it is apparent that the project could have adverse impact on the immediate and surrounding environment. It is for this very reason that these Terms of Reference (ToRs) have been prepared to guide Duval Great Lakes Ltd, the Developer, in managing the process of performing this EIA.

Objective

The specific objectives are:

i. to assess the potential environmental impacts of establishing the Kigali Mall, whether positive or negative, and propose mitigation measures which will effectively address the impacts; by either offsetting them, minimising or total avoiding these impacts.

Content of the EIA report

The following format is suggested for the EIA report:

ii. **Executive summary**: This concisely discusses; brief project description, significant findings of identified impacts or risks likely to be caused by the project to the environment, proposed mitigation measures and key recommended actions.
iii. **Introduction**:

i. Background to the project
ii. Objectives of the study
iii. Methodology

iv. **Project description:** This shall give a detailed project description including; the location of the project, all project components, technologies to be used, phasing of activities if any and any preliminary mitigation measures already planned for.

v. **Policy, legal, and administrative framework:** This part discusses the policy, legal, and administrative framework within which the EIA is carried out. This should include both national and international legislations relevant to the EIA and the project.

vi. **Baseline data:** This section assesses the dimensions of the study area and describes relevant physical, biological, and socio-economic conditions, including any changes anticipated before the project commences. It also takes into account current and proposed development activities within the project area but not directly connected to the project, if any.

- Physical conditions- shall cover the general topography; soils, and climate of the site
- Biological conditions- since the project site is an already built administrative property, currently occupied by the Ministry of Justice and its affiliated institutions there will be minimal discussions on these grounds.
- Socio-economic conditions- - (shall include both present and projected where appropriate): present land use; planned development activities; present status of surrounding roads and limited discussions on the current traffic types; community structure; activities in the surrounding area.

vii. **Analysis of alternatives:** This section systematically compares feasible alternatives to the proposed project site, design, technology and operation including the "without project" situation--in terms of their potential environmental social impacts; the feasibility of mitigating these impacts; their suitability under local conditions.

viii. **Environmental and Social impacts Analysis:** This part predicts and assesses the project's likely positive and negative impacts.

Preliminary assessment of the project activities indicates the following issues might need to be addressed by this EIA study;

- Noise pollution during construction and operation phases,
- Effects on traffic during construction and operation phases,
- Effects of grey and black wastewater,
- Effects of solid waste generated,
- Fire risks,
- Flooding from rainwater effect,
- Occupational health and safety during construction and operation phases,
- Impact on security within project and the surrounding environment.

The impacts are to be rated as High, Medium or Low significance, through the assessment, in a consistent manner, of the following:

- Nature (positive/negative, direct/indirect)
- Magnitude (severe, moderate, low)
- Extent/location (area/volume covered, distribution)
- Timing (during construction, operation etc, immediate, delayed)
- Duration (short term/long term, intermittent/continuous)
- Reversibility/irreversibility

- Likelihood (probability, uncertainty)
- Significance (low, medium, high)

For each identified impact of medium or high significance, the consultant shall propose mitigation measures.

ix. **The ESMP includes two components:** Environmental Social Management Plan (ESMP) and monitoring plan (MP). The ESMP and MP should be presented in tabular format.
   - **ESMP:** for each component (planning phase, construction phase and operation phase) an Environmental Social Management Plan is present and should include and not limited to; Activity, Adverse impacts of the subproject, Proposed mitigation measures, Implementation schedule, Responsibility of Institution and people involved, Occurrence/incidence, Estimate of the costs required.
   - **Monitoring plan:** is present and should include and not limited to; Activities, Parameters to be measured, Performance Indicators, Method used to measure the parameter, Frequency of measurements, Responsibility of institution and people involved, estimate of the costs required.

x. **Conclusions and recommendations:** This will include recommendations by the EIA study towards the project design team based on the mitigation measures proposed.

xi. **References**.

xii. Appendices

i. Project land ownership documentation.

ii. Project Design layouts.

iii. Other proposed technologies, if any.

iv. Public consulted.

v. Terms of Reference.

vi. List of ESIA report preparers –individuals and organizations.

The final reports of the EIA will be submitted to RDB for approval. In the event that RDB require some clarifications to be made on the report, the consultant holds the responsibility to address issues raised until the Certificate of approval is issued.

Team Requirements

The Team leader will have vast experience in carrying out EIAs to highest standards. Following qualifications and expertise is required of the Team Leader with minimum Degree in Environmental Science or related fields and with a background in leading EIAs. He/she will need to be registered with RAPEP.

The key personnel must have the following minimum experience:*(i) An **Environmental Specialist** (Team leader) for Environmental Impact Assessment (E.I.A):* Experience in environmental studies*:* 5 years; specific experience: 5 references in Environmental Impact Assessment.

APPENDIX 4: PROFILES OF THE PARTICIPATING CONSULTANT

SONGA Silvin- holds a MSc in Environmental Science and Technology and BSc in Civil engineering. He has 11 years professional experience in the field of environmental social assessment and management and 17 years professional experience in civil works, construction related fields and public procurement. He has worked on various projects as team leader of the Environmental Social Assessment, projects in sectors such as; Irrigation projects, green house agriculture, mining projects, road and bridge construction projects, building and house constructions, schools and hospitals, among others.