

Strategic Environmental and Social Assessment

Green City Kigali Project, Rwanda



11 March 2022

Project No.: 0559023



Document details	The details entered below are automatically shown on the cover and the main page footer. PLEASE NOTE: This table must NOT be removed from this document.
Document title	Strategic Environmental and Social Assessment
Document subtitle	Green City Kigali Project, Rwanda
Project No.	0559023
Date	11 March 2022
Version	2.0
Author	ERM Germany GmbH
Client Name	Sweco GmbH

Document history

Version	Revision	Author	Reviewed by	ERM approval to issue		Comments
				Name	Date	
Draft	01	Corinna Hausner, Giulio Marin, Horia Herta, Melina Rauscher	Raimund Vogelsberger	Raimund Vogelsberger	16.12.2021	Draft to client
Final	02	Corinna Hausner. Giulio Marin	Raimund Vogelsberger	Raimund Vogelsberger	11.03.22	Addressing comments from KfW/Sweco/FON ERWA

Signature Page

11 March 2022

Strategic Environmental and Social Assessment

Green City Kigali Project, Rwanda

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Document Guide:

The Green City Kigali (GCK) Project will include comprehensive measures to ensure that adequate environmental and social (E&S) conditions will be established. To support Project implementation, a series of technical documents have been prepared (“Safeguard Documentation”), these being:

- Strategic Environmental and Social Impact Assessment (**SESA**); - **This Document**
- High-Level Environmental and Social Impact Assessment (the **High-Level ESIA**);
- Environmental and Social Management Framework (**ESMF**)
- Stakeholder Engagement Framework (**SEF**); and,
- Resettlement Policy Framework (**RPF**)

The SESA provides identification of the positive and negative E&S impacts and the risks associated with the replication of the GCK Model, assessment of the policy, legal and institutional framework and capacity to manage these issues, as well as to propose a set of actionable recommendations by which these issues, regulatory and institutional gaps can be addressed.

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Acronyms and Abbreviations

Name	Description
ADEPR	Pentecostal Church of Rwanda
BMZ	German Ministry for Economic Development and Cooperation
CERC	Contingent Emergency Response Component
CMIP	Coupled Model Inter-comparison Project
CMO	City Management Offices
CoK	City of Kigali
CSO	Civil Society Organisation
DDS	District Development Strategies
E&S	Environmental and Social
EAC	East African Community
ECC	Environment and Climate Change
EDPRS	Economic Development and Poverty Reduction Strategy
EHS	Environment, Health and Safety
EIA	Environmental Impact Assessment
EICV	Enquête Intégrale sur les Conditions de Vie des Ménages, Integrated Household Living Conditions
EPC	Engineering, Procurement, and Construction
ERM	Environmental Resources Management
ERT	Emergency Response Team
ESF	Environmental and Social Framework
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
ESS	Environmental and Social Safeguard
FFS	Final Feasibility Study
FMC	FONERWA Managing Committee
FONERWA	Rwanda Green Fund
GCF	Green Climate Fund
GCK	Green City Kigali
GCKC	Green City Kigali Company
GGCRS	Green Growth and Climate Resilience Strategy
GGGI	Global Green Growth Institute
GHG	Greenhouse Gas
GoR	Government of Rwanda
H&S	Health and Safety
HH	Household
ICT	Information and Communications Technology

Name	Description
IFC	International Finance Corporation
IFI	International Finance Institution
ILO	International Labour Organization
IPCC	Intergovernmental Panel on Climate Change
KfW	Kreditanstalt für Wiederaufbau, German Development Bank
KICS	Kigali International Community School
LODA	Local Administrative Entities Development Agency
LRP	Livelihood Restoration Plan
LPG	Liquified Petroleum Gas
MIBECOFIN	Ministry of Finance and Economic Planning
MINAGRI	Ministry of Agriculture and Animal Resources
MINALOC	Ministry of Local Government
MINECOFIN	Ministry of Economic Planning and Finance
MINICOM	Ministry of Trade and Industry
MINILAF	Ministry of Lands and Forestry
MININFRA	Ministry of Infrastructure
MoE	Ministry of Environment
NAPA	National Adaptation Programme of Action to Climate Change
NDC	Nationally Determined Contribution
NST	National Strategy for Transformation
OHS	Occupational, Health and Safety
PCD	Public Consultation and Disclosure
PEA	Project Executive Agency
pESIA	Preliminary Environmental and Social Impact Assessment
PIE	Project Implementation Entity
PPP	Policy, Plan or Program
RAP	Resettlement Action Plan
RCP	Representative Concentration Pathway
RDB	Rwanda Development Board
REG	Rwanda Energy Group
REMA	Rwanda Environment Management Authority
RFA	Rwanda Forest Authority
RHA	Rwanda Housing Authority
RLMUA	Rwanda Land Management and Use Authority
RPF	Resettlement Policy Framework
RPHC	Rwanda Population and Housing Census
RSB	Rwanda Standards Board
RSSB	Rwanda Social Security Board

Name	Description
RTDA	Rwanda Transport Development Authority
RUDP	Rwanda Urban Development Project
SDG	Sustainable Development Goal
SEA	Strategic Environmental Assessment
SEF	Stakeholder Engagement Framework
SEP	Stakeholder Engagement Plan
SESA	Strategic Environmental and Social Assessment
SODIS	Solar Water Disinfection
SPV	Special Purpose Vehicle
SSP	Sector Strategic Plan
ToR	Terms of Reference
UADC	Urban and Architectural Design Consultant Masterplan
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
USF	Urban Sustainability Framework
UV	Ultraviolet Light
VGGT	Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests
WASAC	Water and Sanitation Corporation
WB	World Bank
WBESS	World Bank Education Sector Strategy
WHO	World Health Organization

1. EXECUTIVE SUMMARY

A Strategic Environmental and Social Assessment (SESA) has been undertaken for the Green City Kigali (GCK) Project. Presented as a “model” (ie the GCK Model), the SESA has been built upon previous documentation derived from the Project’s feasibility and masterplan documents, as well as the suite of documentation prepared for the Green Climate Fund (GCF) as part of the process towards the Project’s funding. The related documents for the Project include e.g. the Strategic E&S Concept & Background, High-level Environmental Social and Impact Assessment Report, Environmental and Social Management Framework and Stakeholder Engagement Framework.

The SESA expands on the discussion of environmental and social aspects identified at the GCK Project level towards the wider implications that the Model would have from replication of this urban development initiative, with specific reference and relevant comparisons also being made in regard to other similar initiatives occurring in Rwanda. In addition the SESA comments on identified cumulative effects on social and environmental receptors from similar activities occurring along the Rwandan geography; the use of similar approaches towards mitigation measures/E&S safeguards, and the potential implications towards current institutional capacities of the various institutions that play a role towards the planning, implementation and monitoring of Projects in Rwanda.

Impacts of an urban development scheme are expected to ultimately depend largely on i) nature of the specific activities envisaged and ii) the physical/biological/social baseline features of the area where similar activities are intended to be conducted.

The SESA findings indicate that the array of potential impacts identified for the GCK Model are reasonably comparable to those described for other urban development interventions of similar nature. These impacts are primarily related to

- Physical receptors: air quality, surface/groundwater hydrology; noise and vibrations; landscape/visual;
- Biological receptors: flora/fauna; ecosystem services; and
- Social receptors: community/workers health and safety and economic/physical displacement.

A comprehensive set of Environmental and Social (E&S) safeguards have been identified for the GCK Project. In the same way as Project impacts can overall be replicated in other areas, this also applies to safeguards, where these can be reasonably implemented along Projects of similar nature. The implementation of such safeguards and the likelihood of achieving their intended performance, depends heavily on the capacity and efficiency of the institutional framework backing them. The GCK Model framework has been thoroughly described in regard to its planning, implementation and monitoring functions, which are to rely on several Rwandan institutions at various levels. Meaningful synergies can be reached should similar urban development initiatives be conducted in parallel, especially in regard to shared capacity building and staffing.

Key recommendations of this SESA are centred around three main topics that are interlinked: (i) Policy, Legal and Regulatory Framework; (ii) Capacity development, and (iii) E&S safeguards compliance and adequate management of E&S risk.

2. INTRODUCTION

2.1 Project Overview

This document presents the Strategic Environmental and Social Assessment (SESA) for the Green City Kigali Urban Development Model, (hereinafter referred to as “GCK Model”). The SESA assesses the environmental and social (E&S) risks and potential impacts and presents strategic recommendations for the replication of the GCK Model in Rwanda. Currently the Government of Rwanda is planning to implement similar Green City models in Rwandan secondary cities (e.g. currently through the Rwanda National Strategy for Transformation - NST1¹); hence the lessons-learned from the GCK Model may serve as an example towards the success of this national plan and other future developments in the area of urban planning.

What is a Green City?

A green city is a city designed with consideration of environmental and ecological impact, inhabited by people dedicated to minimization of required inputs of energy, water, and waste output of heat, air pollution, and water pollution. A green city is inclusive and enhances the well-being of citizens and society through integrated urban planning and management, harnessing the benefits of ecological systems while protecting and nurturing them for future generations. Green cities strive to function harmoniously with natural systems. They value their own ecological assets, as well as the regional and global ecosystems on which all people depend. To address climate change, a green city decouples economic growth from the use of fossil fuel resources by shifting society and the economy toward consumption that relies on renewable energy, energy efficiency, and green transportation.

Government of Rwanda and GGGI (2015). National Roadmap for Green Secondary City Development. Kigali

The GCK Model draws upon the Green City Kigali Project (GCK Project)², a major urban development Project in Rwanda. The GCK Project is laid out within an initial masterplan, referred to as the Green City Kigali Special Planning Area Masterplan (GCK SPA) and this in turn will be integrated in the City of Kigali Masterplan 2050 to guide Kigali’s city planners.

The goal of the GCK Project is to create a model community in Kigali, which demonstrates and sets principles and standards for sustainable urban development that can be replicated in other parts of the country and the wider region, by combining climate change resilience with and environmental and social sustainability and inclusiveness (e.g. affordable housing solutions). The Project is located on Kinyinya Hill (see **Figure 2.1** below) in the northeast of the central business district of Kigali, in the district of Gasabo and comprises an area of around 600 hectares (the “Project Area”).

¹ The NST 1 picks up from where the Economic Development and Poverty Reduction Strategy (EDPRS 2) left off, and continues in an effort to accelerate the transformation and economic growth with the private sector at the helm. NST1 will provide the foundation and vehicle towards Vision 2050, which aspires to take Rwanda to high living standards by the middle of the 21st century and high quality livelihoods.

² Green City Kigali Project website, available at: Green City Kigali: Rwanda’s pilot towards green urbanisation (<https://greencitykigali.org/>)

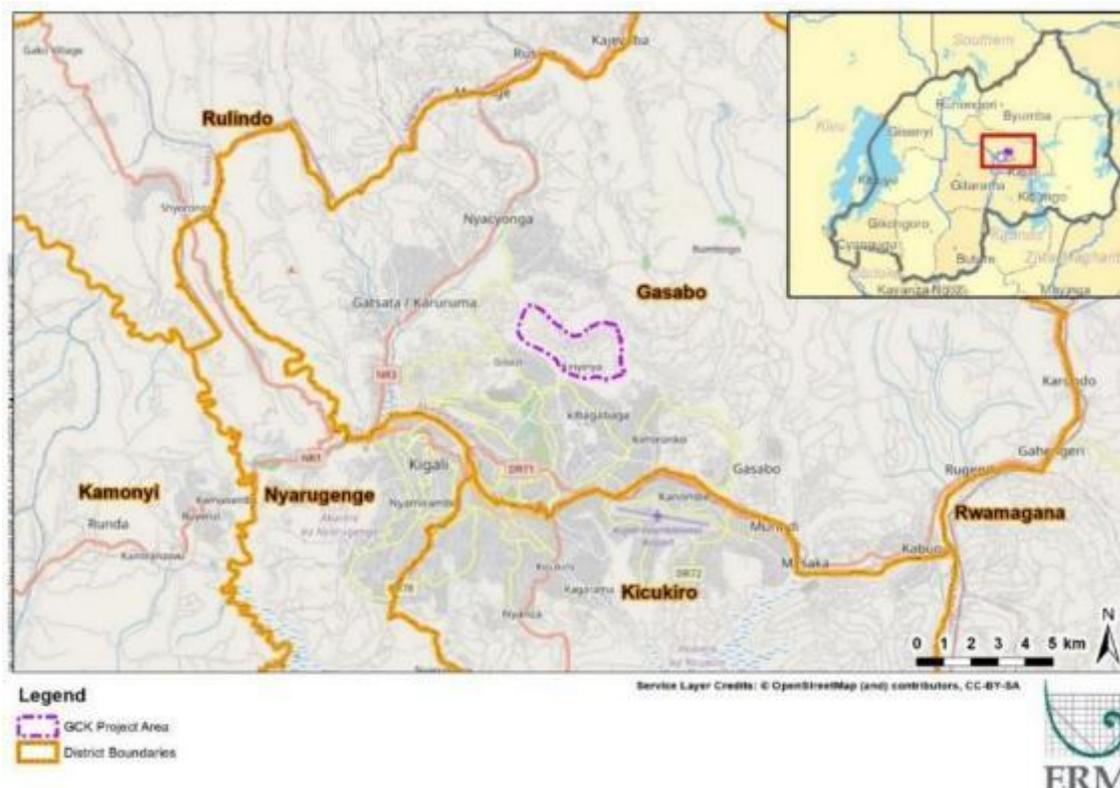


Figure 2.1 Project Location Kinyinya Hill, Kigali, Rwanda

The model community will link four key pillars of sustainable development:

- i. affordable and socially equitable development,
- ii. climate change adaptation and mitigation,
- iii. resource efficiency, and
- iv. culturally sensitive urban development.

This integrated strategy will create an attractive and progressive standard, considering these pillars are reflecting a suite of the major challenging (pressing) issues in the region as well as globally. Such integrated, green urban development offers opportunities in which Rwanda and the region could respond to growing population, minimising the negative effects of rapid urbanisation, climate change and the challenges of rapidly sprouting/sprawling informal settlements. Through the creation (provision) of affordable housing, low-income society groups can benefit from the effect of urban development. A compactly planned city enables inhabitants to get around by walking and cycling. In doing so, this not only mitigates sprawl, but improves air quality and is climate-friendly, while also spurring economic development. Endeavours to integrate electric mobility into the country's electrification process pave the way toward low-emission urban mobility..

The GCK Project will comprise a new enhanced urban area including green and affordable housing for low to middle-income inhabitants, commercial spaces, light industrial areas, schools, health facilities, recreational areas, sports facilities, and green areas.

In addition, comprehensive infrastructure and basic services will be provided, including information and communications technology (ICT), solid waste management, sustainable transport including more affordable and smart public transport systems, energy, and water and sewage management (refer to **Chapter 4** for a more detailed description).

This SESA is prepared in accordance with good international practice, including World Bank E&S standards and per the requirements of the Green Climate Fund, as well as guidance by the Rwandan REMA SEA Guidelines (further elaborated in **Chapter 6**).

2.2 Background

Rwanda is one of the most densely populated countries in Africa, and the population has been growing at a pace of 2.5-2.6% per year for the last 5 years; similarly the average annual population growth of the capital city Kigali is estimated at an even higher rate of 3.2-3.5% per year (Macrotrends, 2022). Kigali's population is estimated to grow from 1.6 million in 2020 to 2.5 million by 2032³. This rapid urbanisation process and the vulnerability to climate change impacts imply increased pressure on and demand for natural resources such as land, water, food, and energy.

The Government of Rwanda has committed itself to shift towards green urbanisation⁴ focusing on nation-wide environmentally sustainable, climate resilient and green, economic growth. A number of national strategies, policies and guidelines were developed by the government to set priorities and directions on urban development to tackle challenges related to climate change, population growth and rapid urbanisation. These strategic documents outline the national growth directions in urbanisation, green growth and climate resiliency, housing and planning regulations that guide the land use planning of the cities. This was also the basis for the updated City of Kigali Masterplan 2050⁵. The City of Kigali Masterplan provides an Urban Sustainability Framework and guiding principles for the planning processes to ensure the long-term sustainability of the city of Kigali.

The GCK Project transposes the goals of the City of Kigali Masterplan 2050 and addresses the above-indicated issues and challenges. It aims at providing an urban development model for increased resilience against the consequences of climate change and a basis for sustainable urban development of Rwanda through the development of a model community at Kinyinya Hill. This objective will be achieved by integrating various solutions such as pilot developments that allow users to enjoy the social and economic benefits of urbanisation while minimising ecological footprint. The planned neighbourhood will be the first such Green City in Africa, designed as a place of sustainable, affordable, green and inclusive urban living.⁶

The Rwanda Green Fund (FONERWA) secured funding from the German Development Cooperation through KfW Development Bank, to prepare a feasibility study for the GCK Project in 2019 and conduct an international design competition in 2020 and tender process to select an Urban and Architectural Design Consultant (UADC)⁷. The UADC is undertaking the urban planning, infrastructure and architectural design services associated with the GCK Project.

In addition, funding was provided to support establishment of a special purpose vehicle (SPV), named the Green City Kigali Company (GCKC), that will serve as the central entity for the implementation of a 16 ha pilot project (refer to **Chapter 4** for more information).

Further, funding from the Green Climate Fund's (GCF) Project Preparatory Facility was secured in late 2019 and has supported the development of the feasibility study and land development plan (masterplan) for the upgrade of an informal settlement (Ngaruyinka Village), extended rights of way network within the Kinyinya Hill area, low carbon energy solutions within an affordable housing pilot

3 International Growth Centre (2019) Housing need in Kigali. London School of Economics and Political Science. Available at: <https://www.theigc.org/wp-content/uploads/2019/07/Bower-et-al-2019-Final-report.pdf>.

4 National Strategy for Transformation (NST1) 2017 – 2024, available at:

https://www.nirda.gov.rw/uploads/tx_dce/National_Strategy_For_Transformation_-NST1-min.pdf

5 Analysis and Vision. Kigali Master Plan 2050, 2020 Edition, available at: 1_Kigali Master Plan_Analysis & VisionLowRes.pdf (bpmis.gov.rw)

6 Green City Kigali Project website, available at: <https://greencitykigali.org/>

7 The contract with the winning UADC had not been finalised at the time of writing this SESA and thus the architect is not listed by name..

project, the development of a full funding GCF proposal for implementation and TA to support green city replication, as well as the development of this SESA document.

The company Sweco prepared the Mid-term Feasibility Report for the Project⁸. In parallel, Sweco also prepared a Preliminary Environmental and Social Impact Assessment (“pESIA”)⁹ to identify and initially assess and document potential E&S issues related to the GCK Project and how those would be managed. A Final Feasibility Study (FFS) for the overall Green City Kigali Project was published in October 2021.

The following E&S Safeguards documentation referring to the GCK SPA Masterplan have been prepared on behalf of FONERWA:

- Strategic Environmental and Social Impact Assessment (SESA);
- High-Level Environmental and Social Impact Assessment (High-Level ESIA);
- Environmental and Social Management Framework (ESMF);
- Stakeholder Engagement Framework (SEF), and
- Project Resettlement Policy Framework (RPF).¹⁰

This SESA document is specifically required by the GCF as a condition of its funding commitments for the GCK Project.

A SESA is conducted at early stages of project development to help formulate policies, plans and programmes (PPP) and to assess their potential development effectiveness and sustainability. This distinguishes a SESA from an ESIA. While an ESIA addresses the E&S risks, potential impacts and -opportunities of a specific project, a SESA addresses policies, plans and programmes at a wider and higher level, eg at national or regional level. A SESA is thus not a substitute for a project-specific ESIA (and related project-specific ESMF, SEP etc.), but assesses the wider implications of these other assessments and safeguard tools of one or more specific projects. The specific approach towards the present SESA document is described in Section 6.2.

The objectives of this SESA in the context of the preparation of the GCK SPA Masterplan include the identification of the risks and potential positive and negative E&S impacts associated with the foreseen replication of the GCK Model across Rwanda, the assessment of the national policy, legal and institutional framework and -capacity to manage these issues, as well as a set of actionable recommendations by which these issues, regulatory and institutional gaps can be addressed.

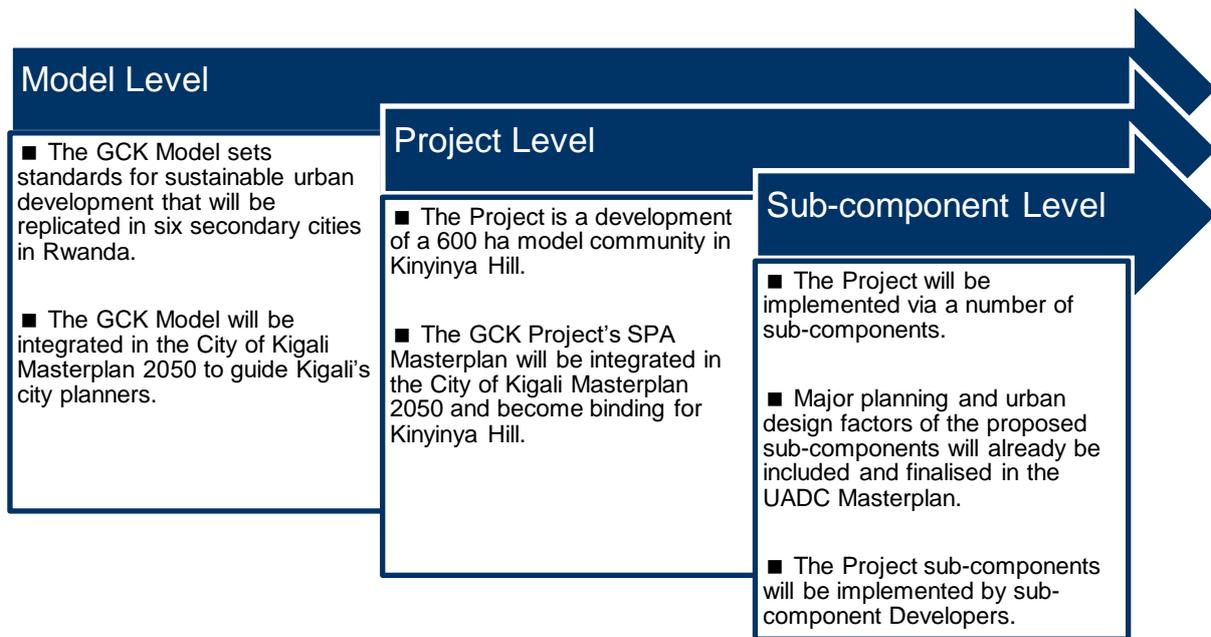
On the one hand, the GCK Project is an urban development model that will be implemented in the format of various distinguished sub-component projects (i.e. separate housing developments, road construction, schools, etc. within the 600 ha Project area). For this reason, the High-Level ESIA was developed to guide the preparation of ESIAs required for these future sub-component developments. On the other hand, the GCK Model of a sustainable and affordable green city serves as a blueprint for future urban development projects in Kigali and Rwanda, so that an assessment at the strategic level is also required. Therefore, the SESA and the High-Level ESIA have been developed in parallel to fit both purposes.

This SESA refers to assessments and recommendations on the following three levels (see Figure 2.2):

⁸ Mid-term Feasibility Report – Part II, Consulting Services for the ‘Green City Kigali’ Project, Part II – Full Sector Reports, Sweco, June 2019

⁹ Preliminary Environmental and Social Impact Assessment, Green City Kigali, Sweco, June 2019

¹⁰ The SESA, High-level ESIA, ESMF and SEF were prepared for Sweco by ERM GmbH; the RPF was prepared for Sweco by SRA Consulting Ltd.



Source: ERM, 2021

Figure 2.2 The Three Levels of the GCK Model

Model Level

The GCK Model provides an urban development model for increased resilience against the consequences of climate change, for resource efficiency as well as for affordable, social equitable and culturally sensitive housing in Rwanda. This objective will be achieved by integrating various solutions such as pilot developments within the 600 ha Project Area in Kinyinya Hill that allow users to enjoy the social and economic benefits of urbanisation while minimising ecological footprints. The GCK Model will be integrated in the City of Kigali Masterplan and become binding for the urban development zones in Kinyinya Hill.

This context adds to the strategic nature of the GCK Model at creating a model community in Kinyinya Hill, which sets principles and standards for sustainable urban development not only in Kigali but that can also be replicated in other parts of the country and the wider region.

The Government of Rwanda has a goal to ensure more balanced urban growth in the country. Six secondary cities have been identified to serve as urban growth poles. The masterplans of the secondary cities in Rwanda are therefore subject to revision. As these cities face similar urban issues as those in Kigali, it is envisaged that similar development models as found in the City of Kigali Masterplan 2050 - and within that the GCK Model can be applied to and integrated into the masterplans of Rwanda's secondary cities. The current Rwandan National Land Use and Development Masterplan 2020-2050 (NLUDMP), looks to drive development from the current prime city situation to a more balanced level of urbanization spread out to other cities. The GCK Model is thus influenced by the needs of the NLUDMP as well as CoK MP.

Project Level

The goals and founding development principles as defined in the City of Kigali Masterplan 2050 were taken forward at project level and considered in the masterplan for the GCK Project ("GCK SPA Masterplan"). The GCK SPA Masterplan will be integrated in the City of Kigali Masterplan 2050 and become binding for Kinyinya Hill.

The Project will be implemented via a number of sub-components, including the development of a mixed use affordable housing pilot on 16ha and the upgrade of an informal settlement (18ha+). This

means the actual construction of the Project will occur as a series of developments in sub-component projects of roads, housing areas, wastewater plants, etc. extending for approximately the next 10 - 20 years. A **High-Level ESIA** has been developed for the entire 600 ha Project Area.

Sub-component Level

The Project sub-components will be implemented by the corresponding sub-component Developers, who will function as the owners of the individual/multiple sub-components.

The details of the sub-components are not currently known, but each of these will be implemented as stand-alone projects subject to their own financing, design approvals (within the general framework of the GCK SPA Masterplan), regulatory permits for construction, environmental approvals, etc. Enforcement of green city guidelines/principles will be through the existing planning code within special planning area or via relevant authorities such as REMA/RDB.

The recommendations arising from the **High-Level ESIA** are intended to be carried through to the detailed designs of each sub-component. Further E&S assessments will be undertaken for the sub-components as appropriate, building on the findings of the **High-Level ESIA**.

2.3 Recent similar initiatives occurring in Rwanda

Rwanda is making considerable efforts towards urban planning, and the GCK Model is not a solitary initiative in the country. Other projects related to urban planning that are deemed to be of comparable reach, as well as of similar E&S effects, are described here; where relevant, they are referred to for comparative/contextual purposes in the SESA document.

2.3.1 Rwanda Urban Development Project (RUDP-II)

The Government of Rwanda in collaboration with the World Bank is currently implementing the second phase of the Rwanda Urban Development Project (RUDP-II)¹¹. The development objective of RUDP-II is to improve access to basic services, enhance resilience and strengthen urban management in the City of Kigali and six secondary cities of Rwanda.

The activities under RUDP-II over five years from December 2020 are structured into four components:

- Component 1: Support to the City of Kigali
 - Subcomponent 1a: Integrated urban planning for resilient, inclusive infrastructure delivery. Comprising support for an integrated package of investments in four potential sites of unplanned settlements in Kigali (Mpazi, Gatenga, Nyagatovu and Nyabisundu).
 - Subcomponent 1b: Evidence-based, sustainable wetland management, flood risk management and greenhouse gas monitoring in CoK. The framework will be applied to CoK and later expected to be extended to secondary cities
- Component 2: Support to Secondary Cities
 - Subcomponent 2a: Infrastructure and service delivery in secondary cities: support investments which include roads, drainage, pedestrian walkways and street lighting in the six secondary cities of Musanze, Nyagatare, Rubavu, Rusizi, Huye and Muhanga.
 - Subcomponent 2b: Institutional capacity development of secondary cities: In the six secondary cities, the project will support the establishment and functioning of the proposed City Management Offices (CMO).
- Component 3: Institutional Capacity Development and Project Management

¹¹ Rwanda Urban Development Project (RUDP-II), 2020. Available at: <https://www.kigalicity.gov.rw/index.php?id=138>.

- Subcomponent 3a: Institutional capacity development at National level: This subcomponent will support the CoK and secondary cities through a set of Technical Assistance activities in order to effectively meet the institutional and capacity building needs in the CoK and secondary cities.
- Subcomponent 3b: Project management: Project management activities to be supported include fiduciary (financial management and procurement), E&S management, implementation supervision, contract management, monitoring and evaluation, and communication and citizen engagement.
- Component 4: Contingency Emergency Response
 - In accordance with the World Bank Policy on Investment Project Financing for situations of urgent need of assistance, the RUDP project includes a project-specific Contingent Emergency Response Component (CERC).

The RUDP Project is classified according to the World Bank E&S categories as Substantial risk based on the activities' type, location, sensitivity, scale, and nature, magnitude of potential risks and capacity of the implementing entity and commitment of the Government of Rwanda; it provides a reasonable setting for describing the GCK Model's E&S impacts from a strategic standpoint.

2.3.2 Developing Rwandan Secondary Cities as Green Model Cities with Green Economic Opportunities

The Global Green Growth Institute (GGGI) is supporting the government of Rwanda in its transition towards an inclusive green economy by:

- Mainstreaming green growth principles and green technologies through the implementation of the Green Growth and Climate Resilient Strategy pilot projects;
- Strengthening technical capacities of national and local governments in terms of urban planning and green infrastructure development;
- Supporting Rwanda Green Fund (FONERWA) as it transitions into a sustainable and blended financing vehicle for green growth in Rwanda; and
- Supporting the government of Rwanda to accelerate progress on SDG targets as well as NDC implementation.

In partnership with the Government of Rwanda (GoR), GGGI supported the implementation of the Economic Development and Poverty Reduction Strategy II 2013-2018 (EDPRS II, now superseded by NST1), as well as providing technical support to the Rwanda Green Fund (FONERWA).

GGGI Rwanda has supported GoR with the integration of green growth principles & recommendations from the National Roadmap for Green Secondary City Development into the District Development Strategies (DDS) and their revised master plans. The DDS serve as the next generation of Rwanda's medium-term strategy under the National Strategies for Transformation (NST 1) 2018-2024 which replaces the EDPRS II and it geared towards delivering Rwanda's new Vision 2050.

2.4 Purpose and Objectives of the SESA

A SESA¹² is a process for evaluating the E&S implications of a proposed policy, plan or program (PPP). As such, a SESA is appropriate for the GCK Project, as a major urban development program intended to be understood as a wider model for national replication at other cities.

¹² For the purpose of this document the term "SESA" is to be understood as a strategic assessment that takes into account environmental AND social variables. The term is intended to be similar to a SEA, which is the official designation used in Rwanda for a strategic assessment of this nature (Law N°48/2018 of 13/08/2018 on Environment). Both terms may be used interchangeably throughout the present document.

Furthermore, this SESA is consistent with international E&S Safeguard Standards and good practice and is a specific requirement of the GCF for project funding.

The present SESA identifies significant E&S risks and potential impacts by assessing the model of the GCK Project against the Applicable Standards for the Project (see Chapter 5) and also against and in the context of existing national development strategies, - programs and - plans for the relevant sectors. Hence, the SESA also aims to identify environmental, natural resource, social and climate change-related constraints bearing on the performance of the relevant sectors. Furthermore, the SESA will describe the opportunities of the GCK Model to minimize E&S risks and to improve E&S aspects as well as to contribute achieving climate resilience of the sector (including low carbon development and transitioning to a green economy). The results of the SESA will further inform the development of relevant E&S mitigation plans.

The SESA aims to inform relevant national institutions and government agencies as well as donors to the Project about the high level E&S challenges and opportunities with regard to the GCK Model and should help to ensure that environmental and social concerns and planning principles are adequately integrated in the decision-making, planning - and implementation processes.

The objectives of this SESA are to identify, describe and assess on the strategic level:

- The likely significant effects on the environment and on social aspects, including displacement aspects, of implementing the GCK Model; and how they may replicate along other Rwandan cities;
- The most important environmental, natural resource-related, social and climate change-related constraints bearing on the performance of the relevant sectors (i.e. urban development including resettlement activities); and
- The opportunities for the GCK Model to contribute to enhancing the state of the environment, on social aspects and on building climate resilience of the sector and the population, and promoting low carbon development and the transition to the green economy.

This assessment will then be taken into account in the preparation, review or implementation of the GCK Project and in the preparation of the support to be provided by the GCF.

2.5 Limitations of the SESA

International guidelines, as well Rwandan SEA guidelines, require that a strategic assessment be conducted for a policy, plan or program (PPP). The current phase of the GCK Model is deemed to be further developed in terms of planning and design than a PPP, especially with regard to the 16Ha pilot site, to which much of the Project documentation relates.

Notwithstanding, a SESA is specifically required as a prerequisite for funding the GCK Model/Upgrade Project by the GCF. The specific approach to a SESA used as basis for the present document is described in Section 6.2.

The present document draws heavily on the **High-Level ESIA** (which reflecting the more developed and tangible stage of GCK Model was already delivered) and provides the strategic overview of how environmental and social considerations are integrated into the GCK Model from a two-folded perspective.

First, the SESA aims at reflecting how the sustainability principles (including environmental and social aspects) were previously considered at earlier stages and how these were gradually embedded as the concept evolved from the initial PPP stages to the more advanced and tangible stages of the GCK Model (refer to Section 3). From this perspective, considering SEA as a multi-stage, iterative process, this SESA provides a feedback loop as part of this wider SEA process.

Second, the SESA recognises the strategic importance of the GCK Model, as it serves as example with the intention to be replicated as part of other developments and cities across the country. In this context the SESA draws on the previous similar urban development initiatives that have been rolled-out in Rwanda by recognising, where relevant, the similarities in terms of potential associated impacts

to inform this study. Most notably the Rwanda Urban Development Project (RUDP-II) served as a reasonable comparison with the current GCK Model as, given the similarities of the two developments, provides a good depiction of how urban development strategies and associated impacts would replicate along the Rwandan geography as result of future GCK Model implementation elsewhere.

2.6 Structure of the SESA

The SESA is structured to address the following specific objectives:

- Present and discuss sustainability principles in the context of urban development in Rwanda, city development in Kigali and the GCK Model (**Chapter 3**).
- Provide an overall description of the GCK Project based on the Final Feasibility Study (FFS) and the GCK SPA Masterplan (**Chapter 4**).
- Provide an overview of applicable E&S institutional framework and applicable E&S legislation and standards (**Chapter 5**).
- Provide an overview of relevant methodology, including national guidance on strategic environmental assessment (SEA¹³) and environmental impact assessment (EIA) as well as the relationship between these types of assessments. Further to describe the SEA process and procedures, relevant roles and responsibilities as well as the approach to conduct a SESA to consider potential E&S impacts in relation to the GCK Model (**Chapter 6**).
- Provide a summary of stakeholder engagement outlining stakeholder engagement principles, as well as the Project stakeholder engagement framework. The stakeholder engagement framework is mapping relevant Project stakeholders and listing engagement activities (**Chapter 7**).
- Provide a high-level baseline covering the physical, biological, socio-economic and cultural environment within the defined Area of Influence of the GCK Project and identify the key baseline topics to be considered in the subsequent E&S assessments for Project sub-components (**Chapter 8**).
- Provide a baseline reference to E&S aspects, risks and impacts appropriate to the stage of the Project at this time, indicate potential focus areas in terms of E&S risks and general management requirements, setting a baseline for subsequent Project and sub-component specific ESIA's (**Chapter 9**).
- Provide a High-Level Environmental and Social Management Plan (ESMP), outlining general recommendations/mitigation measures for managing identified High-Level E&S risks and impacts (**Chapter 10**).
- Provide an analysis of institutional capacity to put a particular focus on the role of lead institutions by assessing their needs and possibilities for institutional strengthening and capacity building that ensures an integration of sustainability principles in decision-making processes (**Chapter 11**).
- Provide strategic recommendations on how to support adherence to sustainability principles, to avoid negative E&S impacts and to implement the GCK Model in an environmentally and socially responsible manner (**Chapter 0**).

¹³ The acronyms SEA (Strategic Environmental Assessment) and SESA (Strategic Environmental AND SOCIAL Assessment), may be used interchangeably, since they both refer to the same type of integrated assessment where biophysical and social impacts of plans, programs and policy initiatives, are equally acknowledged and evaluated. Nonetheless, SEA is mentioned where related to local Rwandan legal framework; whilst SESA is used to reference the present document.

3. CONSIDERATION OF SUSTAINABILITY PRINCIPLES

Environmental, social as well as wider sustainability principles were mainstreamed in the GCK Project based on a top-down, strategic-level approach. The approach starts at the Rwandan national level, down to overall City of Kigali and then further down to the GCK Project itself.

In doing so, consideration has been given to the urban development realities of the country and their impacts on Kigali (given the urbanisation trends) as well as to the more local context and realities.

The following subsections provide an overview of how these principles at different levels were integrated and reflected in the Project.

3.1 Urban Development Context in Rwanda

Rwanda is one of the most densely populated countries in Africa and faces a high population growth of circa 2.5% yearly. Further, Rwanda is one of the fastest urbanising countries in the region, and with a targeted 35% urbanisation until 2024 (from 18% in 2016/17)¹⁴, it is set to become one of the most urbanised countries in the region. According to the National Land-Use & Development Master Plan NLUDMP 2020 – 2050, the population is projected at 7.5 million on a coverage area of 897 km² by 2035 and 15.4 million (70%), spreading on 1470 km² by 2050

Taking the above into account, through the National Strategy for Transformation (NST1¹⁵), the Government of Rwanda has identified as a priority area within the NST1 Economic Transformation Pillar, the acceleration of sustainable urbanization by:

- Develop Flagship projects in secondary cities and other key urban areas to support thriving and sustainable urban economies (with employment and incomes).
- Update Master plans of secondary cities and other key towns to reflect the ambition to become modern cities and towns. Master plans will be implemented and monitored to ensure sustainable development of cities and towns.

The goal is to ensure a more balanced urban growth in the country by encouraging the emergence of such secondary, economic poles of growth as an alternative to over-concentration in Kigali.

While the **leading role of Kigali** is maintained¹⁶, this initiative (the urban growth program of other secondary cities) helps at balancing urbanisation pressure, and will drive a wider economic transformation and sustainable development at country level by offering sustainable alternatives to Kigali.

Based on this strategic approach, the government aims at achieving economic growth while addressing associated potential negative impacts through sustainable growth planning of the six secondary cities based on following key characteristics:

- **Urbanisation Foundations:** good governance, urban planning, and E&S Safeguard policies;
- **Urbanisation Pillars:** building sector, energy, urban mobility, production and distribution of water, sanitation, and waste management; and
- **Urbanisation Pull-Factors:** economic development, job creation and quality of life.

The master plans of the secondary cities in Rwanda are therefore subject to revision. As these cities face similar urban issues as those in Kigali, it is envisaged that the City of Kigali Masterplan 2050 - and within that the GCK Project model - will be multiplied to the secondary cities.

¹⁴ Strengthening the Urbanisation and Development of Secondary Cities in Rwanda, IPAR – 2020. Available at:

https://www.rsb.gov.rw/fileadmin/user_upload/files/EDPRS_2_Abridged_Version.pdf

¹⁵ https://www.nirda.gov.rw/uploads/tx_dce/National_Strategy_For_Transformation_-NST1-min.pdf

¹⁶ National Roadmap for Green Secondary City Development, GGGI, MININFRA, Rwanda 2015.

This context adds to the strategic nature of the Green City Kigali, as the Project aims at creating a model community in Kigali, which sets standards for sustainable urban development that can be replicated in other parts of the country and the wider region.

3.2 Overall Kigali City Development Context

At Kigali City level, the consideration of the sustainability aspects is reflected through the definition of a set of goals covering eight themes of development and associated key planning strategies and approaches¹⁷. These goals represent the founding principles of the Kigali City development as follows:

- **Principle One:** Kigali Integration in the National and Regional Context
- **Principle Two:** Incremental development
 - Flexible housing options with room for growth
 - Ability of households to spend and changing housing demand dictates development
- **Principle Three:** Facilitating Affordable Housing
 - New housing models to provide for lower rungs of income groups
 - Use of local materials, involving local communities in the process, exploring alternative funding models
- **Principle Four:** Detailed Phasing aligned to City Development Strategy
 - City growth corresponding to population and economic growth – phase wise increment
- **Principle Five:** Mixed Use Development
 - Compact and integrated neighbourhoods with amenities accessible at a short distance
 - Diverse built use at one place
 - Combination of varying housing typologies
- **Principle Six:** Green Growth (balance environment protection vs. development)
 - Sensitive to development impacts on environment
 - Caring for eco-fragile and agriculturally fertile land
 - Sustainable use of natural resources in the development process
- **Principle Seven:** Sustainable and Resilient Infrastructure
 - Weather and climate proof infrastructure
 - Roads, transit modes, water, sanitation, electricity etc. that is affordable and accessible to all
- **Principle Eight:** Inclusivity and Equity
 - Attention to vulnerable groups (e.g. women, children, poor, old, differently abled etc.)
 - Inclusive and representative planning

These principles were considered within the updated Kigali Urban Sustainability Framework (USF).

Guided by the World Bank's Urban Sustainability Framework Guide, the Kigali USF lays out key dimensions of urban sustainability including governance and integrated planning, economic productivity and sustainability, environment and resource efficiency, low carbon and resilience, and social inclusiveness.

¹⁷ City of Kigali Masterplan 2050

The Kigali USF provides the guiding principles for the subsequent planning processes to ensure the long-term sustainability of Kigali. These are focused on three areas of issues to be addressed during the city development, as indicated below and represented in **Figure 3.1**:

■ **Environmental Issues**

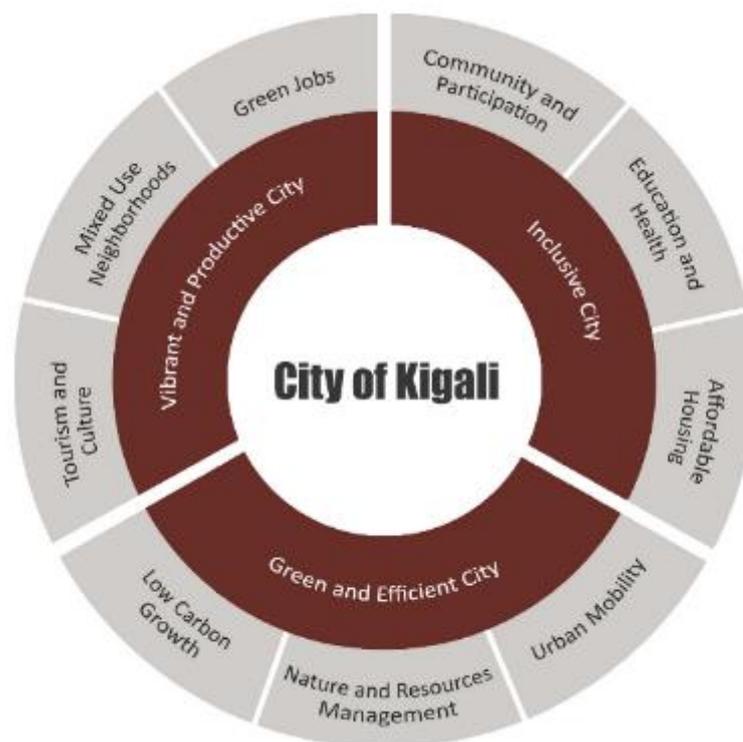
- Rapid urbanisation and encroachment of nature areas;
- Increasing pressure on resources and carbon footprint with urbanisation and economic growth;

■ **Social Issues**

- Large disparity in living conditions between “Rich” & “Poor”;
- Increasing urban sprawl with unplanned settlements lacking physical and social infrastructure;

■ **Economic Issues**

- Pressing need for expanding the skilled workforce;
- Need for employment opportunities to cater to the increasing population;
- Push for green economic growth.



Source: City of Kigali Masterplan 2050

Figure 3.1 Updated Urban Sustainability Framework for City of Kigali

The City of Kigali Masterplan 2050 addresses these three sustainability areas and for each area provides corresponding (i) key issues, (ii) preferred development directions, (iii) strategic recommendations, and (iv) discusses the challenges in tackling them. The main points are summarised below in a matrix form as also applied in the Masterplan.

3.2.1 Environmental Component (Green & Efficient City)

Key Issues	Preferred Development Direction
<p>Nature Areas</p> <ul style="list-style-type: none"> Urban areas prone to landslides and flooding; Unplanned developments on steep slopes; Deforestation; Encroachment of wetlands. <p>Resources & Carbon Footprint</p> <ul style="list-style-type: none"> Sprawling low rise development; Expanding urban areas; Need for extended infrastructure/ transportation facilities; Increasing pressure on energy and resources; Increasing carbon footprint. 	<p>Nature Areas</p> <ul style="list-style-type: none"> Clearance of development in steep slopes and wetlands and acquire land for relocation; Restoration of steep slopes and wetlands; Afforestation. <p>Resources & Carbon Footprint</p> <ul style="list-style-type: none"> Green growth development; Compact city development; Sustainable resource management.
Challenges	Recommendations
<p>Nature Areas</p> <ul style="list-style-type: none"> Implementation mechanism and cost of land acquisition & relocation; Cost for programming and implementation restitution of nature areas. <p>Resources & Carbon Footprint</p> <ul style="list-style-type: none"> Affordability of intensified and densified development; Cost for high capacity transport infrastructure; Efficient use of resources. 	<p>Nature Areas</p> <ul style="list-style-type: none"> Conserve all slopes above 30%; Conserve all wetlands; Prepare redevelopment schemes to relocate people from steep slopes and wetlands; Prepare strategies for rehabilitation and for management of slopes, forests and wetlands; Explore possibilities for sustainable exploitation of nature areas for economic gain-creation of green jobs. <p>Resources & Carbon Footprint</p> <ul style="list-style-type: none"> Limit urbanisation boundaries; Identify potential high density mixed use zones; Reduce sprawling development and hence reduce infrastructure/ transportation cost; Explore possibilities for green mobility and city greening to counter increase in carbon footprint; Explore integrated management system for energy, waste, water etc.

3.2.2 Social Component (Inclusive City)

Key Issues	Preferred Development Direction
<ul style="list-style-type: none"> Large disparity in quality of living environment between the high and low income groups; Poor living quality in unplanned settlements with lack of physical and social infrastructure. 	<ul style="list-style-type: none"> Inclusive development that considers the needs of all including gender, youth, vulnerable groups; Create integrated neighbourhoods; Community engagement in implementation and local design.
Challenges	Recommendations
<ul style="list-style-type: none"> Need for large funding resources; Balancing the needs of various groups of citizens; Brownfield developments; Implementation of integrated neighbourhoods. 	<ul style="list-style-type: none"> Create good affordable housing/ home improvement schemes; Develop integrated neighbourhoods with a mixed of housing, commercial, recreation, transport facilities and employment opportunities; Ensure improved living quality for commoners and minimise the gap in terms of living quality; Conduct regular stakeholders meetings for city and local level project implementation.

3.2.3 Economy Component (Vibrant & Productive City)

Key Issues	Preferred Development Direction
<ul style="list-style-type: none"> ■ Lack of well-served attractive areas for investment; ■ Need for more employment opportunities for the increased natural and migrant population; ■ Promote green economic growth. 	<ul style="list-style-type: none"> ■ Create dedicated areas for businesses and regional commercial activities; ■ Green jobs creation; ■ Promote tourism development.
Challenges	Recommendations
<ul style="list-style-type: none"> ■ Need to make strategic land acquisitions for a well-monitored commercial development; ■ Balanced and complementary development for Kigali city and 6 secondary cities; ■ Attract green economic investments. 	<ul style="list-style-type: none"> ■ Anticipate various investment possibilities in consideration of the latest regional development; ■ Safeguard land for economic expansion at key areas; ■ Promote green economy investments and green jobs creation; ■ Increase vibrancy and activities, promote tourism with preservation of culture and heritage.

3.3 Green City Kigali SPA Masterplan

The goals and founding development principles as defined in the City of Kigali Masterplan 2050 were taken forward at project level and considered in the masterplan for the GCK Project (“GCK SPA Masterplan”).

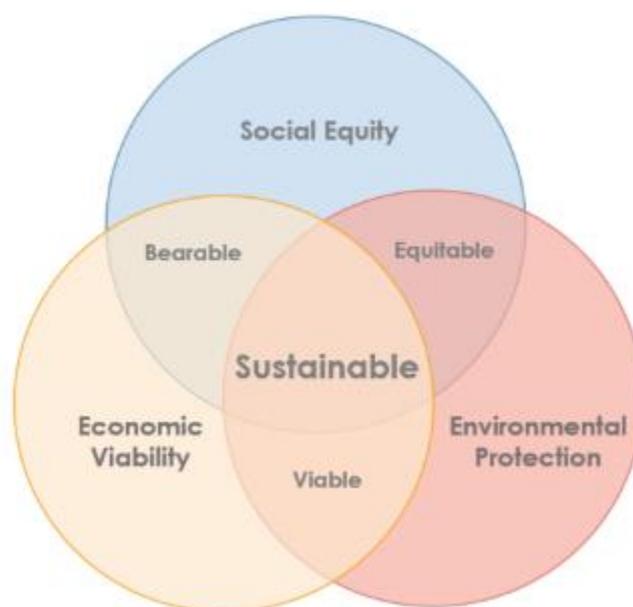
The Project is strongly connected to both the national and the wider global drive to reduce environmental and social impacts, constrain GHG emissions and adapt to climate change. In doing so the GCK SPA Masterplan is supposed to address the challenges of housing affordability and -supply, vulnerability to climate change and increasing urban sprawl. It also addresses the needs of the rapidly increasing urban population and the need to improve quality of life, health and wellbeing.

The approach in the GCK SPA Masterplan includes harnessing nature (ecosystem services) to provide an affordable and low footprint ecological infrastructure. These are enhanced through interventions targeting specific synergies such as using constructed wetlands, which enhance biodiversity and landscape amenity whilst also being a practical, low impact and low-cost solution to water filtration and management.

The Project therefore aims at creating a model community in Kigali, which sets standards for sustainable urban development that can be replicated in other parts of the country and the wider region. The model is to provide housing that is affordable for all in sustainable and culturally compatible, climate resilient urban communities.

The Green City Kigali (GCK) Project is aligned with the goals of the City of Kigali Masterplan by providing a model community at Kinyinya Hill for sustainable urban development and resilience against the consequences of climate change. These objectives will be achieved by integrating the Project’s key pillars of sustainable development (**Figure 3.2**):

- i. Sustainable urban development for social inclusion and reducing poverty;
- ii. Sustainable and inclusive urban prosperity and opportunities for all; and
- iii. Environmentally sustainable and resilient urban development.



Source: ERM, 2021

Figure 3.2 GCK Project Key Pillars of Sustainable Development

In line with the Project goal of sustainable development and its high visibility, the Project commits to implement all of the sub-components in line with applicable national and international standards, safeguarding physical, biological and social environment at all times. The guiding requirements for management of Project E&S risks and impacts are outlined in the Safeguard Documentation package, reflecting good international practice. The Project commits to applying the following mitigation hierarchy as good international practice: avoid/reduce at source; abate on site; abate at receptor; repair or remedy; and compensate.

The Project commitment to implement relevant E&S safeguards measures and achieve the sustainability principles is under the responsibility of the overall Project Implementation Entity (PIE – described further below). The developers of the various sub-components are in charge of preparing, implementing and enforcing their own E&S studies and management plans for their sub-component. Using the above-mentioned as starting point, the following guiding principles blending global best practice with the use of up-to-date technologies were adopted to convey the environmental, social sustainability goals into the GCK Project¹⁸:

- **Provide housing that is affordable for all:** Housing options will be provided for all income groups that will begin to address the shortage of affordable housing in Kigali, combining innovative purchase options together with low construction costs. Existing settlements will be upgraded, and densities increased.
- **Help to build a strong sense of community and ownership:** GCK will comprise a series of neighbourhoods and districts each with its own distinctive character together with a high-quality public realm that will encourage social interaction. In addition, buildings and neighbourhoods will be sensitively designed taking into account Rwandan culture to provide a sense of safety, home and comfort.
- **Support the development of a vibrant local economy:** GCK will feature a mix of uses and facilities enabling residents to live and work within the city, maximising the opportunities for start-ups and small to medium sized enterprises.

¹⁸ Green City Kigali Feasibility Study, SWECO, 2020

- **Be well-connected and pedestrian friendly:** GCK will connect with the local transport network while reducing the need for and impact of motorised vehicles. Compact, mixed-use planning where the higher densities are oriented toward public transport corridors will help create walkable neighbourhoods which enhance the viability of regular and quality public transport, while pedestrians and cyclists will enjoy a network of shaded routes throughout the city.
- **Use local labour, skills and materials:** The construction of GCK will be used as an opportunity to build knowledge and capacity by training a skilled workforce, utilising local labour and local materials wherever possible; thereby maximising the benefit to the local economy while minimising environmental impact.
- **Adopt passive design strategies together with the use of natural systems:** The design of the city will maximise the use of passive design strategies and create a pathway to a net-zero future, working within the site's natural capacity while maximising the use of natural systems such as sustainable urban drainage, rainwater harvesting, sewerage treatment, waste recycling, energy production etc.
- **Work with nature in all its forms:** The layout of the city will work with the natural topography of the site, safeguarding its natural water resources while protecting and enhancing its ecosystem and biodiversity.
- **Be resilient and climate change ready:** GCK will adopt a range of strategies to mitigate climate change effects such as increased temperatures and water scarcity.
- **Adopt a SMART city concept:** The city will make use of Information & Communication Technologies to enhance the convenience and safety of residents while supporting the development of a knowledge-based economy and supporting services.
- **Complete at every stage:** At each stage in its development, GCK should be complete within itself and should not be reliant on future phases.
- **Provide a catalyst for change in Kigali and beyond:** GCK will represent an example by setting new standards in the provision of affordable homes and sustainable communities in Rwanda and the wider region.

3.4 Summary

In summary, the above-listed sustainability principles of the GCK Project stem directly from the City of Kigali Masterplan 2050 with respect to all eight founding principles of the masterplan. This applies especially to topics regarding facilitation of affordable housing, integrated neighbourhoods and strong sense of community, as well as the development of sustainable and climate resilient infrastructure.

Furthermore, both the City of Kigali Masterplan and GCK Project are fully aligned with the national strategy to prioritise green urban development outlined in the EDPRS II. To ensure balanced nationwide urban growth, GCK serves as a model for the country's six secondary cities and thus helping Rwandan strategic goals of sustainable urbanisation in the coming decades of the 21st century.

4. DESCRIPTION OF THE GCK MODEL



Strategic context:

The SESA analyses E&S risk posed by the GCK Model, identifies associated facilities or projects, and presents strategic recommendations for the replication of the GCK Model in Rwanda.

The purpose of this chapter is to describe all elements that are included in the GCK SPA Masterplan which will be implemented through the GCK Project and therefore are part of the strategic GCK Model. The alternative analysis provides an analysis of possible options to inform the formulation of possible policies, plans and strategies by identifying opportunities to enhance benefits.

4.1 Overview

The following description of the GCK Model is based on the GCK SPA Masterplan for the 600 ha Project Area.

The Project will comprise a new enhanced urban area including green housing for low to middle-income inhabitants, commercial spaces, light industrial areas, schools, health facilities, recreational areas, sports facilities, and green areas. According to the GCK SPA Masterplan, the following six key components will be implemented (described in detail in [Chapter 4.6](#)):

- A high street, a larger arterial road linking neighbourhoods with the wider city;
- Sloping streets for pedestrians;
- A series of neighbourhoods each with its own social and commercial centre;
- A hilltop landscape for recreation, sports and social gatherings;
- Shared primary schools which form links between landscape and built communities; and
- Integration with existing housing and infrastructure developments.

In addition, comprehensive infrastructure and basic services will be provided, including information and communications technology (ICT), solid waste management, sustainable transport including more affordable and smart public transport systems, energy, and water and sewage management (described further in [Chapter 4.7](#)). The Project will be implemented via a number of sub-components. Each sub-component will be managed by a Developer. One of these sub-components is the 16 ha pilot site, in the east of the Project Area (whose implementing entity shall be FONERWA and GCKC). The 16 ha pilot site will include close to 1,700 affordable flats for 7,000 to 8,000 people across 16 ha and alternating residential units with commercial units. Construction work for the 16 ha pilot site is scheduled to start in 2023. Implementation of other sub-components shall be executed by the respective developers, and subject to the standard regulating institutions, such as CoK Planning and Building Depts. (OSC), RDB for REMA, etc. CoK Planning Dept. would be the regulating authority ensuring compliance of developments to the standards as set forth in the GCK SPA masterplan.

Further, the upgrade of an informal settlement at Ngaruyinka community has been identified. Ngaruyinka has been identified as an informal settlement lying within the overall GCK 600ha planning area that is typical of its type in Kigali (formerly rural, then peri-urban and increasingly urban as the city of Kigali grows in size rapidly). Ngaruyinka, with poor infrastructure access, prevalence of low income households, and located on sloped terrain has been identified as particularly vulnerable to present and future climate change threats as well as the other issues that affect a poor community. Thus the upgrade will focus, in particular, on interventions that not only improve the quality of life for its residents today, but that prepare it for the climate based threats tomorrow (adaptation) while minimizing emissions during its implementation and operations (mitigation).



Important:

Each sub-component will be designed in detail at a later stage and will, when categorised accordingly, be subject to specific ESIA's and permits/approvals as defined in the Rwandan EIA legislation and the Project's ESMF.

4.2 Project Phases and Key Entities Involved

The development of the Project is divided into the following four phases (with status as of March 2022):

- **Phase A: Feasibility Assessment** – Analysis of the current situation in Kinyinya Hill and design of sustainable and green solutions framework (*completed – see Final Feasibility Study*).
- **Phase B: Tender and Preliminary Design** – Development of the preliminary GCK SPA Masterplan and preliminary design of relevant sub-components (pilot and upgrade) – (*completed - see preliminary GCK SPA Masterplan*).
- **Phase C: Masterplanning and Detailed Design** – Design of relevant Project sub-components – *due to commence in during 2022*.

The High-Level ESIA, along with the ESMF and SEF are conducted based on the GCK SPA Masterplan in succession to Phase B. They are intended to inform E&S management for the life of the Project.

Throughout the different Project Phases, different entities have/will be involved in the Project (refer also to Chapter 5 and 11.2). Key involvement in the Project is described below.

- **FONERWA:** is the Rwandan green fund with a purpose to be the engine of green growth in Rwanda. Its vision is to respond to Rwanda's current and future financing needs for environment, climate change, green growth to accelerate goals of national sustainable economic development. The fund invests in the best public and private projects that have the potential for transformative change and that align with Rwanda's commitment to building a strong green economy. It also provides expert technical assistance to ensure the success of its investments. Financial support of the GCK Project from government and development partners will be managed by FONERWA. Through Phase A, B and C, FONERWA is considered the Project Executive Agency (PEA). For the purpose of single/multiple sub-components implementation, a Special Purpose Vehicle (SPV) shall be created. The SPV called Green City Kigali Company (GCKC) has been established for the development and management of the 16 ha pilot site and represents the PIE for this sub-component. Future sub-components may be developed and managed by respective sub.-component developers.
- **KFW:** the German state-owned investment and development bank. For the Project it is acting as an International Finance Institution (IFI) by providing financing for the Project through the German Ministry for Economic Development and Cooperation (BMZ). It has financed activities throughout all current Project Phases, including green infrastructure for the 16 ha pilot project through Phase D.
- **Green Climate Fund (GCF):** GCF supports the efforts of developing countries in responding to the challenge of climate change. GCF has provided PPF funding for project activities and an application has been submitted for financial support for climate responsive interventions, most notably at the GCK upgrade project at Ngaruyinka.
- **Feasibility and Project Management Consultant (FC and PMC):** is an international engineering and architecture firm in infrastructure, water, buildings and urban development, contracted by FONERWA to support the implementation of the Project during Phase A - feasibility assessment, Phase B - the design competition and Phase C – detail design and master planning.

- **Urban and Architectural Design Consultant (UADC):** Provides detail design consulting services in form of a Masterplan for the 600 ha (GCK SPA Masterplan) as well as a detailed masterplan for the 16 ha pilot site.
- **Green City Kigali Company (Special Purpose Vehicle):** Green City Kigali Company (GCKC) has been established for the development, operations and management of the 16 ha pilot site.
- **City of Kigali (CoK):** CoK will be responsible for issuing permits for the construction of not only the pilot and upgrade but other sub-components as well and also various municipal departments will be responsible for operations and maintenance of various infrastructure that is developed.
- **Rwanda Development Board (RDB):** RDB shall authorise the Project to proceed by issuing an EIA certificate to ensure that it has no adverse impacts on the environment.
- **Rwanda Environment Management Authority (REMA):** after Project certification issued by RDB as described in the previous bullet, REMA is in charge of monitoring of ESIA/ESMP commitments to ensure their implementation.

In Phase D, the project implementation of the Pilot project (sub-component) is to be carried out by the GCKC. This entity will have overall responsibility to ensure that the Project and the E&S risks and impacts of the specific sub-component are adequately identified and managed in alignment with Rwandan legislation, donor and Project's E&S safeguard requirements (including RPF and SEF, with the obligation to develop and implement SEPs and RAPs or LRPs respectively as appropriate).

FONERWA as Executing Entity, to the Accredited Entity (Ministry of Environment) of GCF shall be responsible for the implementation of the Upgrade project (sub-component). This entity will have overall responsibility to ensure that the Project and the E&S risks and impacts of the specific sub-component are adequately identified and managed in alignment with Rwandan legislation, donor and Project's E&S safeguard requirements (including RPF and SEF, with the obligation to develop and implement SEPs and RAPs or LRPs respectively as appropriate).

The rest of future Project sub-components will be implemented by sub-component Developers. The sub-component Developers will:

- Function as the owners of the individual/multiple sub-components.
- Will be in charge of sub-component ESIA, ESMP, and related documentation, aligned to the present **ESMF** (depending on Project categorisations).
- Will employ the appointed EPC¹⁹ and monitor its E&S performance.
- Their performance to be monitored by local Rwanda authorities as applicable.

4.3 Project Implementation Arrangements

The E&S requirements derived from the GCK Model are expected to be mandatory for future sub-component developers, and compliance to these would be enforced by the City of Kigali (i.e. their one stop urban planning center) and further by REMA as EIA compliance agency as the requirements would come as a part of the overall GCK SPA Masterplan; cascaded down to the final version of the masterplan. A series of workshops throughout Phase C are planned to be held between FONERWA, the ESIA Consultants, the RPF Consultants and the UADC Consultant This integrative approach between architectural planning and E&S safeguard instruments is part of the model approach and part of a strategic, interactive and integrative planning process.

¹⁹ Engineering, procurement, and construction (EPC) contracts are the most common form of contract used to undertake construction works by the private sector on large-scale infrastructure projects. Under an EPC contract a contractor is obliged to deliver a complete facility to a developer. The EPC contractor coordinates all design, procurement and construction work and ensures that the whole project is completed as required and in time.

4.4 Project Location

The Project is located on Kinyinya Hill in the northeast of the central business district of Gasabo, Kigali, an area of rapid urbanisation. **Figure 2.1** gives an overview of the location of the Project Area.

Kinyinya Hill is administratively distributed over six villages (Agatare, Ngaruyinka, Rusenyi, Gasharu, Taba and Binunga) which are part of the two cells Gasharu and Murama in Kinyinya sector. The total number of residents living in Kinyinya Hill is estimated²⁰ to be around 37,200 people.

The Project Area is naturally defined by the topography of the hill and its surrounding wetlands. There exists a mixture of high mountains with average altitude of 1,504 m, sloping basins and valleys. Wetlands and floodable zones surround the hill. Over time, the Kinyinya Hill has expanded beyond hilltops and steep hillsides to gentler slopes and the marshy valley floor. The lower half of the Project Area is owned by the Rwanda Social Security Board (RSSB) and currently used informally as agriculture land within an urban area. For the south-eastern part and the north-western part of the Project Area, the land use is different with mixed formal and informal settlements (**Figure 4.1**)²¹.



View of Kinyinya Hill from the east, showing existing settlements on the hillside



View of Kinyinya Hill from the west, showing farmland and wetlands in the foreground and existing settlements on the hillside

[Source: Urban Design Handbook, 2019]

Figure 4.1 Kinyinya Hill settlements, farmland and wetlands

From a landscape and visual perspective, Kinyinya Hill is a semi-developed and peri-urban development area. While some parts are covered by settlements, other parts are vegetated or covered by public and social infrastructures. Public infrastructure includes roads, side drains, water supply network and public lighting. Many people living in Kinyinya Hill grow crops according to available agricultural land.

Eucalyptus is the main large tree species that is visible in the western part of the Project Area. The wetlands in the southern part of the Project Area is considered a sensitive system. It acts as a filter of waste from the different catchment areas and regulates flow and flooding in the area.

In terms of land use, data from Rwandan statistical reports (RPHC 2012²²) for the whole Kinyinya sector suggest that around 90% of current use of the area can be described as peri-urban with fragmented urban and rural features. There are residential areas, paved and unpaved roads, public utilities such as electricity as well as water, wastewater and waste management infrastructure, agricultural and village community areas with social housing, including a large government owned parcel. The majority of the settlements are concentrated in the surroundings of the hill with

²⁰ According to calculations in the Final Feasibility Study.

²¹ Urban Design Handbook (2019), available at: <https://greencitykigali.org/wp-content/uploads/Urban-Design-Handbook.pdf>

²² National Institute of Statistics of Rwanda (2012) Fourth Population and Housing Census: Provisional results, Rwanda. Available at: <https://microdata.statistics.gov.rw/index.php/catalog/65>

considerable distance from the main tarmac road that connects different areas of the hill and surrounding sectors.



Source: ERM, 2020

Figure 4.2 Large trees in the western part of the Project Area

The following different sub-components are being developed within the 600 ha Project Area:

- the Pilot Site, a 16 ha residential and commercial area that will include close to 1,700 affordable flats for 7,000 to 8,000 people;
- the Upgrade site, urban upgrade of existing 18 ha community (Ngaruyinka);
- the Cactus Green Park, a 13 ha housing project developed by Horizon Ltd;
- an affordable housing neighbourhood development on a parcel of 22 ha (first development phase) within the 130 ha site owned by the RSSB and financed by IFC;
- Kigali International Community School (KICS) project; and
- other individual estate development projects.

Please note that the Deutsche Welle site is a significant green area within Kigali, it should be noted that the Deutsche Welle site has been allocated for a different high-end residential development (Emerald Park).

All sub-components are developed independent from each other. What they have in common is that they are private initiatives, developed in compliance with the City of Kigali Masterplan 2050 (see [Chapter 3](#)). [Figure 4.3](#) shows the locations of sub-components currently under development and gives an overview of the total Project Area.

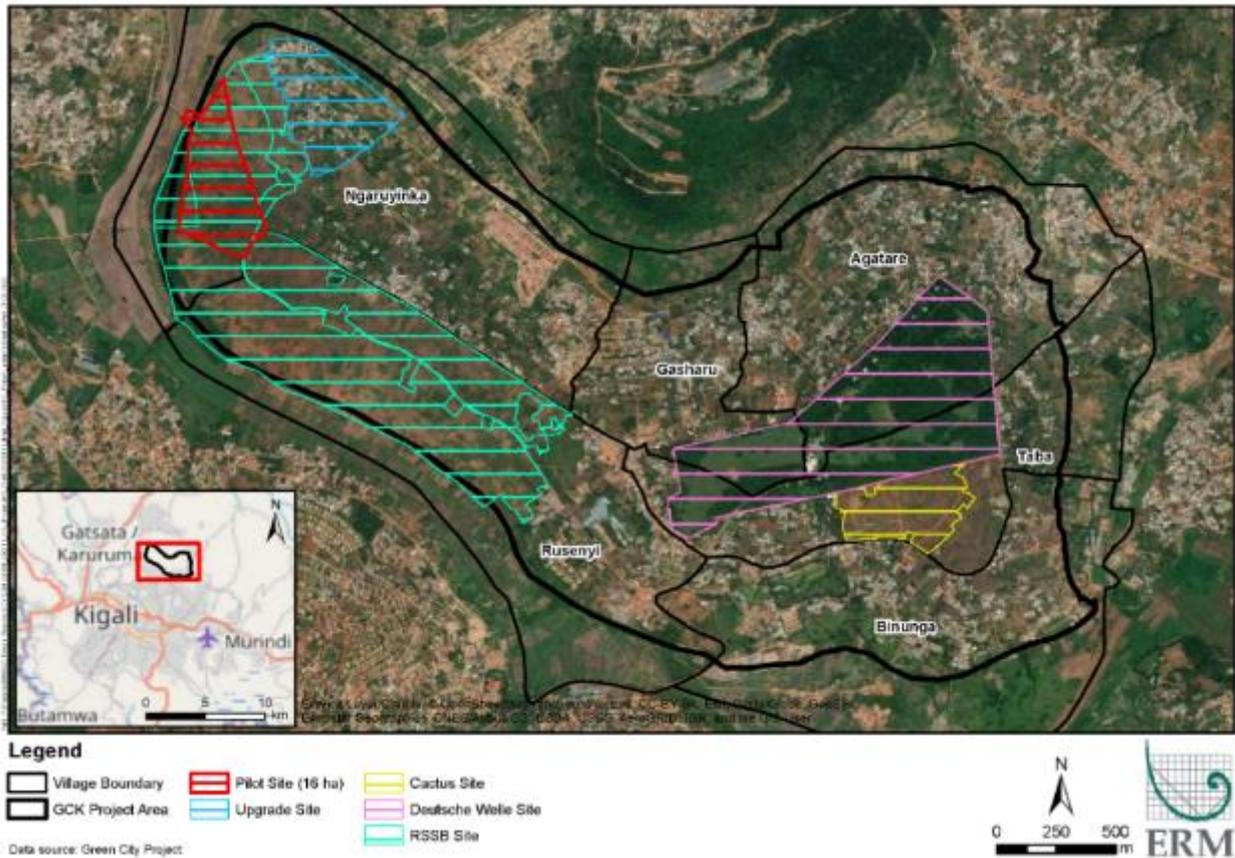


Figure 4.3 Overview of 600 ha Project Area and Sub-component Sites

4.5 Project Development Area

According to the GCK SPA Masterplan, approximately 227 ha of the overall 600 ha Project Area are either not entirely suitable for development, or a development has already been planned and carried out as part of other projects. The areas within the Project Area, which for different reasons will not be developed in the course of the current GCK SPA Masterplan, are listed in **Table 4.1** and shown in **Figure 4.4**.

Such areas include, for example, the buffer area around the existing wetlands around Kinyinya Hill, already existing settlements and infrastructure, planned and permitted projects e.g. the Cactus Project, as well as areas that are physically unsuitable for construction (e.g. steep slopes).

Since the wetlands surrounding the Project Area are recognised as a sensitive system and an important natural habitat, the GCK SPA Masterplan²³ includes a buffer zone of 20 meters of land to ensure adequate protection around wetlands. This ‘wetlands buffer’ zone will contain a belt of protective tree planting to enhance watershed protection and soil stability. The buffer zones also have an ecological and hydrological function. They will provide rainwater filtration and attenuation for the runoff from both landscape and urban areas and, if possible, water can be used for irrigation.

²³ UADC, Masterplan, Design Report, p.14

Table 4.1 Areas within Project Area not be used for development within the GCK SPA Masterplan

Classification	Detail	Area
Wetlands set-back (20m zone)	Around existing wetlands	17.89 ha
Slope constraints	None steeper than 20% or 1/5	minimal
Planned and committed projects	Cactus Project Dubai Site West Central Site Deutsche Welle Site Formal Development Under Construction	13.87 ha 5.58 ha 9.11 ha 66.46 ha 31.62 ha
Already existing formal settlements and social infrastructure	Garden Estate Residential Formal Large Houses Residential Formal Medium Houses Education Industry Health Commercial	6.02 ha 6.10 ha 35.75 ha 8.32 ha 2.05 ha 0.81 ha 21.74 ha
Polluted areas		None defined/ classified
TOTAL		~227 ha

Given that about 227 ha are not available from the total area of 600 ha, this leaves about 373 ha remaining for the development of the Project (see **Figure 4.4**).

The different projects to be developed in the Kinyinya Hill besides the Project, including Cactus project, Deutsche Welle Site, Kigali International Community School (KICS) project, individual Estate Development, are all independent from each other. What they have in common is that they are private initiatives and all projects are to be developed in compliance with the City of Kigali Masterplan²⁴.

Figure 4.5 below shows the preliminary GCK SPA zonal masterplan, which outlays the planned zones for different purpose of use. The Project Area is divided into use for education (primary schools), healthcare, commercial use, parks and recreation, public open spaces, community facilities, utilities, and residential zones. The figure also shows where the already permitted Cactus project (environmentally certified by Rwanda Development Board (RDB), construction permit issued by City of Kigali, One Stop Centre) is located and which areas are already under construction. The white area of 70 ha in the middle of the eastern half is the Deutsche Welle Site where informal settlements exist and where more opportunities for densification without redevelopment may be implemented.

²⁴ <https://masterplan2020.kigalicity.gov.rw/portal/apps/webappviewer/index.html?id=218a2e3088064fc6b13198b4304f3d35/>

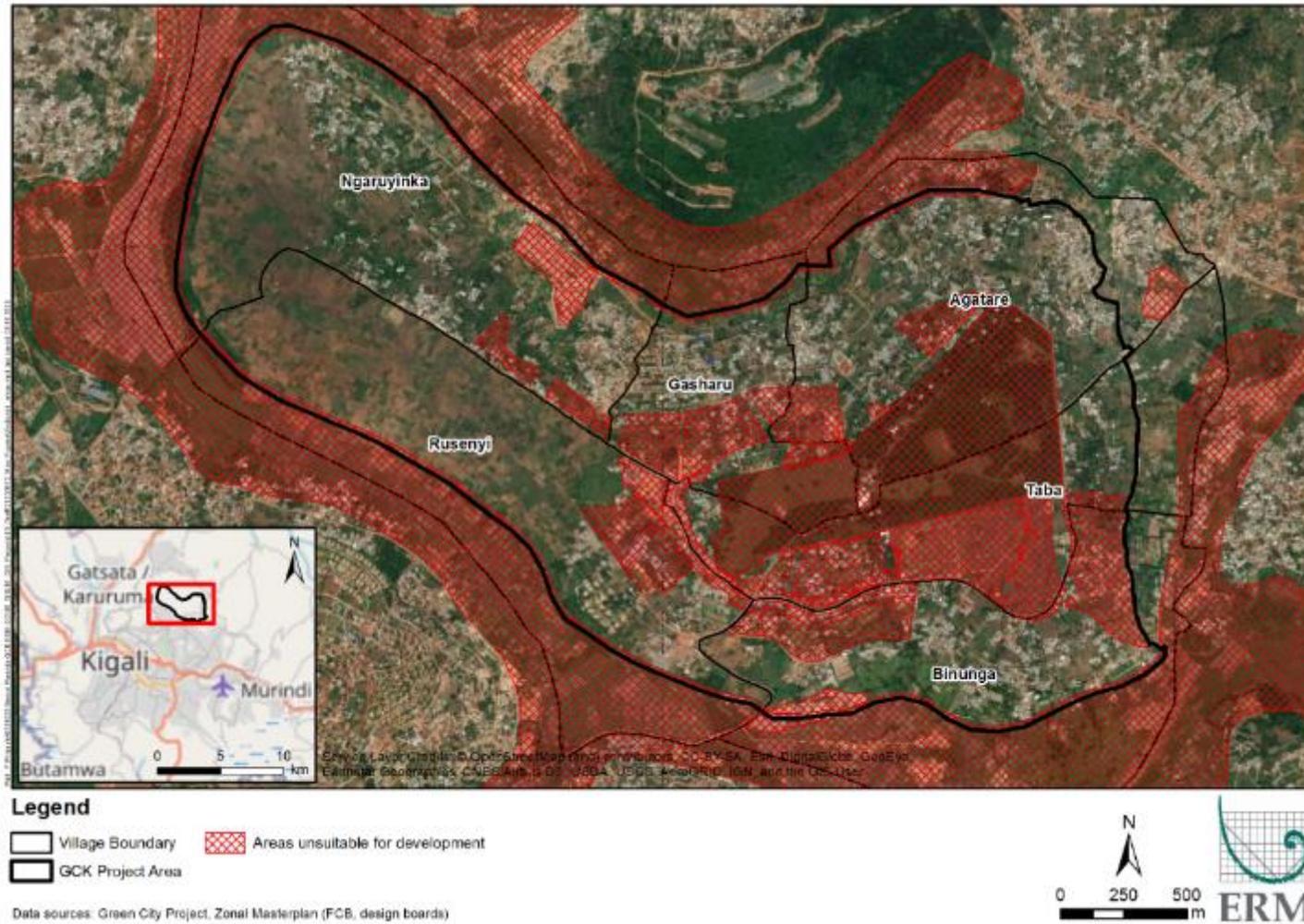


Figure 4.4 Areas Unsuitable for Development²⁵

²⁵ This map has been prepared taking into consideration information from the survey carried out by Sweco, as well as from the GCK SPA Masterplan. In cases of inconsistent data or non-overlapping development or zonal blocks between the various data sets, the lowest figures were applied.



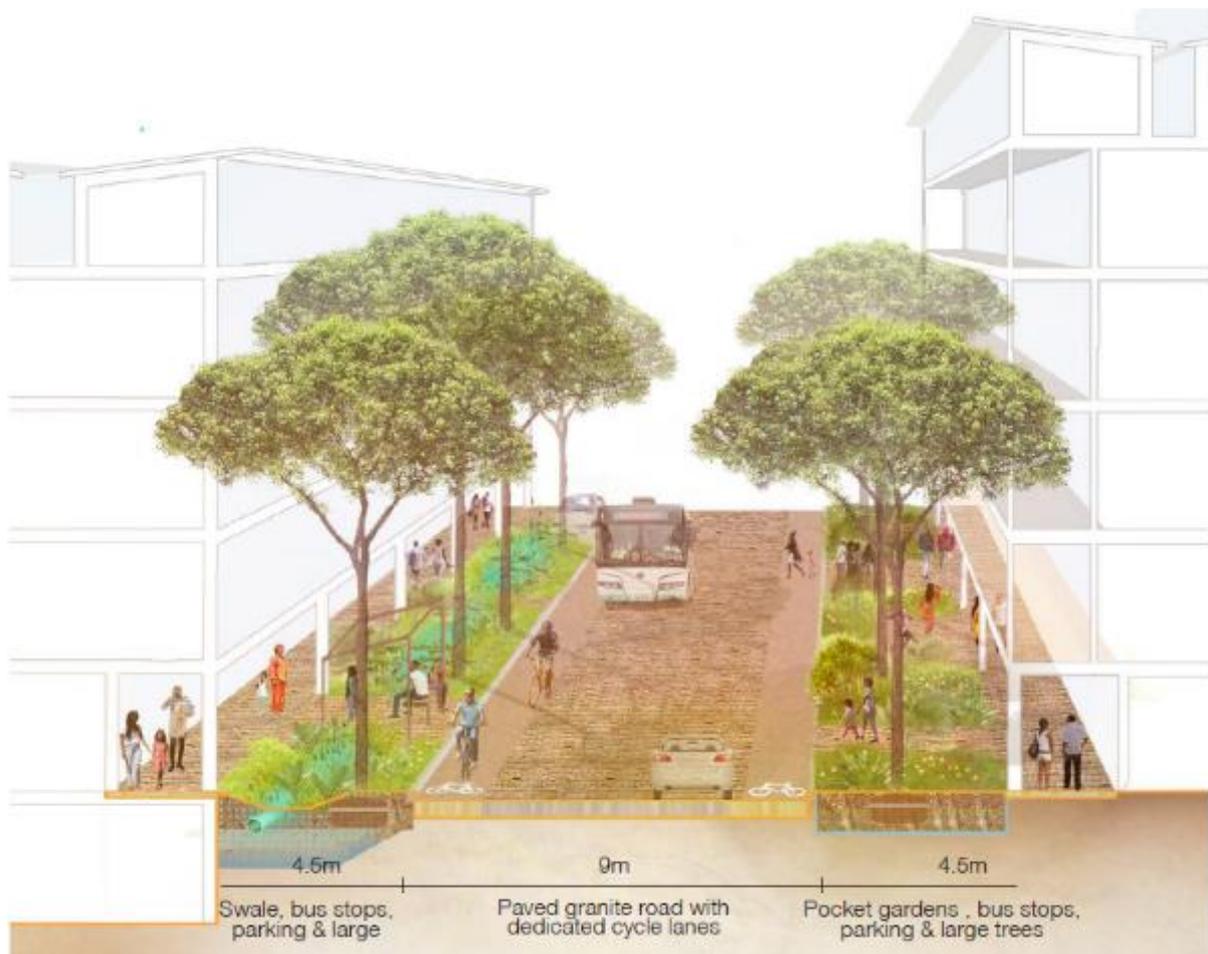
Figure 4.5 Zonal GCK SPA Masterplan

4.6 Project Components

The GCK SPA Masterplan defines the following components to be designed and constructed as part of the Project.

Arterial high street and sloping colonnaded streets

The arterial high street is planned to run around the hill about one third of the way down the slope so that it passes through the centre of each new neighbourhood community. It will be a granite-cobbled street large enough to take buses in each direction adapting to existing topography and residential areas. The following **Figure 4.6** shows the dimension of the planned arterial high street. It is planned to be 18 m wide with enough space for car lanes, cycle lanes, bus stops, parking and pocket gardens.



Source: UADC Masterplan, 2020

Figure 4.6 Main arterial road (18 m wide)

The secondary roads up and down the edge of the hillside are sloping streets for pedestrians, lined with colonnades forming a barrier to shops, houses and workspaces. The streets' asymmetrical arrangement allows for sequence of planted gardens, which step with the slope, creating seating edges beneath large shade trees.

Neighbourhoods

At the heart of each neighbourhood an 'Urubuga', a central forum is planned that contains covered and open market spaces, commercial buildings, a health centre and community buildings forming a

colonnaded square. Generally, six roads come together here as well as pedestrian routes up and down the hill, so that every home is within 400 meters of an integrated neighbourhood centre.

A variety of livelihood opportunities is planned within a short walk, such as agriculture (peri-urban farming and greenways), markets, and light industrial activities.

The Project proposes to apply various housing and unit types for residential and commercial buildings. The buildings will vary from two to five story structures focusing on affordability, privacy, environmental design considerations and inclusion of traditional Rwandan culture characteristics. The units will range from 30-150 m². Through the various building types, the Project will provide social housing, affordable housing, single-family and multi-family residential housing as well as mixed use of commercial and residential housing.

Figure 4.7 shows the general approach of the planned units, including renewable energy solutions and climate adaptation considerations.



Source: GCK SPA Masterplan, 2020²⁶

Figure 4.7 Holistic Approach to Energy and Construction - The Apartments

Hilltop landscape for recreation, sports and social gatherings

The top of the hill can be seen as an extension to the Deutsche Welle forest. The forest profile will create an image for Kinyinya Hill, which in its clearings will house religious buildings, secondary schools and sports pitches connecting the communities all round.

A series of landscaped swathes join the forested plateau with the wetlands landscape below. These will take the form of both recreational and agricultural terraces, which also provide filtration and attenuation for storm water channels following the line of the sloping streets. These allow for traditional agriculture as well as being significant in terms of rainwater attenuation and their existence also means that each new home is no more than 400 meters from open agricultural landscape.

26 UADC, design boards, p. 10

Shared primary schools

At the intersection of the landscape swathes and the primary circular road, there will be primary schools and large community halls shared by the neighbourhoods each side and opening out onto the rural landscape above and below. The school classrooms form shaded courtyards, which open out onto the educational pollinator gardens, landforms and views down to the valley.

Integration with existing developments

The GCK SPA Masterplan points out the need that new homes and communities are integrated with the existing setup carefully and sensitively upgrading and adding to the existing settlements, providing equivalent new infrastructure and a range of equivalent community healthcare and educational facilities and the same attention to the integration of buildings with the natural environment.

4.7 Infrastructure

The Project will provide sustainable and practical infrastructure solutions to the existing and future residents, as well as visitors of Kinyinya Hill. This includes the following elements.

Information and communications technology (ICT)

The Project will provide universal fast internet access via wireless broadband. In addition, options to access television and radio via antenna and internet will be made available. The Project will aim to maximise access to up-to date ICT solutions in the design of the buildings.

Solid Waste

The Project is considering incorporating a waste management and treatment facility for organic waste within the Project Area. This could be in the form of a biogas facility, which would provide a source of renewable energy. The Final Feasibility Study recommends the introduction of waste separation points per 60 households to separate household waste in organic, recyclable and residual. In addition, the installation of upcycling rooms to encourage reuse of waste materials is recommended (pESIA, Sweco, p. 23). Local collection and recycling stations are planned.

Sustainable Transport

The Project will establish a high quality transportation and mobility system in the Project Area. This will entail pedestrian areas, cycle lanes, bus lanes and roads. The design of the street network will allow linkage to neighbouring areas, reducing private car travel and focusing on safety. The Final Feasibility Study recommends to prioritise provision of sustainable and more affordable transport options and innovate to keep car ownership and need for parking at low levels. In addition, the design of the Project Area shall locate a local or neighbourhood centre within 500 m walking distance of every home to further reduce the need to travel. To design the streets as part of a water management and overall climate control strategy, the pESIA recommended to create a permeable walking and cycling network throughout. In addition, the transport system should incorporate smart public transport systems and electronic charging stations.

Energy

The Project will provide energy via efficient and sustainable solutions. The pESIA recommends incorporating a passive building design and low energy fittings to minimise domestic and commercial energy demand. Lighting and water heating may be powered by onsite renewables such as photovoltaic and solar energy. Further, the pESIA recommends providing installations to use LPG for cooking with a vision to transition to induction electricity stoves powered by onsite renewables (pESIA, Sweco, p. 22).

Water and Wastewater

Water and wastewater management in the Project Area includes water supply and sewage. Overall, the Project aims to substitute individual services with collective services to achieve an efficient infrastructure. Decentralised measures are included in the GCK SPA Masterplan with end user fees consideration. The Project will ensure safe and accessible water through rainwater storage strategies to supplement existing centrally supplied sources (the water utility WASAC will supply the future components with water via a new pipeline). Low-flow devices are planned to reduce wastage.

Water Management

The water sensitive urban design includes adequate erosion control, rainwater management and recycling of water to be suitable for household, agricultural and commercial use.

The GCK SPA Masterplan recommends a 'Flow Approach', which will be used for surface water collection, cleansing, conveyance, attenuation and storage.

Water Supply

The Project will include tap water supply in all new buildings. Water will be supplied in the Project Area by WASAC's mainline.

In addition, rainwater harvesting systems will be installed in every new building. Cisterns and redistribution systems can be shared by a building complex of up to ten buildings. A rainwater harvesting system consists of:

- The building's roof or similar surfaces to capture the rainfall;
 - Gutters all around the catchment area;
 - A water tank, which can be installed underground;
 - Pipelines to conduct the collected rainwater from the catchment area to the cistern and to the consumption points; and
 - First flush devices to divert the first flush.

The pESIA provides a number of recommendations to enhance the sustainability of water use such as installing green roofs for collecting rainwater to avoid pesticides from landscaping activities to get in touch with the rainwater. In addition, an awareness-raising program is recommended to enhance water conservation.

Wastewater and sewage

With regard to managing wastewater in the Project Area, pre-treatment for wastewater from industries with different contaminants will be made obligatory, before entering existing semi-centralized facilities). In this way, the degree of contamination of the wastewater arriving the treatment plant will be lower. Further, it is recommended in the pESIA to install a biogas reactor for sludge generated by the local sanitation facilities (if technically and financially feasible) and to construct wetlands areas as a tertiary treatment of the wastewater, before being discharged in a controlled way into the natural wetlands in the area.

4.8 Associated Facilities

General Overview

The ESIA process per international practice must take into account not only the relevant components belonging to a project itself, but also the so-called Associated Facilities. These are typically defined as facilities or activities that are not funded as part of the project, but are: directly and significantly related to the project, necessary for the viability of the project and would not have been developed if the

project did not exist. The E&S standards that apply to the project itself should also apply to the Associated Facilities, to the extent that the project developer has any influence over these facilities.

Typical examples of Associated Facilities are extensions of power lines built by a local utility to service a new factory, an access road built by a town to connect to a new railway terminal or a new stone quarry opened up to provide building material for a motorway. Existing facilities or commercial enterprises that supply materials or services for a project (and to other customers) are not considered as Associated Facilities, as these are not solely dependent on the project.

It is expected that projects or activities necessary to achieve the objectives of the Project or the realisation and development of the future components or project infrastructure could constitute Associated Facilities as per the definition above.

Associated Facilities of the Project

Specific associated facilities of the Project have not been identified yet. Given that the Project itself is comprised of a very comprehensive range of sub-components, including all sorts of infrastructure, it is unlikely that there will be many “additional projects” required within the 600 ha Project area that would be considered as associated facilities.

Therefore, associated facilities will more likely include new developments outside of the Project area, such as regional access roads, larger-scale transmission lines/substations, or any new quarry sites and borrow pits developed solely for the purpose of the Project.

The Applicable Standards as defined in **Chapter 5** will also be applicable for the associated facilities of the Project.

The assessment of relevant associated facilities as related to the Project is further described in **Chapter 9.5**.

Associated Facilities on Sub-component Level

On a sub-component level, certain sub-components of the Project might technically be considered as associated facilities to each other, where they are being separately financed and developed independently (e.g. a water project sub-component to supply water to a new school sub-component). However, in the case of this Project all sub-components are being developed under the overall Project umbrella in the frame of the GCK SPA Masterplan as well as per the E&S Safeguard Documents – including the **High-Level ESIA**.

4.9 Alternative Analysis

4.9.1 General

An Alternative Analysis is part of an ESIA to determine if a project is needed and also if the project is optimally designed and planned from E&S perspectives (ideally, the ESIA starts before the project design is finalised so that ESIA results can further inform the design process). The alternative analysis usually includes the ‘do-nothing’ or ‘no-project’ option and a systematic comparison of feasible alternatives to the project in terms of potential social and environmental impact, in line with the application of the mitigation hierarchy towards the selection of the most sustainable alternative.

In this chapter the No-Project Alternative and Design Alternatives for the overall Project are evaluated. The outcome is largely valid for all sub-components. The overall planning for the sub-components will be included within the finalised GCK SPA Masterplan, and thus an assessment of the “no project” alternative – or other major design alternatives - will not really be relevant the ESIA for the sub-components. Nevertheless, some further analysis of detailed design alternatives may be useful, e.g. in case some newer technologies exist for energy savings or water re-use that were not yet foreseen in the GCK SPA Masterplan.



Recommendation for future sub-component ESIA:

The major design factors of the proposed sub-components will already be included and finalised in the GCK SPA Masterplan (i.e. its latest version, as discussed in Section 4.3). However, it may be appropriate as part of the ESIA of the sub-component to evaluate some of the more detailed design alternatives for a sub-component, especially to confirm that the designs reflect latest technology and sustainability principles.

4.9.2 No-Project Alternative

The no-project alternative discussed below presents a general high-level alternative scenario for the overall Project.

The no-project alternative means “do nothing”, i.e. maintain the current status quo without developing the Project. Adopting this option would mean that (i) negative impacts associated with the construction would be avoided, but also that (ii) all the positive benefits that would result from the Project would not be achieved, such as an increased number of affordable housing units, climate-resilient urban development, construction of environmentally sound housing, further development of local public transport, employment opportunities, water autonomy, etc.,

Rwanda is one of the most densely populated countries in Africa. The increase in informal neighbourhoods, a direct consequence of urbanisation, is largely due to the failure of market forces in the inner cities. Low-income earners are constantly being pushed out of Kigali's city centre due to the high cost of living. It has been estimated that more than 340,000 housing units will be needed by 2022 to supply the growing number of city dwellers. Recently there has been a development of many informal enclaves where housing structures are of poor quality. The existing urban districts are characterised by the lack of adequate waste and sanitation facilities, as well as limited space and hilly landscape. In the last two decades, attempts to modernise Kigali have resulted in the expropriation of many informal settlements in the name of public interest.²⁷

The development of the Project can alleviate the present housing situation in Kigali by creating affordable and socially equitable housing for low to middle-income inhabitants as part of a culturally sensitive urban development including commercial spaces, light industrial areas, schools, hospitals, recreational areas, sports facilities, and green areas. The result from no-project development would probably impose further constraints on the current housing situation and housing development due to the expected increase in urbanisation in Kigali.

Further, the development of infrastructure and basic services as part of the Project will improve the quality of life of existing communities in the Project Area. This includes solid waste management, energy and water technology, water and sewage management as well as affordable and smart public transport systems and ICT networks. Such services are a prerequisite to development in any region.

Therefore, it can be concluded that the Project itself will overall have numerous E&S benefits and support long-term sustainable urban development; this is much preferable to the no-project alternative that would likely exacerbate the already existing challenges of less-formal urban growth with poor quality housing and lack of sanitary infrastructure, etc.

4.9.3 Design Alternatives

The scale of the Project is large, and thus the choices of housing types, material, design, etc. may have a significant E&S impact. Alternative design options should be qualitatively analysed and the different impacts posed to the surrounding natural environment and communities need to be compared.

27 Baffoe, G.; Malonza, J.; Manirakiza, V.; Mugabe, L. Understanding the Concept of Neighbourhood in Kigali City, Rwanda. Sustainability 2020, 12, 1555. Retrieved from: <https://www.mdpi.com/2071-1050/12/4/1555>

The designs being considered in the GCK SPA Masterplan reflect the overall winning design competition for the Project development. The winning designs of the GCK SPA Masterplan for the layout, building technology and infrastructure etc. are based on the wider Project sustainability objectives as reflected in the “GCK Four Foundations” described above in **Chapter 3.3** (affordable and socially equitable development; climate change adaptation and mitigation; resource efficiency; and culturally sensitive urban development).

The following parameters were evaluated and scored as part of the design competition:

- Green plot ratio (Total Leaf Area divided by Total Site Area);
- Permeable surface area;
- Ecological diversity & Ecosystem services appraisal;
- EDGE buildings (Green-building certification system);
- Carbon impact of transport;
- Solid waste;
- Communal spaces and cultural venues;
- Mixed community; and
- Affordable.

The winning design, as based on the above sustainability factors, is reflected in the GCK SPA Masterplan that now serves as the basis for Project development. As such, the design competition has provided a comprehensive assessment of design alternatives for the Project, and the overall most suitable design was selected by the independent review panel.

During the detailed design phase of the sub-components, there will be verification that designs continue to meet these parameters, and mechanisms will need to be put in place at Project-level to ensure compliance during project construction.²⁸

²⁸ Sweco (2020) Final Feasibility Study

5. INSTITUTIONAL, POLICY, LEGAL AND REGULATORY FRAMEWORK



Strategic context:

This chapter presents the most important aspects of the Rwandan institutional, legal and regulatory framework applicable to the Project and this SESA.

5.1 Institutional Framework

All entities involved in the Project implementation are required to meet a number of key E&S requirements, regulations and standards as outlined in this section.

In cases where the indicated requirements, regulations and standards are inconsistent or conflicting, sub-components Developers and Contractors are bound to applying the most stringent requirement.

5.1.1 FONERWA

FONERWA is the Rwanda green fund with a purpose to be the engine of green growth in Rwanda. It is one of five agencies under the supervision of the Ministry of Environment (MoE) in Rwanda. Its vision is to respond to Rwanda's current and future financing needs for environment, climate change, green growth to accelerate goals of national sustainable economic development. It also provides expert technical assistance to ensure the success of its investments. Financial support of GCK Project from government and development partners will be managed by FONERWA. FONERWA is thus considered the Project Executive Agency (PEA).

FONERWA's Environment and Social Management Framework (ESMF) and Resettlement Policy Framework (RPF)²⁹ are developed with respect to FONERWA's wide range of projects types funded, as well as the different needs and capacities of funding applicants that include public and private sector applicants as well as CSOs. For the purpose of single/multiple sub-components implementation, a Special Purpose Vehicle (SPV) will be created, this SPV shall consider the FONERWA ESMF/RPF as the "umbrella" management framework. GCK Company (GCKC) has been established for the development and management of the 16 ha pilot site and is considered the Project Implementation Entity (PIE).

The Rwandan and International requirements for FONERWA Project Environmental and Social Safeguarding and Public Consultation and Disclosure (PCD), are considered where applicable to the environmental and socio-economic and socio-political context of Rwanda. Policies, laws, regulations and institutional framework relevant, to a particular FONERWA funded project have to be assessed at International, National and District level (& included understanding of community level structures). This chapter includes the relevant national and international policy and legislation, E&S management and resettlement procedures as applied to the FONERWA ESMF, establishing the framework for a prospective Project's E&S management processes.

5.1.2 Statutory Organisations

5.1.2.1 Ministry of Environment (MoE)

Ministry of Environment (MoE) is the government entity responsible for establishing norms and practices for rational exploitation and efficient land management, environment protection, water resources and evaluating their implementation. This implies that it prepares policies related to environmental conservation and protection. It also shall oversee all aspects regarding environmental monitoring and appropriate natural resources exploited through programme activities. To implement the obligations of environmental protection, management and monitoring,

²⁹ "FONERWA's ESMF and RPF, Volume 1: Climate Issues Awareness Raising with Introduction to ESMF & RPF Processes, Needs and Capacity", FONERWA, October 2020

Rwanda Environment Management Authority (REMA)

Rwanda Environment Management Authority (REMA), is the authorised Government institution to determine modalities of protection, conservation and promotion of the environment in Rwanda. REMA shall periodically monitor the Project activities to ensure mitigation measures are implemented and that it has no adverse impacts on the environment. The Government of Rwanda established the REMA under the Law n° 16/2006 of 03/04/2006 as reviewed under the Law N° 63/2013 of 27/08/2013, to coordinate and oversee all aspects of environmental management for sustainable development. REMA is a government organisation with distinct legal status and financial and administrative autonomy. It is charged with the administration of many environmental objectives in Rwanda – such as EIA and SEA.

One of REMA's principal functions is to oversee the conduct of EIA/SEA and take a decision on proposed development projects to be undertaken. The REMA operates under the Ministry of Environment (MoE), which supervises the REMA.

REMA is required by law to oversee environmental assessment requirements in policies, plans and programs and advice the Government on policies, strategies, and legislation related to the management of the environment (Ministerial Order No 002/2021 of 08/02/2021 determining procedures for conducting Strategic Environmental Assessment). Under this mandate, REMA develops facilitative and legal instruments, such as EIA and SEA guidelines.

In 2008, REMA transferred some of its responsibilities concerning the management of the EIA process to the Rwanda Development Board (RDB) while respecting the legal provisions. This was done to facilitate the procedures for establishing businesses, as RDB's work includes the promotion of economic development and investment by the private sector. RDB is undertaking screening, guides developers on assessment procedures, conducts public hearings, reviews EIA reports based on the Terms of Reference (ToR) and takes decisions on approval or disapproval of proposed projects. REMA remains responsible for monitoring implementation of environmental protection measures recommended by EIA studies and the conduct of Environmental Audits.

Rwanda Development Board (RDB)

Though REMA is the authorised Government institution to determine modalities of protection, conservation and promotion of the environment in Rwanda, it has since 2008 delegated responsibility to review EIA reports to Rwanda Development Board (RDB). With regard to this study, RDB shall authorise the project to proceed by issuing an EIA certificate and periodically monitor the project activities to ensure mitigation measures are implemented and that it has no adverse impacts on the environment.

Rwanda Land Management and Use Authority (RLMUA)

Rwanda Land Administration and Use Authority (RLMUA) is a key Institution set up to implement the National Land Tenure Reform Program as provided for by the National Land Policy and the Law N° 27/2021 of 10/06/2021 governing land in Rwanda. This program aimed at improving land tenure security by putting in place an efficient, transparent and equitable system of land administration. Cadastral surveys, mapping and land registration are the core components of land administration. The new and modern land administration is embedded in a broader land information system, fully co-ordinated and automated, without separation of land registration, cadastral surveys and mapping, because they complement each other; more importantly, they belong together as a whole.

The Authority has among others, the following missions:

- Register land, issue and keep land authentic deeds and any other information relating to land of Rwanda;
- Supervise all land-related matters and represent the State for supervision and monitoring of land management and use;

- Set up principles and guidelines related to use of land; - to issue technical instructions related to land management and use to district land bureau and follow up their implementation;
- Receive and evaluate proposals to purchase or lease private state-owned land and to issue, on behalf of Government, long term leases and permits to occupy such lands in accordance with the Law governing land in Rwanda;
- Resolve conflicts relating to land use and management which were not resolved at the district or City of Kigali levels; and,
- Establish cooperation and collaboration with other regional and international institutions with an aim of harmonising the performance and relations on matters relating to management of land.

So, as the authority tasked to implement national policies, laws, strategies, regulations and Government resolutions related to the management and use of land the GCK expects to be in highly coordination with RLMUA.

5.1.2.2 *Ministry of Infrastructure (MININFRA)*

Ministry of Infrastructure (MININFRA) is the government authority mandated to ensure sustainable infrastructure development covering transport, energy, water supply and sanitation, housing and human settlement sectors aiming to drive Rwanda's economic growth and enhance quality of life of the citizen. MININFRA prepares policies regarding its aforementioned mandate and oversees the implementation of these policies. Subordinate agencies are tasked to implement its mandate comprising; Rwanda Housing Authority (RHA) to oversee the housing sector, Rwanda Transport Development Authority (RTDA) to oversee the transport sector, Rwanda Energy Group (REG) to oversee electricity generation and supply and Water and Sanitation Corporation (WASAC) to oversee water supply and sanitation.

The Project shall seek all these services from these mentioned delegated agencies mentioned.

Rwanda Housing Authority (RHA)

It is the implementing agency operating under the MININFRA, established in order to organise the construction industry as a whole and by doing so to spur the National Strategy for Transformation (NST1). RHA has been mandated to manage the urban and rural settlement strategy of the Nation, in which most importantly is achieving green settlements with affordable housing.

5.1.2.3 *Ministry of Local Government (MINALOC)*

The Ministry of Local Government (MINALOC) ensures the coordination of good governance and high quality territorial administration programs that promote economic, social and political development throughout the nation. It is responsible for developing, disseminating and coordinating the implementation of policies, legal framework, strategies and sector programs through the formulation of national policies, strategies and programs in those areas. Under MINALOC is a structure of local governance entities that implement these policies, legal framework and strategies and these entities hierarchically comprise; Provinces, districts, sectors, cells and finally villages.

Projects such as GCK require the support of MINALOC and its governance entities to mobilise the population in understanding the Project, in the acquisition of land and other assets, construction and operation phase of the Project.

5.1.2.4 *Ministry of Agriculture and Animal Resources (MINAGRI)*

The Ministry of Agriculture and Animal Resources (MINAGRI) is a Public Institution with a mission of initiating, developing and managing suitable programs of transformation and modernisation of agriculture and livestock to ensure food security and to contribute to the national economy. The vision

of the Ministry, as defined by the National Agricultural Policy (2018)³⁰, is for Rwanda to become “a nation that enjoys food security, nutritional health and sustainable agricultural growth from a productive, green and market-led agricultural sector”.

The policy actions are organised under four broad policy pillars: 1) Enabling environment and responsive institutions; 2) Technological Upgrading and Skills Development; 3) Productivity and Sustainability; 4) Inclusive Markets and Off-Farm Opportunities.

Pillar 1 specifies that greater private sector participation will require a shift in the role of the government from being a market actor to becoming a market enabler. The pillar 4 promotes improved productivity and inclusiveness of agricultural market systems and increased off-farm opportunities of diversified for agricultural products for domestic, regional, and international markets. Moreover, the objective is to promote reliable access to affordable and healthy diets for the Rwandan consumer in order to meet national objectives on poverty reduction, food security, and nutrition.

The Project plans to promote both horticulture and peri-urban agriculture. Green swathes of landscape each side of the developed landscape run from the hilltop plateau to the wetland below. These allow for traditional agriculture. The Project will comply with respective legislation regarding agriculture.

5.1.2.5 Rwanda Standards Board (RSB)

Rwanda Standards Board (RSB) is a public institution established by government to undertake all activities pertaining to the development of standards, conformity assessment and metrology services in the country. It is associated to the Ministry of Trade and Industry (MINICOM).

The Project is expected to comply to national standards set by RSB and international standards where national standards do not exist for items such as effluent wastewater discharged, noise levels, dust and air pollution levels, construction material.

5.1.2.6 Rwanda Forest Authority (RFA)

Rwanda Forestry Authority (RFA) is a public institution that implements policies, laws, strategies and Government decisions related to the management of forests resources:

- Assist public and private institutions in charge of management of forest resources in a bid to fight erosion;
- Prepare programmes of reforestation, forest promotion and appropriate management and support districts in the management of forests resources; and,
- Cooperate with other institutions and international organisations whose mission is related to forest management activities.
- The Project might need to design green areas, and if so comply with RFA policies.

5.1.2.7 City of Kigali (CoK)

City of Kigali is one of the five Provinces of Rwanda. CoK has the mission to build and sustain a city of character, vibrant economy and diversity through strong partnership with stakeholders in order to provide responsive, rapid and effective urban development. CoK's responsibilities include among others as delivered through relevant statutory bodies as appropriate to ensure the implementation of national policies and development plans; to develop an urban infrastructure protecting and ensuring the health and safety of people and goods; and to coordinate mobilisation of resources and cooperation and partnership with other organs at national or international levels.

³⁰ MINAGRI (2018), available at:

https://www.minagri.gov.rw/fileadmin/user_upload/Minagri/Publications/Policies_and_strategies/National_Agriculture_Policy_-_2018__Approved_by_Cabinet.pdf

To develop infrastructure and urbanisation of the country, CoK launched on September 4, 2020 a new and accommodative master plan that will allow city dwellers to know what and where to invest their resources. The new City of Kigali Masterplan 2050 brings flexibility in building and also enhances social inclusion, among others.

According to the new City of Kigali Masterplan 2050, the Kinyinya Project Area has four zoning regulations:

- R1-Low density residential zone;
- R1A-Low density residential densification zone;
- R2-Medium density residential - Improvement zone;
- R3-Medium density residential - Expansion zone: This is where is falling the Pilot and Upgrade zones.

While the City of Kigali Masterplan is binding, consultations with CoK One Stop Centre for any proposal regarded as exception or changes on the City of Kigali Masterplan are possible.

With regard to the Project, Gasabo district is the local entity responsible for coordination of good governance and administration programs to promote economic, social and political development. The Project is located in Kinyinya Sector of Gasabo district and falls under the jurisdiction of Gasabo district. Kinyinya sector covers the two cells of Gasharu and Murama and specifically the villages of Agatare, Ngaruyinka, Rusenyi, Gasharu, Taba and Binunga in the two cells.

Kinyinya sector and the two cells are essential in stakeholder engagement towards Project implementation, land and asset acquisition where required by the Project, access to basic services such as water, roads, electricity, health services, education services.

5.1.2.8 Rwanda Social Security Board (RSSB)

Based on the law No. 45/2010 establishing RSSB, the main responsibilities of RSSB are to: monitor and promote pension, the insurance on occupational hazards, the insurance on maternity leave, the anticipated old age pension and other necessary branches, to register employers, employees, beneficiary and person for whom subscription was made in various RSSB branches, to pay social security benefits to beneficiaries, to guarantee health insurance services rendered to beneficiaries, to engage in investments as provided by law. It is associated to the Ministry of Finance and Economic Planning (MINECOFIN).

The entities involved in construction and implementation of the Project will be required to pay pension and health insurance for its workers. RSSB is a shareholder in the GCKC.

5.2 National Policy, Legal and Regulatory Framework

5.2.1 National Policies, Laws and Regulations

Table 5.1 lists the policies, laws and regulations most relevant to the Project. It also gives a brief content description of the listed legislations as well as states the relevance in a line with the context of the GCK Model. The table is not an exhaustive list of all laws that may be relevant to the Model.

Table 5.1 List of selected relevant National Policies, Laws and Regulations

Rwandan Policy/ Law	Content	Relevance for GCK Model
Constitution, of 2003 revised in 2015.	<ul style="list-style-type: none"> ■ Everyone has the right to a clean and healthy environment. ■ Everyone has the duty to protect, safeguard and promote the environment, while the state ensures environmental protection 	<ul style="list-style-type: none"> ■ Establishes the right and importance of conservation of the environment. ■ Validates the importance of the law to ensure

Rwandan Policy/ Law	Content	Relevance for GCK Model
	<ul style="list-style-type: none"> ■ Mentions that there is a law determining modalities for protecting, conserving and promoting environment. ■ Prohibits any international agreements permitting transit or dumping of hazardous waste in the country. 	<ul style="list-style-type: none"> ■ conservation and promotion of the environment. ■ Ensures the access to information for all citizens.
National Environment and Climate Change Policy (2019)	<ul style="list-style-type: none"> ■ Provides improvement of the population's wellbeing, the judicious utilisation of natural resources and the protection and rational management of ecosystems for sustainable and fair development. ■ Provides for decentralisation of environmental management. ■ Assigns the district or Towns the responsibility for the day-to-day management of the environment and the implementation of policies and programmes for the protection of environment at the local level. ■ Policy Objectives include: <ol style="list-style-type: none"> 1. Greening economic transformation, 2. Enhancing functional natural ecosystems and managing biosafety, 3. Strengthening meteorological and early warning services, 4. Promote climate change adaptation, mitigation and response, 5. Improve environmental well-being for Rwandans, 6. Strengthen environment and climate change governance, and ■ Promote green foreign and domestic direct investment and other capital inflows. 	<ul style="list-style-type: none"> ■ This Policy relates to FONERWA's project management, by requiring, through the EIA regulations that for each sub-component an environmental assessment is carried out. The Policy also puts the responsibility for monitoring and E&S performance to the implementers. ■ Most relevant to the Project are policy objectives 1, 4 and 7.
Law no 48/2018 of 13/08/2018 on Environment	<ul style="list-style-type: none"> ■ Requires that programmes, plans and policies that may affect the environment shall be subjected to strategic environmental impact assessment before obtaining authorisation for implementation (Article 31) 	<ul style="list-style-type: none"> ■ Incorporates the assessment of PPP's into the Rwandan legal framework.
General Guidelines and Procedures for Strategic Environmental Assessment (SEA) June 2011	<ul style="list-style-type: none"> ■ Describes procedures that will enable policy-making, macro or strategic planning, and program formulation processes to assess and integrate environmental considerations using participatory methods based on quantitative and qualitative evidence.. 	<ul style="list-style-type: none"> ■ Provides a framework over which the SESA can be based on.
Law on Environment N 48/2018 of 13/08/2018	<ul style="list-style-type: none"> ■ Determines modalities for protecting, conserving and promoting the environment. ■ Based on article 30 of this law, a list of projects that must undergo an environmental impact assessment (EIA) before authorisation for their implementation is established by an order of the minister. ■ Environmental impact assessments (EIA), environmental audits and strategic environmental assessments (SEA) must be approved by the REMA or another State organ authorised in writing to do so by the Authority. 	<ul style="list-style-type: none"> ■ Legalises the need for carrying out an EIA for a project. ■ Provides the enabling framework for SEA. ■ REMA is the authorised Institution to license EIAs or any authorised person and ensure conservation of environment.

Rwandan Policy/ Law	Content	Relevance for GCK Model
<p>Ministerial order N 001/2019 of 15/04/2019</p>	<ul style="list-style-type: none"> ■ Establishing the list of projects that must undergo EIA, ■ Instructions, requirements, and procedures to conduct EIA 	<ul style="list-style-type: none"> ■ Project sub-components are eligible for a full EIA. ■ EIA procedure in Rwanda: <ul style="list-style-type: none"> - Application for authorisation to conduct the EIA, - Selection of EIA expert from the list, - Reception and analysis of the project brief and proposed terms of reference, - Issuance of ToRs for EIA within 14 days. ToRs may also be prepared by the developer and approved by the authority (REMA), - EIA is done with due consideration of the opinion of all the relevant stakeholders, - Review of EIA by authority (REMA) in 20 days, public participation where necessary an addition 15 days (disclosure) and decision making & authorisation (Project licenced).
<p>The Environmental Impact Assessment Regulations, 2007</p>	<ul style="list-style-type: none"> ■ REMA has developed the EIA regulations that provide the requirements for an EIA in Rwanda. Under these new regulations, Sub Article 1 makes it mandatory for all the projects listed under Schedule I to be subjected to a full-scale EIA. The Sub Article further states that: ■ No environmental authorisation shall be granted by the Authority for any project in Schedule I to these Regulations if no Environmental Impact Assessment has been submitted to the Authority in accordance with the provisions of these Regulations. ■ Any project listed under Impact Level III of Schedule I to these Regulations shall require a full environmental impact assessment by the preparation of an environmental impact report, unless the Authority refuses permission. 	<ul style="list-style-type: none"> ■ The GCK falls in this Schedule 1 category and thus must be subject to a full-scale EIA. ■ As per the Project details and its screening, the Project will be classified as per categorisation of World Bank guidelines and Rwanda EIA guidelines. In case the classification results differ, the most stringent one will apply.
<p>Biodiversity Policy (2011)</p>	<ul style="list-style-type: none"> ■ Goal is to conserve Rwanda's biological diversity, to sustain the integrity, health and productivity of its ecosystems and ecological processes, whilst providing lasting development benefits to the nation. ■ States that urgent attention is required to ensure that biodiversity is conserved not only within protected areas, but also across the landscape, and that sustainable development is promoted throughout Rwanda. 	<ul style="list-style-type: none"> ■ Design and implementation of the Project in an environmentally sound and sustainable manner to conserve indigenous biodiversity will be a clear compliance to this policy's goal of conserving Rwanda's biological diversity.

Rwandan Policy/ Law	Content	Relevance for GCK Model
		<ul style="list-style-type: none"> ■ This policy shall apply to not only to construction at the Project site but also its surroundings and affiliated areas such as; restoration of borrow pits for stabilised soils and mined quarries for construction material.
Law N° 064/2021 of 14/10/2021 governing biological diversity	<ul style="list-style-type: none"> ■ Determines modalities for management and conservation of biological diversity within Rwanda. ■ 	<ul style="list-style-type: none"> ■ Avoid introduction of alien species to the site as instructed by this law.
Green Growth Climate Resilience (2011)	<ul style="list-style-type: none"> ■ Proposes to adopt energy and water efficiency standards into building codes; ■ Proposes to establish an integrated multi-node urban transport system; ■ Proposes to employ low carbon urban planning and ■ Proposes to fully utilise urban waste as a high-value resource stream. 	<ul style="list-style-type: none"> ■ Project should consider to include efficient use of land through high density buildings, energy and water efficiency, waste in the Project design.
National Land Policy (2019)	<ul style="list-style-type: none"> ■ The Policy provides for productive use of land based on suitability of specific land units. It also provides for recognition and safeguarding of land ownership rights, and for the development and maintenance of land registry and documentation centre. 	<ul style="list-style-type: none"> ■ Some subprojects may be expected to cause land acquisition. In such a scenario, the Land Policy applies, requiring the landowners to be duly consulted and compensated for any involuntary land losses.
Law N° 27/2021 of 10/06/2021 governing land	<ul style="list-style-type: none"> ■ Guides modalities of allocating, acquiring, transfer, use and management of land in Rwanda. ■ Under this law and relevant to this study are the definitions given to: ■ Land tenure: the system by which land is held, describing the rights, responsibilities and restrictions that are attached to the land holder. ■ Expropriation: an act of taking away individuals' land by the State due to public interest in circumstances and procedures provided by law and subject to fair and prior compensation. 	<ul style="list-style-type: none"> ■ Equal rights to all to own land, prohibiting any form of discrimination. ■ 2 types of land ownership; Freehold title (owns land forever) and lease hold (land leased from state for a period of 20, 49 or 99 years. This is most common land ownership).
Law to expropriation in public interest, N°32/2015	<ul style="list-style-type: none"> ■ Guides procedures relating to expropriation in the public interest 	<ul style="list-style-type: none"> ■ Expropriation can be done by the Government in case of public interest. ■ Fair compensation recommended on agreement between the two parties (developer and asset owner). ■ Compensation- monetary or alternative land/ building. ■ Compensation based on market price & done by certified property valuers.

Rwandan Policy/ Law	Content	Relevance for GCK Model
		<ul style="list-style-type: none"> ■ Compensation done within 120 days (penalties of 5% paid by the expropriator in case of fail compensation). ■ 5% added to asset value as disruption fee.
Agriculture Policy	<ul style="list-style-type: none"> ■ The Rwandan Government formulated this Policy to contribute to the achievement of food security, integrate agriculture and livestock in a market oriented economy and to generate increasing income to the producers. ■ The policy addresses three (3) sub sectors: (i) Agriculture, (ii) Animal resources, and (iii) soil and water management. ■ The Policy puts emphasis on marshland development for increased food production because soils on hills are degraded by erosion and not sufficient. The policy promotes small-scale irrigation infrastructure development in the country's selected marshlands while preventing Environmental degradation. 	<ul style="list-style-type: none"> ■ Some of the Project sub-components could cause impacts on agriculture, soil and water resources.
National Forest Policy (2018)	<p>Defines, medium to long-term intentions for the development and management of the national forest resources.</p> <p>Policy statement 5, proposes intervention areas as; management and maintenance of forest resources to ensure biodiversity conservation and sustainable provision of ecosystem goods and services and identification and protection of threatened species.</p> <p>Policy statement 7, which concerns trees in cities, on farms, along roads and in many other locations not considered forests. This statement highlights important areas of intervention to focus during the implementation of this policy as; developing and implementing urban forest management plan, mainstreaming trees outside forest practices in forest management planning processes, putting in place mechanisms for incentives to attract private landowners to plant forest trees on their land.</p>	<ul style="list-style-type: none"> ■ The Project could need to design green areas as part of the project design in which trees can be planted as a contribution towards agroforestry outside forests and forest conservation.
Law N°47bis/ 2013 determining the management and utilization of forests in Rwanda	<ul style="list-style-type: none"> ■ Determines the management and utilisation of forests in Rwanda. 	<ul style="list-style-type: none"> ■ In case timber for construction is required, the Project shall need to take precaution to engage suppliers that comply to requirements of this Law.
National Water Resources Management Policy	<ul style="list-style-type: none"> ■ This Policy was designed to manage and develop the water resources of Rwanda in an integrated and sustainable manner, to secure and provide water of adequate quantity and quality for all social and economic needs of the present and future generations with the full participation of all stakeholders in decisions affecting water resources management. The Policy is based on the principle that water is a finite resource, as well as economic, environmental and social good. The Policy also recognised that water 	<ul style="list-style-type: none"> ■ Water Supply is expected to be an important topic throughout the development of the Project and its future sub-components.

Rwandan Policy/ Law	Content	Relevance for GCK Model
	<p>management must be integrated and catchment-based to be efficient. Climate change is also recognised as a threat to water sources in the Policy.</p>	
<p>Law N°62/2008 of 10/09/2008 putting in place the use, conservation, protection and management of water resources regulations</p>	<ul style="list-style-type: none"> ■ Defines applicable rules to the use, conservation, protection and management of water resources. ■ Provides for the application and management of water resources in accordance with some of the following principles; the principle of prevention of the pollution with priority to the source, the principle “user-payer and polluter-payer” according to which the user of water and the polluter support a significant part of expenses resulting from measures of prevention, of pollution reduction and restoration of the resource in quality and in quantity, the principle that users of the public distribution services of drinking water and sanitation should play a major role in these services provided to them, according to the contributory capacity of users. 	<ul style="list-style-type: none"> ■ The Project, in accordance to this law, is required to abide to all relevant requirements towards conservation, protection and management of water resources, some already mentioned above comprising of; which body to go to for public water network, who pays for damages caused to a public water source and how to handle wastewater generated from the project before discharge to the environment.
<p>National Sanitation Policy (2016)</p>	<ul style="list-style-type: none"> ■ Concepts of significant importance to the policy and relevant to the Project are; Urban stormwater management and Faecal sludge management. 	<ul style="list-style-type: none"> ■ The policy direction on off-site collective sanitation, storm water management and solid waste management shall be considered in preparation of the GCK SPA Masterplan and affiliated sub-project designs.
<p>National Transport Policy</p>	<ul style="list-style-type: none"> ■ The National Transport Policy provides guidance on the management of various modes of transport in Rwanda. Road transport is responsible for more than 80% of human and goods traffic in the country. The Policy, in this respect, guides on the management of the road sub-sector in Rwanda, which includes construction, maintenance and rehabilitation of roads. ■ Accordingly, a Road Maintenance Fund has been established to provide adequate, reliable financing for road maintenance activities; and a Road Maintenance Strategy formulated to guide the process. 	<ul style="list-style-type: none"> ■ This Policy is relevant to development of roads within the Project Area, since the planning, funds allocation, monitoring and evaluation are all to be aligned to the Policy requirements.
<p>National Urbanisation Policy (2015)</p>	<ul style="list-style-type: none"> ■ Sets well-coordinated urban settlement and development to positively transform the economy of the country, improve the socio-economic conditions for all, and preserve resources to sustain the life of future generations. ■ Integrates urban planning and management in order to achieve resource-efficient and compact growth 	<ul style="list-style-type: none"> ■ The densification strategy could apply to the design of the Project by optimising urban land use, urban compactness, well-structured functionality and connectivity with-in urban areas with a low ecological footprint by integrating green principles

Rwandan Policy/ Law	Content	Relevance for GCK Model
National Housing Policy (2015)	<ul style="list-style-type: none"> ■ Ensures adequate living conditions, to enable all residents to access housing, and to establish and anchor both objectives within national policies and programs, thereby positively impacting on the needs of a human, including shelter, income, food security, social inclusion, knowledge and personal productivity. ■ Sets three pillars comprising public benefit, resource-efficient planning, green technology and professionalism, and governance and partnership. 	<ul style="list-style-type: none"> ■ Essential towards developing a sustainable Project design.
Law N°10/2012 governing urban planning and building in Rwanda	<ul style="list-style-type: none"> ■ Covers topics on; rules in building planning, real estate development regulations, liability of construction professionals, masterplan for land management and urban planning, local and specific land development plans ■ Covers the purpose for building planning, which is to promote harmonisation of professional practice in construction. ■ Covers the modes of land acquisition including expropriation in the public interest as well as the qualifications for occupancy and building permits. ■ Requires urban planning to perform with the aid of the following documents: <ul style="list-style-type: none"> - (a) master plan for land management and urban planning; - (b) local land development plans; - (c) specific land development plans; and - (d) land subdivision plans. ■ Requires building planning (architectural project) is to be carried out using the following documents: <ul style="list-style-type: none"> - (a) the cadastral register; - (b) the layout of structures; - (c) the graphic document; - (d) the composition of the graphic document and cost estimates; - (e) stability calculations of the structure; and - (f) aspect of the structure. 	<ul style="list-style-type: none"> ■ As a housing project, the Project is required to refer and apply its housing and real estate procedure in compliance to provisions in this law. ■ States that the City of Kigali and districts shall have Masterplans for land management and urban planning in conformity with the pattern of rational land use in Rwanda. ■ The development will be implemented after effective expropriation and compensations of affected parties.
Energy Policy	<ul style="list-style-type: none"> ■ Ensures that all residents and industries can access energy products and services that are sufficient, reliable, affordable, and sustainable. ■ Encouraging and incentivising more rational, efficient use of energy in public institutions, and amongst industrial and household end-users 	<ul style="list-style-type: none"> ■ The Project may look into benefits and incentives arising from introduction of off-grid renewable energy solutions (e.g. solar power for heating and lighting) and cleaner cooking fuels (such as LPG for cooking) in the design and implementation of the project, as a means of achieving sustainable, affordable, reliable energy for Project activities.

Rwandan Policy/ Law	Content	Relevance for GCK Model
Sector Strategic Plan (SSP) (2018-2024)	<ul style="list-style-type: none"> ■ The ICT sector has set out priority areas of intervention including universal broadband usage by all sustainable development through smart cities. 	<ul style="list-style-type: none"> ■ The Project is required to understand the weight by this SSP given to universal broadband usage by all and sustainable development of smart cities, in developing the design and implementation of the GCK.
EDPRS II (2013-2018)	<ul style="list-style-type: none"> ■ National Economic Development and poverty Reduction strategy for the period 2013-2018. ■ Guiding blue print towards the nations development 	<ul style="list-style-type: none"> ■ All district development plans are directed to address its priority areas. ■ E&S is acknowledged as a cross cutting issue to be considered in all major projects. ■ Example of action taken is Budget Call circular included Environment & climate change mainstreaming guidelines. ■ Priority 5 is to pursue a green economy approach to economic transformation, i.e. green urbanisation, regulation on green urban development, green innovation centres. ■ National recognition of environment and climate change. ■ Adoption of the National Green growth and climate change strategy shows the importance given to this issue.
National Strategy for Transformation and Vision 2050	<ul style="list-style-type: none"> ■ Rwanda has embarked on Vision 2050 with five broad priorities, most relevant to the GCK Project is the Priority 2 “Developing modern infrastructure and livelihoods” and Priority 3 “Transformation to prosperity”. ■ The National Strategy for Transformation (NST1) 2017-2024, is the implementation instrument for the remainder of the country’s Vision 2020 and the first four years of Vision 2050. 	<ul style="list-style-type: none"> ■ Guidance in developing criteria to consider for GCK SPA Masterplan and designs, e.g. project concept to consider modern and smart infrastructure, green eco-friendly initiatives, use of local construction material and employment mostly of Rwandans.
City of Kigali Masterplan 2050	<ul style="list-style-type: none"> ■ Introduces a more equitable, flexible and incremental approach to city development, aligned with UNHABITAT principles and supporting the United Nations Sustainable Development Goals. ■ It will guide Kigali city planners in their plans to accommodate a population of 3.8 million residents and provide 1.8 million jobs by 2050. 	<ul style="list-style-type: none"> ■ According to the new City of Kigali Masterplan, the Kinyinya Project Area has 4 zoning regulations. ■ R3-Medium density residential - Expansion zone: This is where is falling the Pilot and Upgrade zones. ■ R1-Low density residential zone ■ R2-Medium density residential - Improvement zone

Rwandan Policy/ Law	Content	Relevance for GCK Model
		<ul style="list-style-type: none"> ■ R1A-Low density residential densification zone ■ The City of Kigali Masterplan is binding on the Project development. Possibility for consultations with CoK One Stop Centre for any proposal regarded as exception or changes on the City of Kigali Masterplan.
Rwanda Building Code 2019	<ul style="list-style-type: none"> ■ The Rwanda Building Code has been revised and now contains a Rwanda Green Building Minimum Compliance System, which ensures sustainable implementation by efficient design, encouragement of local, green and affordable building materials and sustainable infrastructures. This shall be administered by District One Stop Centres (Building Permitting Centres) and RHA (Central Agency). 	<ul style="list-style-type: none"> ■ Guidance in developing criteria to consider for GCK SPA Masterplan and designs, e.g. project concept to consider modern and smart infrastructure, green eco-friendly initiatives, use of local construction material.

5.2.2 National EIA/SEA process

Laws relevant to the national EIA/SEA processes are listed in **Table 5.1** above. More specific details are provided below for applicable laws.

Law N° 48/2018 of 13/08/2018 on Environment³¹

The purpose of the Law N°48/2018 on environment is to determine modalities for protecting, conserving and promoting the environment.

Based on Article 30 of this Law, a list of projects that must undergo an environmental impact assessment (EIA) before authorisation for their implementation is established by the Ministerial Order N°001/2019.

Article 31 states that every policy, strategy, plan and programme must undergo a strategic environmental assessment. With the procedures for conducting strategic environmental assessment are determined by an Order of the Minister (refer to 2011 SEA Guidelines from REMA in **Table 5.1**).

Article 32 of the Law further states that every project that may have significant impact on the environment must undergo an environmental audit during and after its implementation. The Order of the Minister provides instructions and procedures for conducting an environmental audit.

Article 33 states that 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) must approve the environmental impact assessment, environmental audit and strategic environmental assessment. As stated in article 34 the consultancy cost for EIA preparation and environmental audit are borne by the project initiator, whereas the consultancy cost for strategic environmental assessment are borne by the recipient public institution (See **Section 6.1.2** on the specific applicability to this document).

Article 46 of the Law states that any entity, which does not carry out an EIA before launching any project that may have harmful effects on the environment, while it is required, is punished by suspension of project activities or closure of his/her association and ordered to rehabilitate the damage to environment, persons and property. He/she also pays an administrative fine of 2% of the total cost of the project.

31 REMA (2018), available at: https://rema.gov.rw/fileadmin/templates/Documents/Law_on_environment.pdf

As requested in the law mentioned above, the Ministerial Order N°001/2019 establishes the list of projects that must undergo environmental impact assessment, instructions, requirements and procedures to conduct an EIA. Annex 1 of the Ministerial Order contains the list of projects that must undergo a full EIA. The projects of Annex 1 are all buildings classified as residential, commercial, administrative or institutional sports facilities, social, cultural, and assembly and religious buildings, hotels, health facilities, educational buildings, or other publicly accessible facilities fulfilling at least two of the following conditions: having capacity to host more than 500 people or having a total floor area exceeding 1,500 m², or built in plot size exceeding 1,000 m². Identified Project components exceed these conditions and need therefore to carrying out a full EIA. In addition, projects with a lower impact level do not necessitate a full EIA, but a further level of assessment is required. Finally, projects not expected to have significant impacts, do not require any environmental assessment.

As required by this Ministerial Order, an expert from the published list of environmental assessment practitioners have to be recruited to conduct this study.

Article 17 of the law instructs that collection, transport and disposal of wastewater are conducted in accordance with special regulations and guidelines issued by the competent authority (currently, the Rwanda Utilities Regulatory Authority). Liquid waste must be collected in treatment plants for purification and serve thereafter to perform hygiene, sanitation and developmental activities. Water efficiently purified to standards may be discharged into streams or lakes.

Regarding solid waste management, article 18 informs that no person is authorised to discard solid waste in an inappropriate place. Solid waste must be sorted, collected and transported to appropriate facilities in accordance with relevant laws. Solid waste must be disposed of in appropriate landfill or in a waste processing factory for production purposes.

As part of the Law obligations, decentralised entities and local communities are obliged to protect and conserve soil, biodiversity, energy use. Furthermore, article 23 requires Public organs in charge of housing and infrastructure to ensure the integration of green spaces in the masterplan as well as in individual construction plans.

This Environmental law is therefore the guiding blue print of instruction to the Project implementation with regard to obligations of; performing an EIA, conserving and protecting the environment through soil protection and conservation, biodiversity protection, liquid and solid waste management, provision of green space in project design and mitigation of other possible adverse impacts to the environment.

5.3 Relevant International Treaties and Conventions

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

- EAC Protocol on Environment and Natural Resources Management, 2006. Article 3 of this Protocol states that “it is a protocol of general application and shall apply to all activities, matters and areas of management of the environment and natural resources of the Partner States, including environmental impact assessment and environmental audits”;
- East African Transport Strategy and Regional Road Sector Development Program, 2011;
- The EAC Regional Environment Impact Assessment Guidelines for shared ecosystems, 2005;
- The International Convention on Biological Diversity 1992, as approved by Presidential Order N°017/01 of 18 March 1995;
- The Cartagena Protocol on Biodiversity 2000 as authorized to be ratified by Law N°38/2003 of 29 December 2003;
- Convention on the Conservation of Migratory Species of Wild Animals, 2003;

- The United Nations Framework Convention on Climate Change (UNFCCC) 1992, as approved by Presidential Order N°021/01 of 30 May 1995;
- The Kyoto Protocol to the framework on climate change, 1998 as authorized to be ratified by Law N°36/2003 of December 2003;
- Paris Agreement on Climate Change 2015, signed April 2016 and ratified October 2016.
- The Ramsar Convention, 1971 on Wetlands of International importance, especially as water flows habitats as authorized to be ratified by Law N°37/2003 of 29 December 2003;
- The Stockholm Convention on Persistent Organic Pollutants, 2001, as approved by Presidential Order N°78/01 of 8 July 2002;
- The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal 1989, and approved by Presidential Order N°29/01 of 24 August 2003 approving the membership of Rwanda;
- The Montreal Protocol on Substances that Deplete the Ozone Layer of 1987, amendments as approved by Presidential Order N°30/01 of 24 August 2003 related to the membership of Rwanda. Further amended by the Twenty-Eighth Meeting of the Parties (Kigali, 10-15 October 2016).
- The National Adaptation Programme of Action to Climate Change (NAPA-Rwanda), December 2006. The project's role in ensuring promotion of non-agriculture income generating activities, one of the relevant six priorities adaptation options to climate change.
- Agreement on International Trade in endangered species of wild flora and fauna (CITES), 1973.

The foregoing notwithstanding, the developer and contractor will have a contractual obligation to avoid impacts that may violate above conventions, wherever encountered.

5.4 International Standards and Institutional Guidelines

In addition to the national requirements, the Project applies international Standards and relevant institutional guidelines. The Project level E&S assessment and management meets the below listed international standards/institutional guidelines. This SESA, focusing on the strategic level of the GCK Model, uses the international guidance as a reference.

5.4.1 KfW Sustainability Guideline

The KfW Sustainability Guideline on the *Assessment and management of Environmental, Social and Climate Aspects: Principles and Procedures* (2021) aims to promote sustainability and avoid adverse environmental, social and climate impacts and risks. The Guideline describes procedures to assess the environmental, social and climate aspects during the preparation and implementation of financial cooperation measures financed by KfW Development Bank along the following core principles:

- to avoid, reduce or limit environmental pollution and environmental damage including climate-damaging emissions and pollution;
- to preserve and protect biodiversity and tropical rainforests and to sustainably manage natural resources;
- to consider probable and foreseeable impacts of climate change including utilising the potential to adapt to climate change. In this context climate change is understood as climate variability and long-term climate change;
- to avoid adverse impacts upon the living conditions of communities, in particular indigenous people and other vulnerable groups, as well as to ensure the rights, living conditions and values of indigenous people;

- to avoid and minimise involuntary resettlement and forced eviction of people and their living space as well as to mitigate adverse social and economic impacts through changes in land use by reinstating the previous living conditions of the affected population;
- to ensure and support occupational health and safety as well as health protection in the workplace;
- to condemn forced labour and child labour, ban discrimination in respect of employment as well as occupation and support the freedom of association and the right to collective bargaining;
- to avoid all forms of discrimination;
- to avoid negatively influencing existing conflict dynamics;
- to protect and preserve cultural heritage;
- to support the executing agency in the management and monitoring of possible adverse environmental, social and climate impacts and risks associated with the implementation of the financial cooperation measure.

According to the KfW Sustainability Guideline (2019)³², the World Bank Environmental and Social Standards (ESS, 2018)³³, World Bank Group General EHS Guidelines & sector specific EHS Guidelines³⁴ as well as general international best practice procedures must be applied.

5.4.2 World Bank Environmental and Social Standards

The World Bank Environmental and Social Standards (ESS, 2018) are considered a benchmark for good practice for E&S risk management in investment project financing. The WB ESS set out a number of specific E&S requirements and includes specific guidance to be applied during a project's planning phase and through a project lifecycle.

The WB ESS include the following:

- ESS 1: Assessment and Management of Environmental and Social Risks and Impacts
- ESS 2: Labour and Working Conditions
- ESS 3: Resource Efficiency and Pollution Prevention
- ESS 4: Community Health, Safety, and Security
- ESS 5: Land Acquisition, Restrictions on Land use and Involuntary Resettlement
- ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources
- ESS 7: Indigenous Peoples
- ESS 8: Cultural Heritage
- ESS 9: Financial Intermediaries
- ESS 10: Stakeholder Engagement and Information Disclosure

5.4.3 Additional Applicable International Standards

In addition to the above, the following standards will be applied to the Project:

- ILO International Labour Standards;

³²KfW (2019), available at: https://www.kfw-entwicklungsbank.de/PDF/Download-Center/PDF-Dokumente-Richtlinien/Nachhaltigkeitsrichtlinie_EN.pdf

³³World Bank (2018), available at: <http://pubdocs.worldbank.org/en/837721522762050108/Environmental-and-Social-Framework.pdf>

³⁴IFC (2007), available at: https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/policies-standards/ehs-guidelines

- The International Labour Standards are legal instruments that set out basic labour principles and rights at work.
- World Bank Group's General Environmental Health and Safety (EHS) Guidelines³⁵;
- The WB General EHS Guidelines contain information on environmental, health, and safety issues applicable to the Project as a whole and its sub-components. They are to be applied together with the sector-specific EHS guidelines (mentioned below).
- World Bank Group's Industry Sector EHS Guidelines³⁶, depending on the specific type of Project component or sub-component, for example EHS Guidelines:
 - Health Care Facilities (2007),
 - Telecommunications (2007),
 - Waste Management Facilities (2007),
 - Water and Sanitation (2007), and
 - Electric Power Transmission and Distribution (2007).
- UN Basic Principles and Guidelines on Development-based Evictions and Displacement, namely §§ 42, 49, 52, 54 and 60)³⁷;
- IFC (2002)³⁸ Handbook for Preparing a Resettlement Action Plan and World Bank (2004) Involuntary Resettlement Sourcebook³⁹;
- Human Rights Principles outlined in the BMZ Strategy "Human Rights in German Development Policy" and specified in the BMZ "Guidelines on Incorporating Human Rights Standards and Principles, Including Gender, in Programme Proposals for Bilateral German Technical and Financial Cooperation"⁴⁰; and
- Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests (VGGT)⁴¹.

5.5 Conformance of Rwandan Legal Framework and WB ESS

The following **Table 5.2** presents a high-level comparison between the Rwandan E&S legislative framework and the international requirements (of WB ESS), and presents the additional requirements for the Project stemming from the international standards.

Risks and impacts of each sub-component will need to be addressed in accordance with both national and international requirements.

35 IFC (2007), available at: <https://www.ifc.org/wps/wcm/connect/29f5137d-6e17-4660-b1f9-02bf561935e5/Final%2B-%2BGeneral%2BEHS%2BGuidelines.pdf?MOD=AJPERES&CVID=jOWim3p>

36 IFC (2007), available at: https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/policies-standards/ehs-guidelines

37 OHCHR (2007), available at: https://www.ohchr.org/Documents/Issues/Housing/Guidelines_en.pdf

38 IFC (2002), available at: https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/publications/publications_handbook_rap_wci_1319577659424

39 World Bank (2004), available at:

<http://documents.worldbank.org/curated/en/206671468782373680/pdf/301180v110PAPE1ettlement0sourcebook.pdf>

40 BMZ (2013), available at: <https://www.bmz.de/resource/blob/70448/14b3b6b3fe59eab4dcc05efe266e57b4/guidelines-human-rights-bilateral-cooperation>

41 FAO (2012), available at: <http://www.fao.org/docrep/016/i2801e/i2801e.pdf>

Table 5.2 Gap Analysis on Relevant Local Legislation against WB ESS

WB Environmental and Social standards (ESS)	Rwandan National Environmental and Social framework	Additional Requirements stemming from WB ESS
<p>ESS 1: Assessment and Management of Environmental and Social Risks and Impacts</p>	<ul style="list-style-type: none"> ■ Law conserving and promoting environment, No. 48/2018 of 13/08/2018 requires an EIA is prepared for all projects before implementation. ■ Ministerial order No.001/2019 of 15/04/2019 indicates a list of activities that have to undergo an EIA as well as it reflects EIA procedure to follow. ■ Differentiation between full and partial EIA 	<ul style="list-style-type: none"> ■ ESMPs for every project and activity although not directly required by national legislation. ■ Associated facilities need to be considered as per the WB ESF definition. ■ Cumulative impacts to be considered (specifically during construction). ■ Social aspects to be considered during preparation of EIA. ■ Management of contractors and development partners as per WB ESS.
<p>ESS 2: Labour and Working Conditions</p>	<ul style="list-style-type: none"> ■ Rwanda has ratified the Fundamental ILO Conventions. ■ Law N° 66/2018 of 30/08/2018 regulating Labour in Rwanda <p>Labour law addresses the following:</p> <ul style="list-style-type: none"> ■ Prohibits child labour, forced labour and discrimination. ■ Protection of workers against violation or harassment, freedom of opinion and mentions general guidance on how employment contractual terms are followed and disputes can be resolved <p>Ministerial order No.01 of 17/05/2012 on OHS conditions indicates duties of employers and self-employed persons.</p> <ul style="list-style-type: none"> ■ Gives powers of an occupational safety and health expert and labour inspector. ■ Gives general provisions of health and hygiene, machinery safety, safety measures like safety signs, fire risk, air and noise pollution. ■ Elaborates on workplace welfare, health and safety ■ Precaution measures for vulnerable groups. 	<ul style="list-style-type: none"> ■ Development and implementation of an overall labour code of conduct; ■ Development and implementation of written labour management procedures applicable to the Project (this includes a workers' grievance mechanism). ■ Enforcement and monitoring specifically observed with regard to H&S. Common practice at construction sites shows H&S is neglected, e.g. no protective wear (helmets, boots, overalls, gloves), safety equipment is lacking (safety belts on scaffoldings), health of workers (drinking water, site first aid kits or mini-clinics) ■ Development and implementation of H&S plans according to international best practice and industry-specific guidelines.

WB Environmental and Social standards (ESS)	Rwandan National Environmental and Social framework	Additional Requirements stemming from WB ESS
ESS 3: Resource Efficiency and Pollution Prevention	<ul style="list-style-type: none"> ■ Law No. 18/2016 of 18/05/2016 governing the preservation of air quality and prevention of air pollution in Rwanda ■ Law N°62/2008 of 10/09/2008 Putting in place the use, conservation, protection and management of water resources regulations ■ Green Growth and Climate Resilience Strategy 2011 (GGCRS) set out a vision for low carbon growth (low carbon economy by 2050) 	<ul style="list-style-type: none"> ■ Development and monitoring of specific pollution control management plans (especially for the management of pollution prevention during construction): <ul style="list-style-type: none"> - Specific waste management plan during construction - Specific wastewater management plan during construction.
ESS 4: Community Health and Safety	<ul style="list-style-type: none"> ■ Constitution states that everyone has the right to live in a clean and healthy environment ■ Ministerial order No2 of 17/05/2012 determining conditions for OHS provides for the protection of persons other than those at work against hazards to health and safety arising out of or in connection with activities of persons at work. 	<ul style="list-style-type: none"> ■ Development and implementation of community H&S and security plan, specific emphasis on: <ul style="list-style-type: none"> - Workers' influx management plan including unplanned influx (including accommodation, and workers demobilisation procedures) - Gender Based Violence prevention and management plan - Focus on needs and vulnerabilities of vulnerable groups in relation to influx of workers.
ESS 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	<p>Law to expropriation in public interest, No. 32/2015 states that:</p> <ul style="list-style-type: none"> ■ Only government shall perform expropriation for public interest. ■ Public consultation to inform of expropriation. ■ Fair compensation based on market value for affected assets ■ An independent real property valuer performs valuation of assets affected. ■ District council approves asset valuation before compensation is officially accepted. ■ Compensation paid within 120 days from agreement between affected land owners and developer ■ 5% added to compensation price to cover displacement disturbance. ■ 5% penalties for delays in compensation. <p>Law relating to expropriation in public interest, No. 18/2007 states that:</p> <ul style="list-style-type: none"> ■ Project Budget must have funds available for asset inventory and just compensation. 	<p>Non-conformances identified regarding Involuntary resettlement</p> <p>Development of RAP or Livelihood restoration plan (LRP)., including:</p> <ul style="list-style-type: none"> ■ entitlement matrix ■ Compensation considerations also for informal landowners. ■ Compensation cost at 'replacement value' (including current market price, to be identified by valuers, AND transaction costs). ■ cut-off date. ■ social baseline survey to monitor against. ■ monitoring & evaluation procedures of the resettlement process.

WB Environmental and Social standards (ESS)	Rwandan National Environmental and Social framework	Additional Requirements stemming from WB ESS
	<ul style="list-style-type: none"> ■ Expropriation shall be initiated by Executive committee at the district level. ■ Expropriation shall be approved by District Councils after considering decision of the land commission at the district level. ■ Through agreement compensation may be monetary, alternative land, a building equivalent to the determined valuation. <p>Law relating to Real Property valuation profession, 2010</p> <ul style="list-style-type: none"> ■ Establishes and organises the profession of land valuation. ■ In terms of valuation, it instructs valuers to compare prices in determining a fair market price. <p>Ministerial order no. 001/16 of 2009 determining the reference land prices in the city of Kigali and Ministerial order no. 002/16.01 of 2010 determining land price outside the Kigali city determines reference land prices used in districts outside Kigali city.⁴²</p>	
<p>ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources</p>	<ul style="list-style-type: none"> ■ Law conserving and promoting environment, No. 04/2005 of 08/04/2005 requires the EIA to address the environmental conditions of the Project Area. ■ Ministerial order No. 007/2008 of 15/08/2008 establishing a list of protected animal and plant species. ■ Law on management of land, No. 43/2013 of 16/06/2013 classifying protected areas on state land. E.g. National parks. ■ Ministerial Order No. 007/16.01 of 15/07/2010 on management of land on shores of lakes, rivers ■ Ministerial Order No. 006/MINIRENA/2015 of 18/06/2015 on management of state protected forests ■ Law on forest management and utilization No. 47 bis/2013 of 28/06/2013 encourages planting and conservation of forests. It also instructs on how forest clearing licensing is obtained and how forests can be harvested. It gives guidance on management of state, district and private forests. 	<ul style="list-style-type: none"> ■ Critical habitat screening and assessment. ■ Biodiversity management in case of presence of critical habitat.

⁴² Both Ministerial Orders are currently not widely applied by land valuers as they are out-dated.

WB Environmental and Social standards (ESS)	Rwandan National Environmental and Social framework	Additional Requirements stemming from WB ESS
ESS7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	<ul style="list-style-type: none"> ■ Rwanda is a country with a single/common culture, tribe and language, with a National constitution that recognises all Rwandans are born and remain equal in rights and freedom (article 16 of Rwandan Constitution, 2015). 	<ul style="list-style-type: none"> ■ The Project currently does not trigger ESS 7. ■ None of the sub-component activities within the 600 ha Project Area will trigger ESS7. Any off-site Associated Facilities (e.g. quarries) will be selected such that they do not trigger ESS7.
ESS 8: Cultural Heritage	<p>Law No. 28/2016 of 22/7/2016 on preservation of cultural heritage and traditional knowledge address the following:</p> <ul style="list-style-type: none"> ■ Defines cultural heritage as both tangible and intangible, how they are classified. ■ Stipulates how cultural heritage and traditional knowledge can be preserved and protected. 	<ul style="list-style-type: none"> ■ Development and implementation of Chance Finds Procedure of cultural resources that could be found during project construction and operation phase.
ESS 10: Stakeholder Engagement and Information Disclosure	<p>Ministerial order No.003/2008 of 15/08/2008, EIA general guidelines and procedure 2006 require:</p> <ul style="list-style-type: none"> ■ Public consultation done during EIA preparation. <p>Public hearing and post consultation is conducted in the presence of REMA after the EIA report has been submitted. Licensing will only be issued after this session. Communication of public hearing is done through radio, newspapers or posters.</p>	<p>No gap in regulations except that common practice is that public hearing or disclosure is done by RDB and not done for all projects but for only complex ones. Also its not common practice to disclose the EIA report via media. Only donor-funded projects require more extensive disclosure at community level.</p> <ul style="list-style-type: none"> ■ SEP and continuous engagement. ■ Project specific grievance mechanism.

6. SESA METHODOLOGY

6.1 Rwandan Strategic Environmental Assessment (SEA)

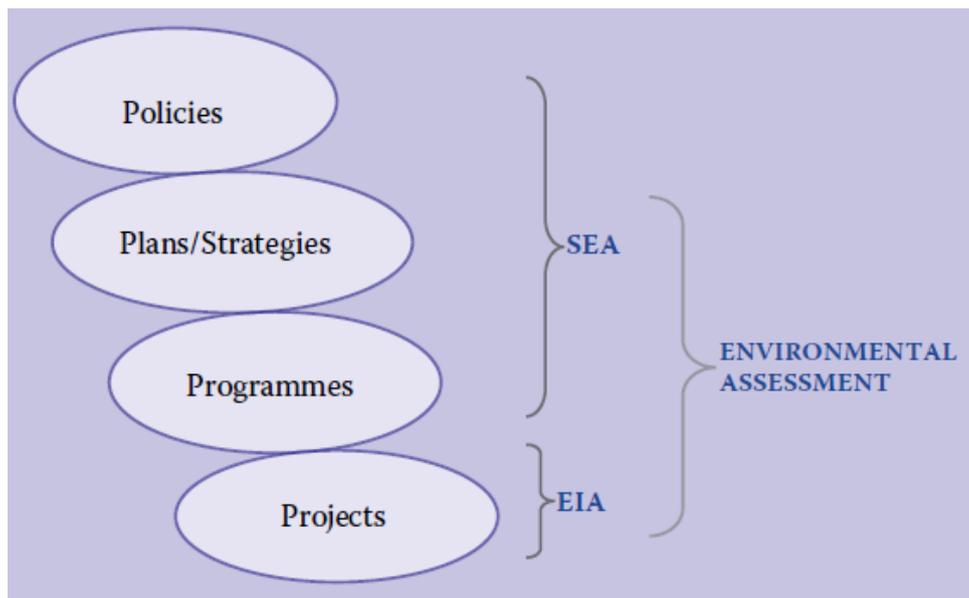
The key body responsible for advising the government on matters of environmental management and climate protection is the Rwandan Environmental Management Authority (REMA), under the Ministry of Environment. REMA have prepared a set of national guidelines for Strategic Environmental Assessment⁴³ (“REMA SEA Guidelines”) to be applied across the country.

According to these guidelines, a SEA is intended to consider potential environmental impacts in relation to policies, plans, and programs (PPPs), whereas an Environmental Impact Assessment (EIA) evaluates potential environmental impacts of specific projects. SEA helps integrate environmental sustainability into PPPs by considering cumulative impacts and mitigation measures as they devolve progressively from policy to plan to program to project.

6.1.1 Relationship of EIA and SEA

REMA has mainstreamed EIA into its institutional structures and instruments, having created both general and sector-specific guidelines for EIA to be used as a tool for the mitigation of environmental impacts that may result from development project activities. The REMA General EIA Guidelines⁴⁴ provide a protocol for the practice and conduct of EIA to comply with Rwandan legal and institutional frameworks and serves as a framework for ensuring the quality and effectiveness of the EIA process.

The relationship of SEA and EIA with respect to the wider PPPs and specific projects is shown schematically below (Figure 6.1).



Source: REMA; 2011

Figure 6.1 SEA and EIA Complementary Relationships

6.1.2 SEA process and roles

The conceptual basis for Rwandan REMA SEA Guidelines follows a 10-step approach developed by the United Nations Commission for Europe:

1. Identifying the main characteristics of the policy, plan or program (PPP).

⁴³ REMA, June 2011, General Guidelines and Procedures for Strategic Environmental Assessment (SEA)

⁴⁴ REMA, 2006, General Guidelines and Procedures for Environmental Impact Assessment (EIA)

2. Analysing the PPP formulation process.
3. Determining the need for SEA for a PPP.
4. Determining the nature and extent of impacts.
5. Determining content and level of detail in SEA report.
6. Consultation with relevant authorities.
7. Public consultation.
8. Ensuring SEA integration in the PPP process.
9. Coordinating SEA within the PPP process.
10. Monitoring SEA within the PPP process.

For SEA to fulfil its mandate towards promotion of economic and social development in the context of environmental sustainability, relevant sectors must be engaged at a wide level of decision-making, supported by the capacity to carry out the commitments expressed in Rwanda's laws, institutions, and implementation mechanisms.

REMA is required by law to oversee environmental assessment requirements in policies, plans, and development programmes. REMA also is required by law to advise the Government on policies, strategies, and legislation related to the management of the environment.

In Rwanda, the PPP's are developed by sector ministries and implemented by the respective line institutions. A lead agency, thus, is the institution responsible for formulating and implementing a PPP. The legal responsibility for conducting a SEA of the PPP, therefore, lies with the lead agency, while REMA provides the necessary oversight.

6.2 Approach to conducting SESA for the GCK Model

The GCK Model, as per the Rwandan guidelines outline above, does not specifically need to be embedded within a formal SEA. This is because the GCK Model is not a policy, plan or program – for which an SEA is intended and required. Nevertheless, the GCK Project will be integrated into the CoK Masterplan 2050 – and will serve as a model for national rollout. Hence, a SEA (or in this case the SESA) is useful as a good international practice. Further, a SESA is specifically required as a prerequisite for funding the GCK project by the GCF.

The SEA methodology as indicated above is used as a framework for preparation of this SESA (see **Table 6.1**). In addition, the WB ESS are used as a reference to guide the SESA in line with international standards⁴⁵.

The present SESA report has been prepared mainly desktop based according to internationally accepted standards for data collection, reporting and analysis and applicable E&S standards. The report outlines assessed E&S risks and impacts, specifically focusing on the relevance of the GCK Model in the context of applicable national commitments, strategies, programs and plans. In addition, the report outlines key mitigation strategies as well as providing a high-level assessment on Rwandan institutional capacities.

In the case of the GCK Project, a **High-Level ESIA** has been conducted (in alignment to an assessment that is proper at "Project" level); the focus of the SESA is thus on the GCK Project, but within the GCK SPA Masterplan context (i.e. the GCK Model, which in practice would correspond to the PPP).

⁴⁵ The Project level impact assessment complies with the WB ESS. The same framework sets a structure and reference guidance for this SESA.

An initial screening of the Policy Matrix and identification of Key Focus Areas has been undertaken to inform the scope of the SESA. The outcomes of the SESA are summarised in form of high-level recommendations to address identified E&S topics.

A short correspondence table of the current SESA scope of work and relationship to the above-mentioned 10 step SEA process is shown in **Table 6.1**.

Table 6.1 Rwandan SEA steps and SESA scope of work

SEA steps (REMA Guidelines)	Correspondence to SESA scope of work
Step 1. Identifying the main characteristics of the policy, plan or program (PPP).	<ul style="list-style-type: none"> ■ Review of the relevant documentation (e.g. Feasibility Study, Master Plans, E&S studies and assessments, RPF, SEF); ■ Screening of relevant policy actions especially related to urban development.
Step 2. Analysing the PPP formulation process.	
Step 3. Determining the need for SEA for a PPP.	Not applicable, as yet PPPs subject to and those exempt from SEA will be gazetted in a Ministerial Order on the recommendation of REMA as the regulatory agency.
Step 4. Determining the nature and extent of impacts.	<ul style="list-style-type: none"> ■ Preparation of baseline description of the Project Area; ■ Screening of E&S risks and potential impacts, including identification of any red flags and fatal flaws, reflecting information from the High-Level ESIA and other available baseline information; ■ E&S impact assessment of the Project in relation to the overall urban and spatial planning sector in Rwanda (including climate change issues, land acquisition implications, gender related aspects, and consideration of cumulative impacts). ■ The E&S impact assessment will include considered Project alternatives, as well as no project alternative; ■ Identification of relevant mitigation strategies to guide foreseeable ESMPs for the different components of the Project (incl. resettlement); ■ Initial analysis of institutional capacities to plan, implement and maintain the Project and outline of an overall strategy for institutional capacity building needs.
Step 5. Determining content and level of detail in SEA report.	The present SESA is intended to be high-level assessment
Step 6. Consultation with relevant authorities.	There has been comprehensive consultation with relevant authorities as part of the preparation of this SESA. No public consultation was included for the purpose of this SESA. (See Section 2.5 on limitations).
Step 7. Public consultation.	
Step 8. Ensuring SEA integration in the PPP process.	Not part of the current SESA scope
Step 9. Coordinating SEA within the PPP process.	
Step 10. Monitoring SEA within the PPP process.	Analysis of Development Objectives of the Project and development of relevant E&S performance indicators (on Project level).

7. SUMMARY OF STAKEHOLDER ENGAGEMENT

7.1 Background

Stakeholder engagement refers to a process of sharing information and knowledge, seeking to understand and respond to the concerns of affected and /or interested parties. Stakeholder engagement is built on mutual trust and likewise is designed to build trusting relationships based on collaboration among stakeholders. Appropriate stakeholder consultation and disclosure are key elements of successful engagement and are essential parts of a project's E&S performance requirements. The importance of stakeholder engagement applies throughout the stages of planning, implementation and operation of a project.

7.2 Stakeholder Engagement Principles

Open and transparent engagement between citizens/local communities, different levels of administration and authorities, project workers, local communities directly affected by projects and, where appropriate, other stakeholders, are an essential element of good international practice for engagement and corporate citizenship⁴⁶. Such engagement is also a way of improving the E&S sustainability of projects. In particular, effective community engagement, appropriate to the nature and scale of the project, promotes sound and sustainable E&S performance, and can lead to improved financial, social and environmental outcomes, together with enhanced community benefits.

Stakeholder engagement is central to building strong, constructive and responsive relationships which are essential for the successful management of a project's E&S impacts and issues. To be effective, stakeholder engagement will be initiated at an early stage of a project cycle and will be carried out through all phases of a project life.

Stakeholder engagement will need to be conducted on the basis of providing local communities that are directly affected by the project and other relevant stakeholders with access to timely, relevant, understandable and accessible information, in a culturally appropriate, inclusive and gender sensitive manner, and free of manipulation, interference, coercion and intimidation.

The general principles for stakeholder engagement are:

- Providing meaningful information in a format and language that is readily understandable and tailored to the needs of the target stakeholder group(s);
- Providing information in advance of consultation activities and decision-making;
- Providing information in ways and locations that make it easy for stakeholders to access it and that are culturally appropriate;
- Respect for local traditions, languages, timeframes, and decision-making processes;
- Two-way dialogue that gives both sides the opportunity to exchange views and information, to listen, and to have their issues heard and addressed;
- Inclusiveness in representation of views, including ages, women and men, vulnerable and/or minority groups;
- Processes free of intimidation or coercion or incentivisation;
- Clear mechanisms for responding to people's concerns, suggestions, and grievances while protecting personal data and information; and
- Incorporating, where appropriate and feasible, feedback into the project or sub-project design, and reporting back to stakeholders.

⁴⁶ FONERWA is in the process of developing an overall Stakeholder Engagement Handbook to be applied to all activities in conjunction with FONERWA's overall ESMF.

7.3 Project Stakeholder Engagement Framework

7.3.1 Overview

In line with the general Stakeholder Engagement Principles outlined above, a Stakeholder Engagement Framework (SEF) has been developed for the GCK Project, outlining the requirements for effective future engagement. The purpose of the SEF is to provide applicable guidance and set requirements for the various elements of adequate stakeholder engagement to be undertaken for the Project. The SEF includes the following core elements of stakeholder engagement that the Project needs to apply (Figure 7.1).



Source: ERM, 2020

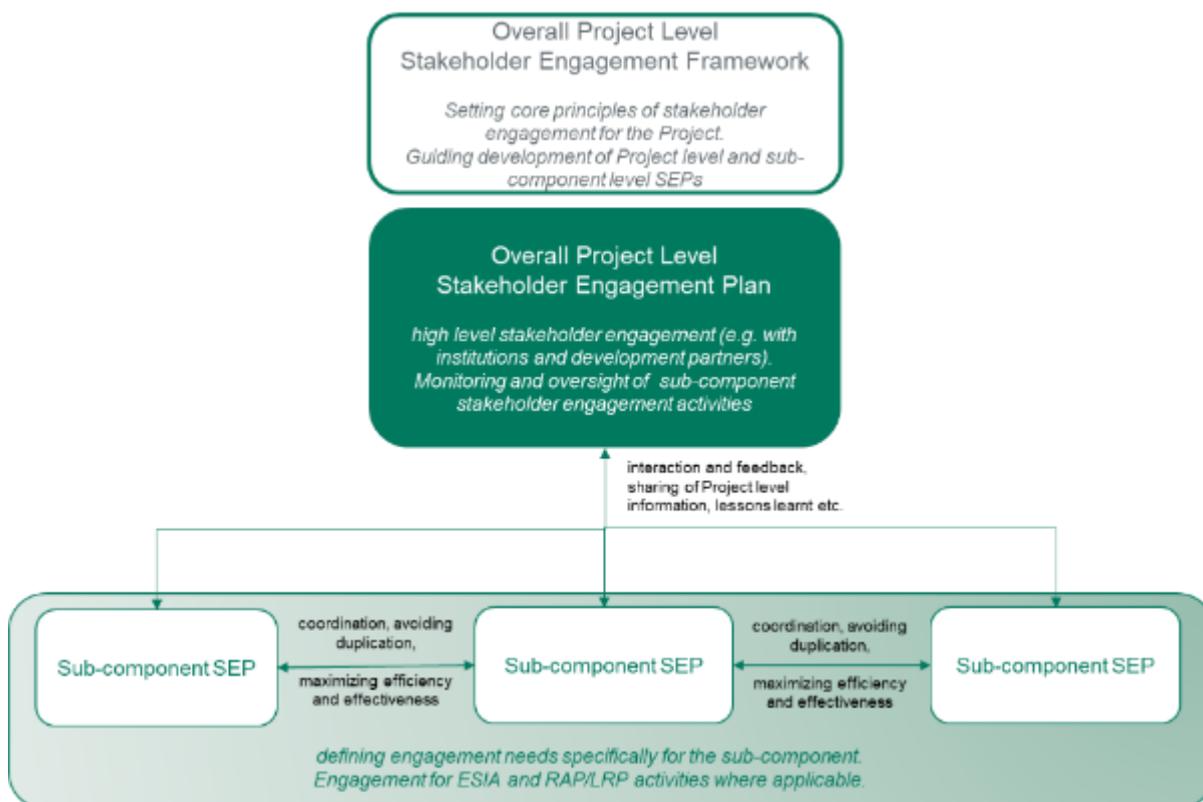
Figure 7.1 Core Elements of Stakeholder Engagement

The key elements of the SEF are:

- Identification of relevant stakeholders;
- Engagement and meaningful disclosure methods about Project-related E&S risks and impacts;
- Grievance process; and
- Monitoring, evaluation, documenting and reporting.

Various levels of stakeholder engagement for the Project are expected according to the development activities being undertaken (see Figure 7.2).

The SEF guides the overall stakeholder engagement activities for the Project, and also provides the scope for consultation for all sub-components, as required. For example, where a sub-component is associated with land acquisition and subsequent physical and/or economic displacement, the sub-component will be responsible to plan and conduct the relevant adequate stakeholder engagement activities with regard to resettlement and livelihood restoration planning. The same applies to any sub-component requiring the implementation of an Environmental and Social Impact Assessment (ESIA) which following will be associated with some degree of stakeholder engagement. In order to avoid duplication and consultation fatigue with stakeholders, the engagement process will be coordinated and timed to avoid overlapping where practicable, and the objectives of each engagement activity shall be made explicit. In this way, lessons learnt can be shared and overall efficiency and effectiveness of Project wide stakeholder engagement can be increased. There will be interaction and exchange between the various sub-components as well as the overall Project level. The SEF includes guidance for the future development of a Project- or sub-component level Stakeholder Engagement Plan (SEP). A Project level SEP was prepared based on the SEF, defining the stakeholder engagement processes for the various Project activities taking place.



Source: ERM, 2020

Figure 7.2 General Overview of Stakeholder Engagement Levels

7.3.2 Stakeholder Mapping

A stakeholder is defined as any individual / group, who is potentially affected by a project (affected parties) or who has an interest in the project and its impacts (interested parties). The objective of stakeholder identification is to establish all parties that may be directly or indirectly affected by (positively and negatively / permanently or temporarily), or have an interest, in the project. Stakeholder identification is an ongoing process, requiring regular review and updating as the project proceeds. In the course of developing any future SEP, the identification and analysis of stakeholders is to be continued and specified along the procedures outlined in the SEF.

For the GCK Project, an initial stakeholder identification and analysis has been conducted (Table 7.1), and stakeholders were grouped, based on their various needs and interest with the Project.

Table 7.1 Initial Stakeholder Mapping

Stakeholder Group	Project Interaction	Stakeholders
Central Government	<ul style="list-style-type: none"> ■ Permitting and licensing; ■ Policy compliance and enforcement; ■ Basic infrastructure servicing; and ■ Monitoring. 	<ul style="list-style-type: none"> ■ Ministry of Infrastructure (MININFRA); ■ Ministry of Environment (MoE); ■ Ministry of Local Government (MINALOC); ■ Ministry of Economic Planning and Finance (MINECOFIN); ■ Regulatory Bodies/Lead Agencies in these ministries including ;

		<ul style="list-style-type: none"> - Rwanda Environment Management Authority (REMA); - Rwanda Development Board (RDB); - Rwanda Land Management and Use Authority (RLMUA); - Rwanda Housing Authority (RHA); - Rwanda Transport Development Authority (RTDA); - Rwanda Energy Group (REG); - Water and Sanitation Corporation (WASAC); - Local Administrative Entities Development Agency (LODA); and - Gender Monitoring Office and National Women Council (to explore gender issues).
Local Government: City of Kigali	<ul style="list-style-type: none"> ■ Oversight of Project; ■ Monitor for compliance; and ■ Issue licenses and permits. 	<ul style="list-style-type: none"> ■ Office of the Mayor ■ Executive Committee; ■ Council of the City of Kigali; ■ Urban planning, public health, education, city engineer, recreation and public spaces units. ■ Kigali Employment Services Centre; ■ One Stop Centre (OSC); and ■ Cooperative Union.
Local Government and leadership.	<ul style="list-style-type: none"> ■ Project Implementers; ■ Permitting, licensing and compliance enforcement; ■ Policy compliance; ■ Basic infrastructure servicing; ■ Monitoring; ■ Grievance Management; and ■ Community Liaison. 	<ul style="list-style-type: none"> ■ Gasabo District; ■ Kinyinya Sector; ■ Cell leaders; and ■ Village leaders.
Directly Affected Communities / Project Affected Persons	<ul style="list-style-type: none"> ■ Affected by Project impact; ■ Engagement in Project (e.g. labour); and ■ Loss/damage and/or improvement of property. 	<ul style="list-style-type: none"> ■ Communities living on the Project site (land owners and land users); ■ Communities living close to Project site; and ■ Communities having livelihoods based on the Project site.

<p>Vulnerable Persons/Groups</p>	<ul style="list-style-type: none"> ■ Interaction with project impacts; ■ Inadequate ability to cope with negative project impacts; ■ Inadequate ability to enjoy project benefits unaided; and ■ Special needs different than the rest. 	<ul style="list-style-type: none"> ■ The poor Households (HH) as identified by the National livelihood categorisation (Ubudehe); ■ the elderly; ■ the sick, disabled; and ■ women.
<p>Civil Society Organisations and (I)NGOs</p>	<ul style="list-style-type: none"> ■ Support to the affected persons / communities; ■ Exchange of useful data and information from experience in the communities; ■ Project may hinder or enhance their works with the communities; and ■ May supplement Project benefits. 	<ul style="list-style-type: none"> ■ Community Based Organisations, Women Organisation, National-category NGOs i.e. RECOR (Rwanda Environmental Conversation Organisation), International NGOs i.e. Human Rights Watch, Transparency International Rwanda, World Vision, IUCN, OXFAM, CARE, WWF, etc.
<p>Development Partners</p>	<ul style="list-style-type: none"> ■ Information and knowledge exchange; ■ Technical assistance; and ■ Establish cooperation and joint initiatives. 	<ul style="list-style-type: none"> ■ UN Habitat; ■ World Bank; and ■ GIZ.
<p>Media, Political groups, Religious Organisations</p>	<ul style="list-style-type: none"> ■ Cascading Project information to the public; and ■ Influence on public views and opinions on the Project. 	<ul style="list-style-type: none"> ■ District, local, national and international media (newspapers, television and radio stations); ■ Local schools and health institutions; and ■ Religious denominations.
<p>Private Sector</p>	<ul style="list-style-type: none"> ■ Supply of Project inputs and management of outputs; and ■ Professional and technical services to the Project. 	<ul style="list-style-type: none"> ■ Contractors; ■ Suppliers and service providers; ■ Potential employers; and ■ Other businesses operating within Project communities.
<p>Law Enforcement Agencies</p>	<ul style="list-style-type: none"> ■ Security. 	<ul style="list-style-type: none"> ■ Rwanda Police.

7.3.3 Engagement Activities to Date

A number of community and stakeholder engagement activities have been conducted during the preparation of the Feasibility Study, the High-Level ESIA, the previous preliminary ESIA (pESIA, Sweco 2019), as well as this SESA at hand.

During initial scoping phase, as well as for the 2019 pESIA preparation, site visits including transect walks with community members and leaders were conducted. These activities supported the initial identification of potential impacts as well as stakeholder identification.

FONERWA organised meetings with Gasabo district and local community leadership to discuss the Project objectives and key impacts.

Stakeholder engagements were conducted during the following periods:

- During the 2019 Pre-ESIA study;
- During the 2019 Mid-term Feasibility Study;
- During the May 2019 public disclosure of the City of Kigali Masterplan
- During the 2020 and 2021 Final Feasibility Study
- During the 2021 GCF Application development, including Ngaruyinka Urban Upgrade FS and LDP; and
- During the 2021 SESA study.

An overview of stakeholder disclosure and engagement activities to date is provided in the **Table 7.2** below⁴⁷.

7.4 Summary

Any future development plans in Rwanda, similar to the GCK Model, should apply the approach outlined in the Project **SEF**. One overall framework needs to set the key requirements for stakeholder engagement.

Further, the various levels of stakeholder engagement outlined in **Figure 7.2** can be applied for any future developments (i.e. the development of project specific SEP/s in line with the **SEF**).

⁴⁷ Note this overview does not include any engagements and consultations conducted in relation to the development of the RPF.

Table 7.2 Overview of Engagement Activities Conducted to Date

Type and Mode of Engagement	Method of Engagement	Date	Stakeholder Group	Institution	Objective of Engagement	Key issues raised/discussed Outcomes of engagement
Consultation Disclosure	Urban Lab Public and Stakeholder Participation	04 – 10 May 2019 (5 days)	<ul style="list-style-type: none"> ▪ Local communities ▪ their representatives /respective authorities ▪ Media ▪ Experts: - Urban Planner, Kigali City - Environmental Analyst RDB - Environmental Planning and Development, REMA - Head of Unit Environmental Regulation and Pollution Control, REMA - Environmental Protection Specialist, MoE - Kinyinya Sector: Ngaruyinka, Murama 	<ul style="list-style-type: none"> ▪ FONERWA; ▪ KfW; and ▪ International experts: SWECO, OMGEVING (landscape architect) 	<ul style="list-style-type: none"> ▪ Work sessions with experts and stakeholders. ▪ Gathering valuable information. ▪ Developing future scenarios in co-production with the public stakeholders and end users of the GCK. ▪ Raising awareness of the project. ▪ Updating community members and stakeholders on the status of the project. 	<p>Visual report that :</p> <ul style="list-style-type: none"> ▪ Captures key findings of discussions ▪ Illustrates possible spatial models for urban development in the GCK Pilot. ▪ Outline structure, connectivity, environment, building patterns and location of services. <p>Annex 1 of the mid-term feasibility study includes issues communities informed about (infrastructure, jobs, social development, climate change) and includes comments of the stakeholders.</p> <p>Key issues raised:</p> <p>Impacts of land acquisition on livelihoods and quality of living; Transport and Mobility (poor connection and safety for women on foot); Infrastructure (access to potable water, flood management); Housing (concern about project only catering for 'elite').</p>
Consultation Disclosure	Validation Workshop of the	10. Sep 2019	<ul style="list-style-type: none"> ▪ local communities, ▪ national ministries, 	Feasibility Study Team	<ul style="list-style-type: none"> ▪ Presenting main findings of the feasibility assessment 	Urban planning, housing and building technology, infrastructure, cross cutting issues and special projects.

Type and Mode of Engagement	Method of Engagement	Date	Stakeholder Group	Institution	Objective of Engagement	Key issues raised/discussed Outcomes of engagement
	Mid-Term Feasibility Study		<ul style="list-style-type: none"> international organisations 		<ul style="list-style-type: none"> Q&A sessions valuable Stakeholder comments and input to the study. 	
Consultation	Site visits and direct observation	2019	<ul style="list-style-type: none"> local communities 	Feasibility Study Team SWECO	<ul style="list-style-type: none"> Site Walk over visit to existing housing projects, affordable and market projects. HH interviews to obtain information about housing preferences and aspirations for future surrounding built environment. 	Information obtained for use in the development of unit, building and community level typologies as part of Feasibility Study process.
Consultation	Focus group, Expert opinions	2019	<ul style="list-style-type: none"> Architectural students at University of Rwanda Architectural professional Housing and building technology professional Local quantity surveyors and providers 	Feasibility Study Team SWECO	Gathering information and expertise for the housing and financial sector reports with feed into overall Feasibility Study.	Housing and building technology information and preferences. Key financial information and preferences as regards housing.
Consultation	Stakeholder Participation events	2019	3 community groups were consulted including Kimisagara, Batsinda and Kinyinya.	SWECO	Provide information as regards housing situation and aspirations for use in building sector report and pursuant Feasibility Study report.	Information obtained for development of unit, building and community level typologies as part of Feasibility Study process.

Type and Mode of Engagement	Method of Engagement	Date	Stakeholder Group	Institution	Objective of Engagement	Key issues raised/discussed Outcomes of engagement
Disclosure	Umuganda (Community service)	Monthly (January 2020)	Community in the Kinyinya area	<ul style="list-style-type: none"> ▪ GCK ▪ FONWERWA ▪ local administration ▪ media 	Informing the directly affected population about the project. Encouraging an open dialogue and exchange between all stakeholders.	
Disclosure	Meeting	June 17, 2020	Mayor City of Kigali	<ul style="list-style-type: none"> ▪ City of Kigali 	Inform appointed person about GCK Project, update on work done and timeline of next phases on the project.	
Consultation	Focus Group, Expert Opinion	Sept 30, 2020	<ul style="list-style-type: none"> ▪ Manager of Water & Sanitation Infrastructure Planning ▪ Acting Head of Sewer Operations ▪ Director of Rural Water & Sanitation Services 	<ul style="list-style-type: none"> ▪ Water and Sanitation Corporation (WASAC) 	<ul style="list-style-type: none"> ▪ Introduce the Green City Kigali Project and application to the Green Climate Fund ▪ Gain a better understanding of the water and sanitation situation at the upgrade site ▪ Discuss possible water and sanitation projects at the site, for assessment in a Feasibility Study prepared for an application to the Green Climate Fund 	Detailed information about use of water, availability of potable water access and sanitation facilities. Overall understanding that potable water coverage is inadequate.
Consultation	Focus Group, Expert Opinion	Oct 23, 2020	<ul style="list-style-type: none"> ▪ Solid & Liquid waste Officer ▪ City of Kigali Engineer 	<ul style="list-style-type: none"> ▪ City of Kigali ▪ COPED 	Understanding site situation regarding establishing recycling points, neighbourhood collection points and propose community of organic waste	No concerns raised provided it meets the required standards for the community and has a management manual.
Consultation	Focus Group, Expert Opinion	Oct 29, 2020	<ul style="list-style-type: none"> ▪ City of Kigali Engineer ▪ DG RTDA 	<ul style="list-style-type: none"> ▪ City of Kigali ▪ Rwanda Transport 	Understanding who provides and maintains roads infrastructures.	

Type and Mode of Engagement	Method of Engagement	Date	Stakeholder Group	Institution	Objective of Engagement	Key issues raised/discussed Outcomes of engagement
			<ul style="list-style-type: none"> Division Manager of Planning, quality assurance & research 	Development Agency (RTDA)		
Disclosure	Virtual Validation Workshop of the Final Feasibility Study	Nov 09 – 13, 2020	<ul style="list-style-type: none"> National ministries, International organisations 	<ul style="list-style-type: none"> FONERWA; KFW International experts: SWECO 	<ul style="list-style-type: none"> Introduction of KfW mission objectives, General status of the project, Main results of the Feasibility Study, Challenges ahead 	
Disclosure	Validation Workshop of Ngaruyinka Upgrade Interim Feasibility Study Report	Dec 11, 2020	National ministries	<ul style="list-style-type: none"> FONERWA MoE RHA WASAC REG 	<ul style="list-style-type: none"> Introduction of the upgrade of informal settlement of 18ha Ngaruyinka Village Basis of GCF application Presentation of the Interim Feasibility Study Discussion 	
Consultation	Virtual Meeting, Expert Opinion	Dec 18, 2020	National ministry & institution	<ul style="list-style-type: none"> FONERWA WASAC 	<ul style="list-style-type: none"> Short Overview of Recommendations for the Pilot Site Pilot Site Discussion Short Overview of Recommendations for the Global Climate Fund application for the Upgrade Site 	
Disclosure	Radio Programme	Monthly consisting of six episodes	Local communities	<ul style="list-style-type: none"> GCK FONERWA Local radio station 	<ul style="list-style-type: none"> Informing the local communities about Rwanda's sustainable approach to urban 	

Type and Mode of Engagement	Method of Engagement	Date	Stakeholder Group	Institution	Objective of Engagement	Key issues raised/discussed Outcomes of engagement
		of 30 minutes			<ul style="list-style-type: none"> development in an easy and accessible language. Addressing questions and concerns from the local population, provides information about climate change and rapid urbanisation and introduces concepts such as sustainable building and resource efficiency to a wide and diverse audience. 	
Disclosure	Comic book for children	Issued – June 2020	Children and young population of Kigali and Rwanda	<ul style="list-style-type: none"> GCK FONERWA Rwandan publishing house Imagine We Rwanda 	<ul style="list-style-type: none"> Developing a comic book for children. Familiarising children and youth with the topic of sustainable urban development and its relevance for Rwanda's future growth trajectory. Raising environmental awareness and promoting sustainable behaviour amongst the young population. 	
Disclosure	Website Social media (Instagram, Facebook, twitter, YouTube channel) Newsletter Subscription		Various Stakeholders	<ul style="list-style-type: none"> GCK FONERWA 	Publications: <ul style="list-style-type: none"> Urban Design Handbook Mid-Term Feasibility Study 	

Type and Mode of Engagement	Method of Engagement	Date	Stakeholder Group	Institution	Objective of Engagement	Key issues raised/discussed Outcomes of engagement
Consultation	Meeting	Sept 13, 2021	National institution and local government	<ul style="list-style-type: none"> ▪ FONERWA ▪ Rwandan Housing Association ▪ City of Kigali 	<ul style="list-style-type: none"> ▪ Discussion about strategic context of the GCK project ▪ Roles and responsibilities, institutional set-up 	<p>High-Level ESIA should be entirely reused for the SESA. New Community Benefit Company founded. Establishment of a housing purchase & mortgage assistance program.</p> <p>Resettlement Existing social housing (11 ha)</p> <p>People are mostly renting. Value of land will go up due to the development of the Project. Landowner will increase rent -> then not affordable anymore.</p>
Consultation	Meeting	Sept 14, 2021	Subject Matter Expert	<ul style="list-style-type: none"> ▪ Gender Expert for Upgrade project 	<ul style="list-style-type: none"> ▪ Discussion about strategic context of the GCK project ▪ Roles and responsibilities, institutional set-up 	<p>Gender Analysis and Gender Action Plan for the Upgrade Project</p> <ol style="list-style-type: none"> 1. Four focus groups with 20 women in total 2. Two focus groups with men 3. Five interviews with different women to identify daily routine (24h mapping to identify e.g. Hours of unpaid work) 4. Safety walk in the village (lighting, place men can hide, ...) <p>Even though only assessed for the Upgrade Village, it can be transferred to the entire 600 ha site according to Katie since the socio-economic structure is the same.</p>

Type and Mode of Engagement	Method of Engagement	Date	Stakeholder Group	Institution	Objective of Engagement	Key issues raised/discussed Outcomes of engagement
Consultation	Meeting	Sept 15, 2021	National ministry	<ul style="list-style-type: none"> ▪ Ministry of Environment 	<ul style="list-style-type: none"> ▪ History of the site selection ▪ Discussion about strategic context of the GCK project ▪ Roles and responsibilities, institutional set-up 	<p>There is no framework for evaluation on the success of the project. However the assessments of the E&S consultants are a tool to demonstrate the impacts of the Project also comparing it to other green cities around the globe.</p> <p>Building Code for new construction projects (level 3 compliance) changed, to included minimum resource efficiency. This means new properties need to get permit and this will consider resource/water efficiency and waste management. However, the challenge is to implement this new regulation. Currently, around 30% compliance of the code, it needs to be ensured that continuously this regulations will be enforced.</p> <p>Private already existing or permitted developments like Cactus Park and Dubai need to change and adapt to requirements at the masterplan to be considered green as part of the overall development. Not only new development are required to fulfil the sustainability principles.</p>

Type and Mode of Engagement	Method of Engagement	Date	Stakeholder Group	Institution	Objective of Engagement	Key issues raised/discussed Outcomes of engagement
						Steering committee and technical committee are planned.
Consultation	Meeting	Sept 16, 2021	National institution	<ul style="list-style-type: none"> FONERWA 	<ul style="list-style-type: none"> Discussion about strategic context of the GCK project Roles and responsibilities, institutional set-up 	Details on Institutional Setup: Steering Committee Technical Committee GCK board SPV
Consultation	Meeting	Sept 17, 2021	National Institution	<ul style="list-style-type: none"> REMA 	<ul style="list-style-type: none"> Discussion about gender context in the Project area, existing issues and ways to address them. 	Responsibilities not clear is a major risk. How is responsible for O&M, is there enough capacity people know how to operate and maintain new technology. Collaboration between different shareholder, entities, channels of communication and sharing No framework for evaluation of the success of the project. What are the green criteria? REMA has capacity to do evaluation but legal framework for sustainability is not there yet
Consultation	Community Meetings Focus Groups	04 th -16 th November 2021	Ngaruyinka Community	<ul style="list-style-type: none"> ESIA Team SWECO 	<ul style="list-style-type: none"> ESE Survey Fixed Assets Valuation data collection Focus Group discussion: groups of PAPs Focus Group discussion: Opinion Leaders 	

8. ENVIRONMENTAL AND SOCIAL BASELINE INFORMATION



Strategic context:

Relevant baseline information was compiled for the Project area within the **High-Level ESIA** as a basis for determining the nature and extent of E&S impacts of the GCK Model and the Project. This section is based on initial information from the latter document and identifies E&S receptors specific to the Project area.

8.1 Physical Environment

8.1.1 Climate

Rwanda lies within the equatorial zone, but has mountains and hills that moderate its climate. Kigali has tropical savannah climate (Aw) according to Köppen-Geiger classification. Typically for Aw climate, there is much more rainfall in summer than in winter. There are two rainy seasons from March-May and from September-December⁴⁸.

The Kinyinya sector has two major climatic seasons in a year, namely, the dry and rainy seasons. The two major climatic seasons alternate within the course of a year; hence, the sector is experiencing two dry seasons and two rainy seasons per year as described in the **Table 8.1**. However, it is important to note that duration of the seasons is irregular.

Table 8.1 Average duration of climate seasons in Kinyinya sector

Seasons	Period
Short dry season	December, January and February
Long rainy season	March, April and May
Short dry season	June, July, August and September
Long rainy season	October and November

Figure 8.1 shows the average temperatures and rainfall in Kinyinya. The average annual temperature is 20.6°C, with only very slight monthly deviation during the year of about 1.1°C. With an average of 21.1°C, August is the warmest month. With an average of 19.9°C, June is the coldest month of the year. The average annual rainfall is about 949 mm, with June-July-August being the driest months (only 7 mm in July), while April is by far the wettest month reaching an average of 180 mm.

Figure 8.2 shows the monthly rainfall and **Figure 8.3** indicates the overall steady temperature throughout the year in Kinyinya. Rwanda has experienced an average temperature increase of 1.4°C since 1970, higher than the global average.

⁴⁸ World Bank Climate Knowledge Portal (2021) available at: <https://climateknowledgeportal.worldbank.org/country/rwanda/climate-data-historical>

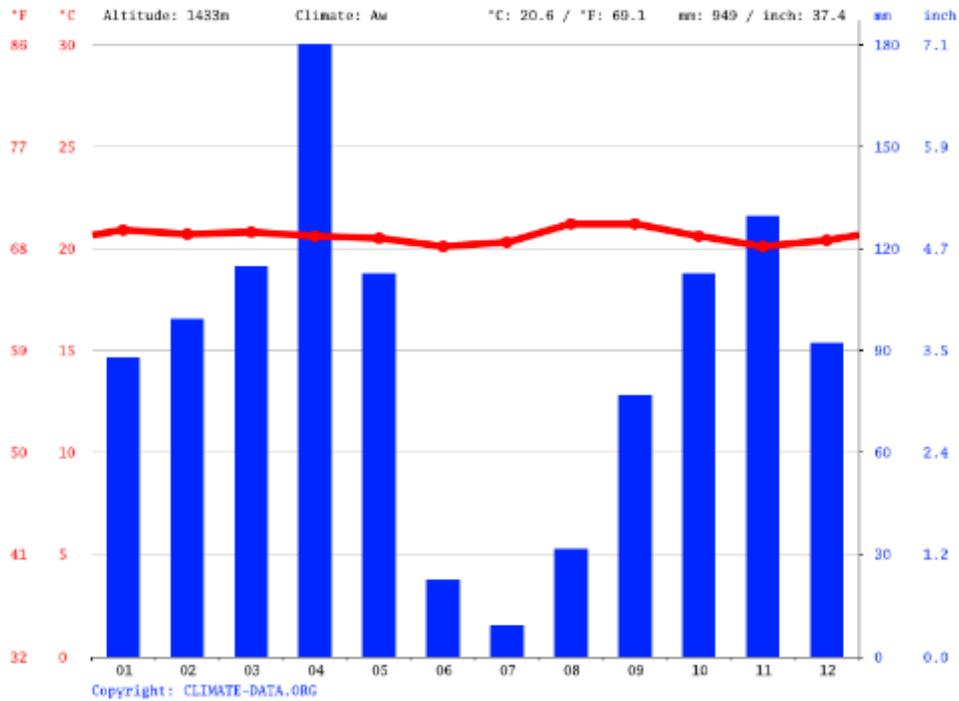
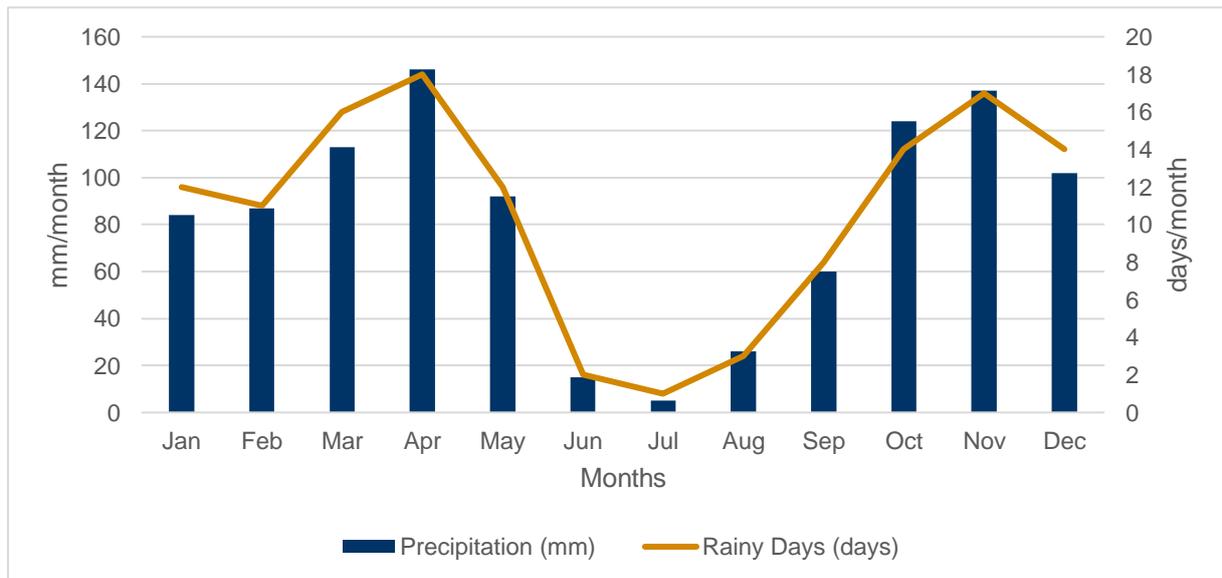


Figure 8.1 Climate graph showing the average weather in Kinyinya by month⁴⁹

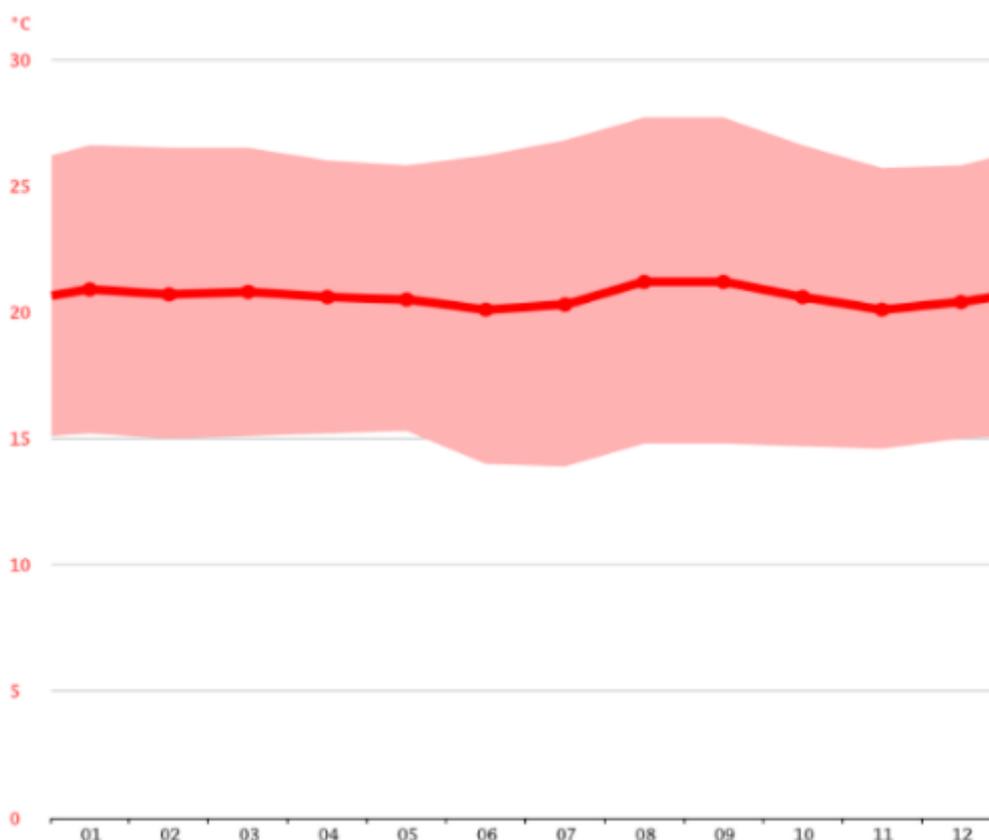


Source: ERM, 2021⁵⁰

Figure 8.2 Average Monthly Rainfall in Kinyinya

49 Climate-data.org (2020), available at: <https://en.climate-data.org/africa/rwanda/kigali-city/kinyinya-224166/>

50 Climate-data.org (2020), available at: <https://en.climate-data.org/afrika/ruanda/kigali/kinyinya-224166/>



Source: Climate-Data.Org, 2021⁵¹

Figure 8.3 Average Monthly Temperature in Kinyinya

Table 8.2 shows some of the historical and future climate trends for Rwanda indicating a rise in temperature. Observed annual mean temperatures showed a statistically significant increase in the last 30 years. For the future, climate model calculations project a moderate rise in temperature for the region. At the end of the century, a temperature increase between 1.1 and 5.1 °C compared to the base period from 1971 to 2000 can be considered likely. Along with the rise in temperature, there is a strong extension of hot periods and a significant reduction in cold periods.

A slight decrease in annual precipitation has been observed over the past 30 years. For the future, however, the climate model calculations do not project a clear precipitation trend. At the end of the 21st century, a change in precipitation between -3 and + 10% compared to the base period from 1971 to 2000 can be considered probable. Furthermore, a tendency towards somewhat more intensive and significantly more frequent heavy precipitation and longer dry periods is projected.

Table 8.2 Historic and Projected Temperature Data for 2085 for Rwanda

Historical Climate Trends	Projected Future Climate Trends ⁵²
<ul style="list-style-type: none"> Observations of mean annual temperature shows the average temperature has increased. Temperatures rose by about 1.2°C at Kigali Airport station during 1971-2009. 	<ul style="list-style-type: none"> The very likely range of projected change in annual mean temperature is from +1.1 to +5.1°C by 2085. Confidence in these figures is medium. The change in temperature can be considered to be medium-strong.

51 Climate-data.org (2020), available at: <https://en.climate-data.org/afrika/ruanda/kigali/kinyinya-224166/>

52 Gerics (2016) Climate-Fact-Sheet

<ul style="list-style-type: none"> ■ Mean annual rainfall has declined by 80 mm from 1961 until 2006 at the Kigali Airport meteorological station. ■ Observations of the extent of the rainy seasons (March-May and September-November) exhibit a shortening trend. 	<ul style="list-style-type: none"> ■ Tendency towards an increase in future precipitation by 2085 during the main rainy season (likely range from -13 to +20%, December to April), whereas for the other months of the year a tendency towards drier conditions is projected (likely range from -30 to +17%).
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Climate Change Risk

The following projections are done based on the historical and projected data from World Bank Climate Change Knowledge Portal⁵³. This open source portal provides combined data from the Coupled Model Inter-comparison Project (CMIP5). The objective of the CMIP is to better understand past, present and future climate changes. This understanding includes assessments of model performance during the historical period and quantifications of the causes of the spread in future projections. The multi-model output publically available includes information from 35 available global circulation models (GCMs) used by the Intergovernmental Panel on Climate Change (IPCC) 5th Assessment Report and provides projections using different representative concentration pathways (RCP). RCPs describe the different climate futures depending of the GHG emissions emitted in the years to come. **Table 8.3** lists the RCP so far adopted by the Intergovernmental Panel on Climate Change (IPCC).

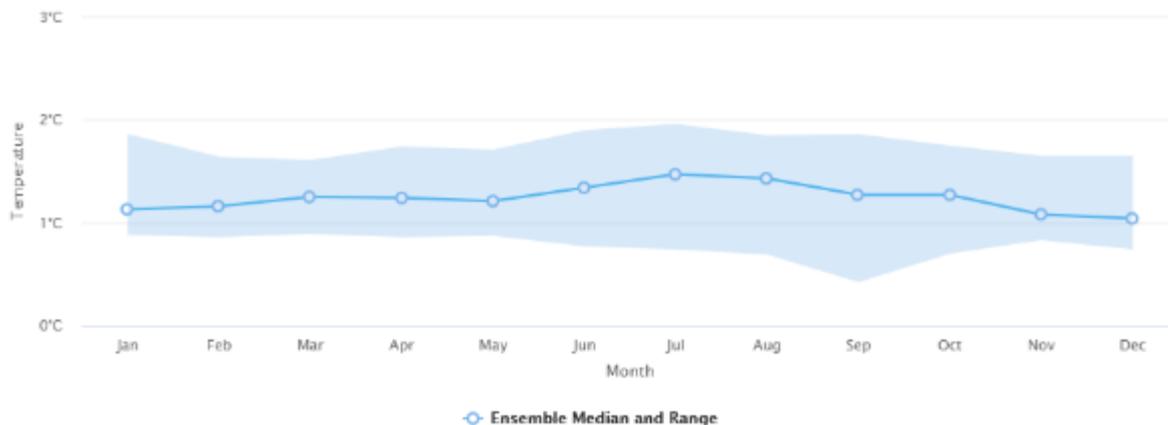
Table 8.3 Representative Concentration Pathways

RCPs	Scenario
2.6 (low emission)	Stringent pathway that limits global warming below 2°C, requiring CO ₂ emissions start declining by 2020 and go to zero by 2100.
4.5 (medium-low emission)	Intermediate pathway requiring that CO ₂ emissions start declining by approximately 2045 to reach roughly half of the levels of 2050 by 2100. ⁵⁴
6.0 (medium-high emission)	Intermediate pathway where emissions peak around 2080 and then decline.
8.5 (high emission)	Pathway where emissions continue to rise throughout the 21st century (business-as-usual scenario). Suggesting society does not make efforts to reduce GHG emissions and therefore reflect their worst case scenario for the physical impacts of climate change.

Figure 8.4 and **Figure 8.5** show projected change in monthly temperature for Rwanda for the years 2040-2059. The projected change in monthly temperature using the intermediate RCP 6.0 scenario show an average rise in temperature of 1.2 °C. In the worst-case scenario the average change in monthly temperature in Rwanda would compared to the reference period (1986-2005) increase by 1.9 C.

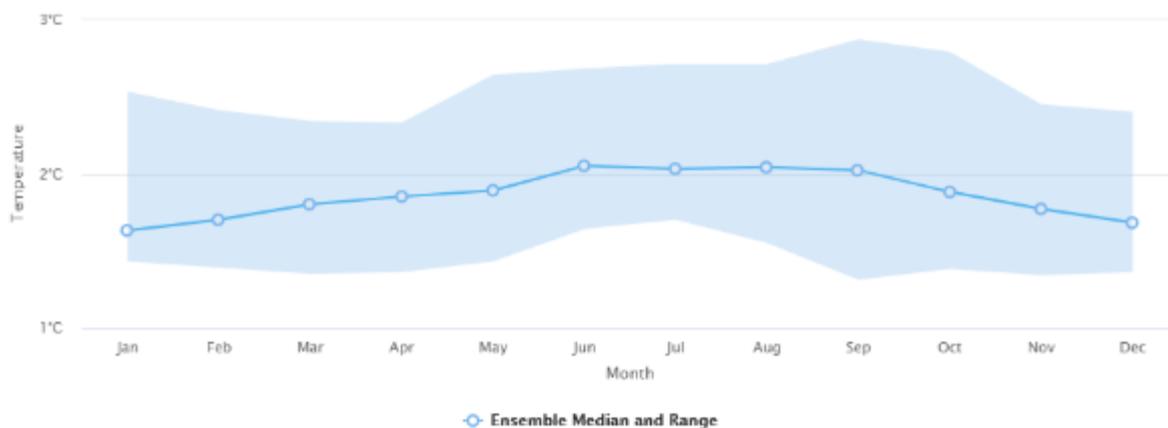
53 World Bank (2020) Climate Data Projections Rwanda, available at: <https://climateknowledgeportal.worldbank.org/country/rwanda/climate-data-projections>

54 Many plant and animal species will be unable to adapt to the effects of RCP 4.5 and higher RCPs.



Source: World Bank, 2020

Figure 8.4 Projected Change in Monthly Temperature for Rwanda for 2040-2059, RCP 6.0 scenario



Source: World Bank, 2020

Figure 8.5 Projected Change in Monthly Temperature for Rwanda for 2040-2059, RCP 8.5 scenario

Predictions of the same scenarios⁵⁵ but for the years 2080-2099 show, that in 60 years without any serious climate change mitigation measures, the monthly temperature in Rwanda will increase by an average of 3.9 °C and for the intermediate scenario RCP 6.0 around 2.3 °C. With a tendency in all scenarios to increase the temperature more strongly in the summer months May - September. Further, the number of ‘warm days’ is projected to increase markedly by the middle and end of the century for all emissions scenarios. ‘Warm nights’ are projected to increase substantially by middle and late 21st century under each emissions scenario. Over 80% of nights are projected to be ‘hot’ by 2100.

55 World Bank (2020) Climate Data Projections Rwanda, available at: <https://climateknowledgeportal.worldbank.org/country/rwanda/climate-data-projections>

Extreme Weather Events

Modelled projections of future climate identify a likely increase in the frequency of 'fire weather' occurrence in this region, including an increase in temperature and greater variance in rainfall. In areas already affected by wildfire hazard, the fire season is likely to increase in duration, and include a greater number of days with weather that could support fire spread because of longer periods without rain during fire seasons. In Gasabo district the wildfire hazard is classified as high. This means that there is a greater than 50% chance of encountering weather that could support a significant wildfire that is likely to result in both life and property loss in any given year⁵⁶.

In addition, the region is at medium risk of landslides and water scarcity. In April 2018 and February 2020, storms brought flooding and landslides to Kigali and surrounding districts, including Gasabo causing severe material damages and loss of life.⁵⁷

Summary:

The climate has alternating dry and rainy seasons. The dry season can be severe and drought conditions often prevail during the year.

Chronic climate change has been identified, leading to warmer weather including temperature increase, warmer nights as well as a trend of increase in the frequency of 'fire weather' occurrence in the region was identified. There is a tendency towards an increase in future precipitation during the main rainy season. In addition, the region is at medium risk of landslides and water scarcity.

Baseline recommendation for future sub-component ESIA:

The climate hazards have been identified. What needs to be further evaluated in future sub-component ESIA's is the vulnerability and exposure of the individual projects towards these identified climate hazards.

For this it is necessary to receive information on sub-component project details and design specifics related-to climate exposure but also adaptive capacity of the sub-component. For instance, it should be investigated:

- If high temperature conditions are considered in design/construction planning, including the types of materials and equipment to be used and if the workforce is expected to work outside for extended periods of time;
- The water need for the sub-component, including the quantities of water required and the water source(s); what other water users there will be for the planned water source for the sub-component. It is suggested that this includes a consideration of personnel and stakeholders that will use the same water source;
- Identify any specific sections of the Project where combustible materials is planned to be used (e.g. trees, scrubland) to identify exposure to wild fire;
- Identify areas where risk of landslides are existent (especially in Gasabo district); and
- Identify if areas of development are exposed to the risk of flooding (proximity to the Nyabarongo River and the wetlands).

⁵⁶ Think Hazard (2020), available at: <https://thinkhazard.org/en/report/21977-rwanda-kigali-city-umuji-wa-kigali-gasabo/WF>

⁵⁷ <http://floodlist.com/africa/rwanda-floods-landslides-february-2020>

8.1.2 Geology, Hydrogeology, and Soils

Kinyinya planning area and the surroundings are characterized by the hills with average altitude of 1,504 m - mainly located in the rural zone. The southern, northern and western parts outside of the proposed planning area are dominated by wetlands.

The area around Kinyinya Hill has rainfall patterns, terrain slope, geology, soil, land cover and earthquakes that make localized landslides an infrequent hazard phenomenon. **Figure 8.6** below shows the soil types in the Project Area and their classification. The soil on Kinyinya Hill mostly consists of Cambisols and Alisols, which are moderately deep and more fertile than Ferrasols. On steep slopes the soil is susceptible to erosion. The wetlands mainly consist of clayey soils with low infiltration capacity.

Groundwater resources management of the area, requires information geology, is dominated by granite and pegmatite. In essence, this indicates low groundwater recharge rates and baseline flows. The contribution of groundwater in the Project Area should be considered. It is a clean and sustainable water on the changes in the status of the water resources which is based on rainfall data, rock type, groundwater and surface water abstraction data, groundwater levels and stream discharges and water quality information. There are no existing information and data on groundwater potential in the Kinyinya Hill. Proper groundwater management needs to be based on reliable groundwater data.

Geohazards

According to different sources⁵⁸, the areas most at risk of seismic hazards in Rwanda are located in the Western Province. Between 2002 and 2008, earthquake events struck the Western Province causing deaths and many other damages. The districts most impacted are Rubavu, Rusizi and Nyamasheke.

Different earthquakes striking the Western and Northern Provinces are sometimes felt in Gasabo district and Kinyinya sector at lower levels that would not cause damage to well-constructed housing infrastructures.

Reportedly there is only one operational seismographic station in Rwanda, therefore exact locations of earthquakes cannot always be accurately determined.

Summary:

The Project Area and the surroundings are characterized by hills and wetlands. On steep slopes the soil is susceptible to erosion. The wetlands mainly consist of clayey soils with low infiltration capacity. Earthquakes striking the Western and Northern Provinces of Rwanda are sometimes felt in Gasabo district and Kinyinya sector. They have low levels and potentially would not cause damage to well-constructed housing infrastructures.

Baseline recommendation for future sub-component ESIA:

Given the potential for using the groundwater as a sustainable water source, adequate groundwater studies and reliable groundwater baseline is required including groundwater level variations and hydrogeological properties of the water bearing strata and groundwater quality analyses.

⁵⁸ USGS (2008), MIDIMAR (2013)

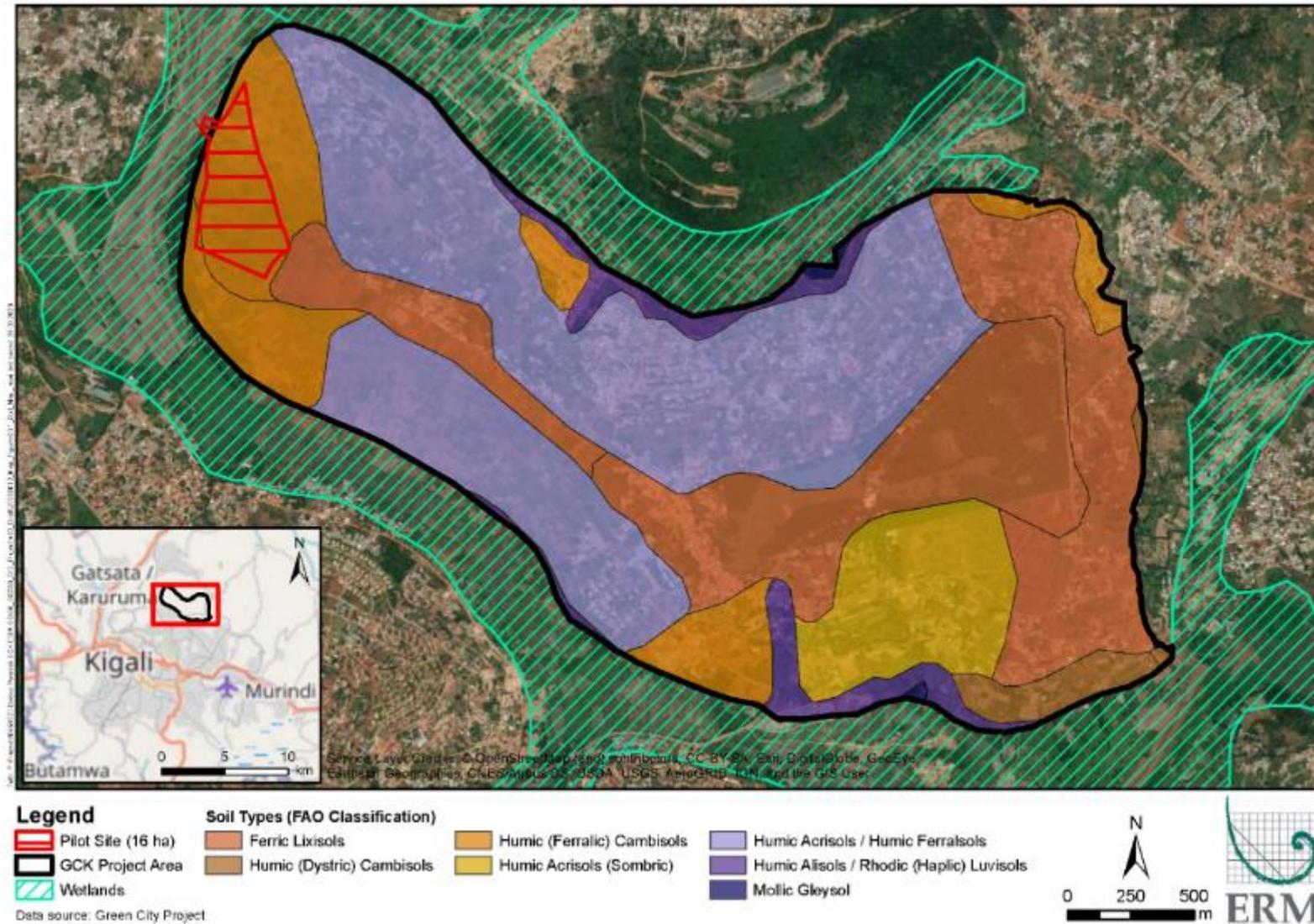


Figure 8.6 Soil Types and Classification

8.1.3 Landscape and Visuals

The natural setting of Kigali City is characterized by steep forested hills and farmlands on the northern and western hilly regions. Steep slopes greater than 20% occupy 35% of City's land area. Rivers and wetlands dominate the landscape and provide easy accessible recreational opportunities. So all together, rivers, streams, wetlands, forests and steep slopes combined with the existing agricultural areas constitute to 83% of the City's land area. Apart from the numerous environmental benefits, natural landscapes provide scenic views, educational and lot of active and passive recreation opportunities for it residents.

Kinyinya Hill and the surroundings are characterized by a mixture of hilly terrain with an average altitude of 1,504 m and sloping basins and valleys as shown in **Figure 8.9**. In terms of land use, data from RPHC 2012⁵⁹ for the whole Kinyinya sector suggested that around 91.90% of current use of the area can be described as peri-urban with fragmented urban and rural features. There are residential areas, paved and unpaved roads, public utilities, agricultural and village community areas with social housing. The majority of the settlements are concentrated in the surroundings of the hill with considerable distance from the main tarmac road that connects different areas of the hill and surrounding sectors.

The southern part of the proposed Project Area is dominated by wetlands that regulate the flow and flooding of Kinyinya Hill. The wetlands are connected to the Nyabarongo River (**Figure 8.7**). Kigali City has more than 30 wetlands comprising a total area of approximately 7,700 ha. Vegetation occupies 66.9% of the Kinyinya Hill and the built areas cover around 11.3%.



Source: Surbana, "City of Kigali Masterplan Report", 2013

Figure 8.7 Nyabarongo River valley and Wetlands

The following **Figure 8.8** includes the Project Area from a point where general land cover of the Project Area can be seen. The Project Area is present with a variety of crops as well as a few scattered trees (for more info see **Chapter 8.2.1**); these may likely have to be removed/compensated to make way for the construction of the Project and its sub-components.

59 National Institute of Statistics of Rwanda (2012) Fourth Population and Housing Census: Provisional results, Rwanda. Available at: <https://microdata.statistics.gov.rw/index.php/catalog/65>



Source: ERM, 2020

Figure 8.8 General land cover within and around the Project Area

Summary:

The Project Area and the surroundings are characterized by hills and wetlands. The current use of the area can be described as peri-urban with fragmented urban and rural features.

Baseline recommendation for future sub-component ESIA:

Temporary changes to the landscape, including the introduction of above-ground installations, may alter the views to, from or beyond the site. The Project Area is located in a peri-urban location, depending on the sub-component activities and exact location, a detailed baseline description on landscape and visuals can be added, if deemed necessary.

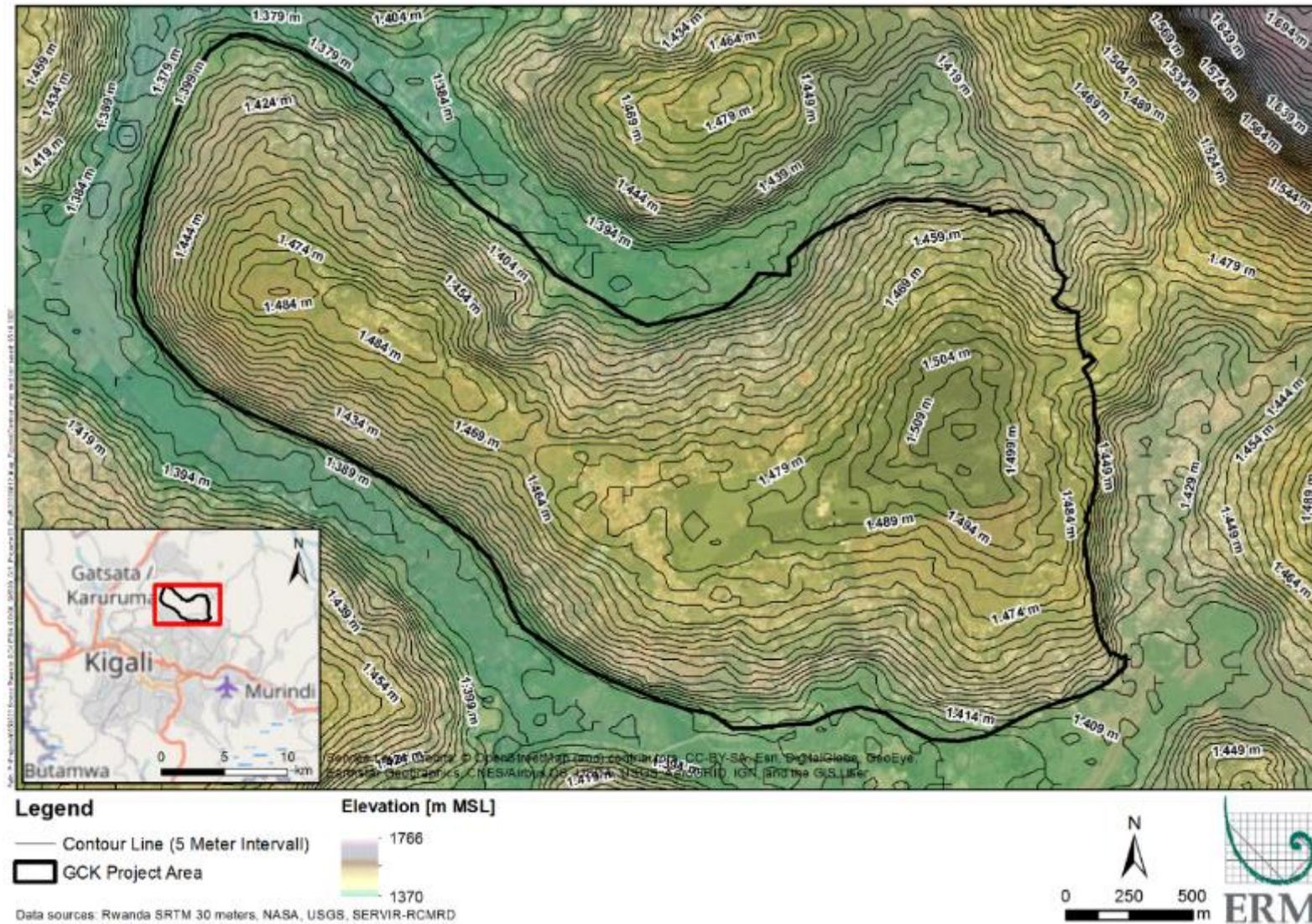


Figure 8.9 Topography of the Project Area

8.1.4 Hydrology

Kigali City underlying hydrology is governed by 25 watersheds within the city limits and is part of the Lake Victoria basin. In central and northern Kigali, the topography is relatively steep and drained by the Nyabugogo River, which is the main watercourse in the northwest quadrant. The Nyabugogo is fed by various smaller streams in the city (such as the Yanze, Kibumba, Rwazangoro and Ruganwa), and its drainage area covers most of the territory of Kigali City. There are some streams that flow directly into the Nyabarongo River from the city's southern hills. The Nyabarongo River is the main watercourse that borders the western and southern edges of the city limits⁶⁰. Wetlands are another of Kigali's key hydrological features, located mainly in the river valleys of the rivers described above; they presently cover about 12.5% of the city's total area. The wetlands are lying between Kinyinya and Kagugu sectors and regulating the flooding from its surroundings. They have important environmental functions, such as storing and releasing water and buffering the impacts of floods.

The Kinyinya sector has an excess of 30 wetlands and small rivers traversing through the valleys. The main unique long river of about 50 km long and 1,000 m wide, is the one that originates from Lake Muhazi and traverses through marshy and boggy valleys before emptying into the Nyabugogo River and thereafter connecting to the Nyabarongo River. Also, Lake Muhazi in the north and part of the east borders of Gasabo district.

Narrowing down to the Project Area and the surroundings there are limited river or streams within Kinyinya Hill and close to the Project except the wetlands that surround it, regulating the flow and flooding of Kinyinya area. The wetlands are connected to the Nyabarongo River and regularly contribute to the river overflow during rainy seasons. Rainy seasons last from September to early January; and from about March to May, the latter known to create flood events in the area. The average annual rainfall is about 949 mm. The following **Figure 8.10** shows the Project Area, as well as the wetlands area and different types of drainage areas regarding speed of flow.

Summary:

There are no waterways within the Project Area, however, it is surrounded by the Nyabugogo River and 25 watersheds within the city limits of Kigali. Another key hydrological feature is the presence of more than 30 Wetlands in the Kinyinya sector, located mainly in the river valleys. The wetlands are lying between Kinyinya and Kagugu sectors and regulating the flooding from its surroundings. They have important environmental functions, such as storing and releasing water and buffering the impacts of floods. The wetlands are connected to the Nyabarongo River and regularly contribute to the river overflow during rainy season (March to May).

Baseline recommendation for future sub-component ESIA:

Due to the proximity of the Project and its various construction sites to the Nyabarongo River and the wetlands, as well as climate conditions including rainy seasons, detailed baseline descriptions on surface water and groundwater are recommended for further sub-component ESIA's.

60 REMA (2013) CHAPTER 7: WATER AND WETLANDS RESOURCES, available at: <https://www.rema.gov.rw/soe/chap7.pdf>.

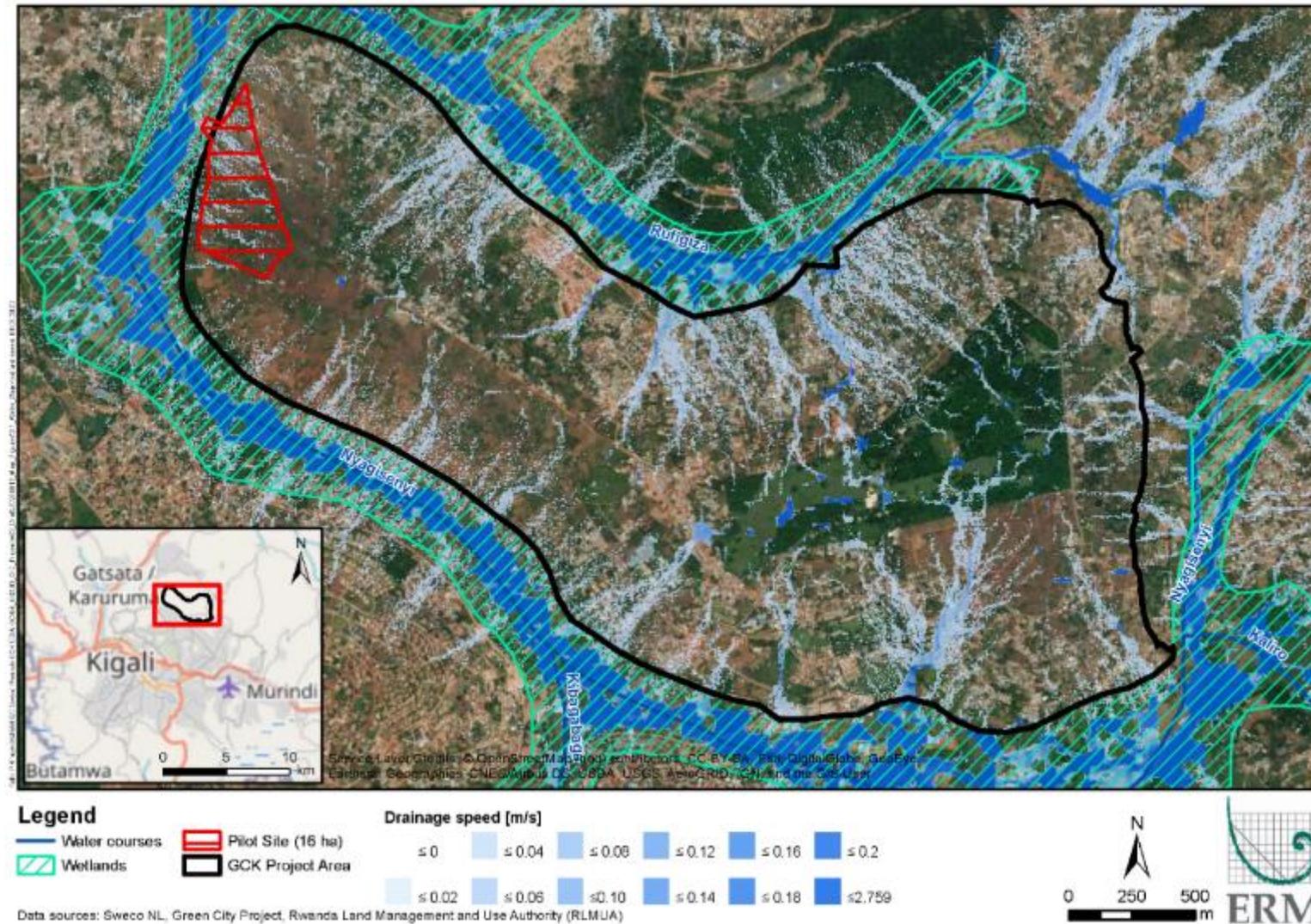


Figure 8.10 Existing Hydrology and Drainage Regime

8.1.5 Air Quality

According to results from available studies⁶¹ and the pESIA, inhabitants of Kigali are exposed to high levels of airborne particulate matter with a diameter of 10 microns or less (PM₁₀). PM₁₀ levels are increasing in areas with high rates of traffic due to the exhaust of vehicles and the lift off of dust from the ground generated by tyres, but also due to burning biomass (e.g. for cooking etc.) within the residential districts. Generally, concentrations are above those recommended by WHO. Particularly, the PM₁₀ concentration in the air suggests that air pollution creates a great risk to the inhabitants' health. The meteorological conditions in Kigali further contribute to this health risk due to limited air exchange and because of an increasing effect of urban heat island. This results in a lower dispersion of the polluted air, hence causing accumulation of the airborne pollutions within the small valleys and the residential areas respectively. The increasing rate of urbanization of Kigali is contributing to air pollution.

Beside emissions from the traffic and cooking, emissions of concern in Kinyinya Hill are associated with the operation of a concrete batching plant in residential areas. Concrete batching and product manufacturing generate emissions of PM₁₀.

Summary:

Inhabitants of Kigali are exposed to emissions from high rates of traffic, cooking as well as the operation of a concrete batching plant in residential areas (the latter especially Kinyinya hill residents). Available studies state that residents are exposed to high levels of PM₁₀, which are above those recommended by WHO. Such exposure potentially causing health risks for inhabitants. The meteorological conditions in Kigali further contribute to health risk due to limited air exchange and because of an increasing effect of urban heat island.

Baseline recommendation for future sub-component ESIA:

As the Project Area and consequently sub-components, located in urban area with dry weather conditions dust monitoring is recommended. Further, due to high PM₁₀ levels, a baseline air quality monitoring should be undertaken at several monitoring points. Monitoring can be undertaken (but not limited to) for e.g. PM₁₀, PM_{2.5} and total suspended particulates (TSP). For sub-components such as housing, business or public buildings it is recommended to consider high air pollution level during design phase (e.g. consider sustainable and effective air conditions systems build-in).

8.1.6 Noise

According to the pESIA, noise levels were measured at different points on the hill with sound meters during the night and during the day. Background data show that the noise levels are within the limit values (55 dBA day-time and 45 dBA night-time) except around the bus station, around the batching plant and along the main tarmac road where the recorded noise level varies between 52 and 69 dBA.

The noise levels along the road that exceed the limit value are caused by engines of vehicles and motorcycles. Notably that noise emitted by motorcycles are higher than those emitted by most of the cars.

Summary:

Data show that the noise levels are within the limit values for residential areas (55 dBA day-time and 45 dBA night-time) except around the bus station, around the batching plant and along the main tarmac road where the recorded noise level varies between 52 and 69 dBA. The noise levels along the road emitted by motorcycles are higher than those emitted by most of the cars.

⁶¹ Compendium of environment Statistics of Rwanda, 2018; REMA, 2018

**Baseline recommendation for future sub-component ESIA:**

As high noise levels are mostly caused by engines and present in crowded traffic areas (e.g. public transport stop stations, roads with several lanes), it is recommended to consider noise pollution during all development phases of sub-components. This is to be supported by adequate noise baseline information based on pre-construction noise levels measurements at relevant locations.

8.1.7 Waste

Solid waste

Gasabo district and Kinyinya sector are facing significant challenges in relation to solid waste management. Waste generation is increasing, while a sizeable portion of it is disposed on improperly located and inadequately operated dumpsites, resulting in adverse impacts on environment and health. Solid wastes composition in Kinyinya sector consists of up to 68% of food residues, 9% of paper, 2% of metal, and 1% of textiles.⁶²

Waste collection services are provided by private operators based on door-to-door collection; each household pays waste collection fees monthly. The companies' workers collect waste from each household with companies' trucks, which transport the waste to Nduba dumpsite, located around 15 km north of Kinyinya Hill.

Nduba dumpsite is causing severe E&S problems. The leachate of unsanitary dumpsites bears a potential high risk of soil and groundwater contamination. Lack of proper management causes overflows and harm to surface waters. There are no waste treatment facilities like community composts at Kinyinya Hill, nor small-scale recyclers or scrap collectors. However, plans to improve Nduba dumpsite to a modern landfill to treat solid waste already exist.⁶³

Waste collection is not done regularly. The irregular service is mostly justified by limited capacities of collection companies and poor management system. The company in Kinyinya (Isuku Kinyinya Company Ltd) owns one or two collection trucks to provide services both to household and business entities. The business entities are considered the main customers of the service with higher priority. In Kinyinya sector, generally households are daily charged with FRw 2,000 (USD 2.10) for low and middle-income households and FRw 5,000 (USD 5.25) for high-income households. The business entities are charged based on the volume of waste daily produced.

A survey⁶⁴ assessing the waste disposal habits of 99 households in Kinyinya, found out that only 13% of the households separate biodegradable and non-biodegradable solid waste. Many households deposited their waste around the house or pile the waste in an improper area, which present threats to inhabitant's health and spread of vermin as well as flies to the surrounding population. As a result, 58.6% of households reported that members of their families had contracted with waste-borne diseases, including skin infection and diarrhoea.

Domestic Wastewater

There is no central sewage system for Kigali City nor for Kinyinya Hill or for the surroundings. Most of the houses in Kinyinya use septic tanks or pit latrines. These act as anaerobic systems that develop in the tanks and which decompose or mineralize the waste discharged into the tanks. The collected sewage water is discharged to 20 m to 10 m in depth soak pits, with suitability of the natural ground to receive and dispose of the water without causing damage or pollution to the nearby surface water.

62 Victoire, A. et al. (2020). Solid Waste Management Challenges and Its Impacts on People's Livelihood, Case of Kinyinya in Kigali City. Journal of Geoscience and Environment Protection, 8, 82-96. <https://doi.org/10.4236/gep.2020.86007>

63 WASAC, available at: https://www.wasac.rw/fileadmin/user_upload/Nduba_sanitation.pdf

64 Victoire, A. et al. (2020). Solid Waste Management Challenges and Its Impacts on People's Livelihood, Case of Kinyinya in Kigali City. Journal of Geoscience and Environment Protection, 8, 82-96. <https://doi.org/10.4236/gep.2020.86007>

Information collected from the Project Area confirmed people in the area also are using water from the wetlands for domestic purposes as cleaning and laundry.



Summary:

Gasabo district and Kinyinya sector are facing significant challenges in relation to waste management. Waste generation is increasing and waste collection is not done regularly due to limited capacities of collection companies and poor management system. This results in overflows and harm to surface waters as there are no waste treatment facilities. Many households deposited their waste around the house or pile the waste in an improper area, which present threats to inhabitant's health and spread of vermin as well as flies to the surroundings.

Domestic wastewater management also poor, as there is no central sewage system for Kigali City nor for Kinyinya Hill or for the surroundings. Consequently, most households rely on septic tanks or pit latrines, improper management of which cause health risks for residents as well as high chances for surface or underground water contamination.



Baseline recommendation for future sub-component ESIA:

Up-to date information on waste management in the Project Area is required in future sub-component ESIA's. Key aspects to be included in the baseline should include identification of available waste disposal services and facilities including information on their conformance with the applicable standards and their environmental safeguards status.

8.2 Biological Environment

The location is naturally defined by the topography and its surrounding wetlands which are included in the boundaries of the 600 ha Project site.

8.2.1 Flora and Fauna

Flora

Gasabo district has the largest forest cover compared to the other districts in Kigali City and is well linked to a large rural zone area. However, the natural flora of Gasabo district and Kinyinya Sector has been depleted and replaced with non-native species (mainly eucalyptus trees). The eucalyptus trees were planted in the context of mitigating climate change impacts. Planting trees is a government strategy and initiative to cope with greenhouse gas effects and are implemented by the populations in the area. As a consequence, trees influence the local climate and air quality. The trees provide shade, and a small forest that can be seen in the north and western parts of the area influences rainfall. The forest and vegetation cover prevent soil erosion and maintains fertility through natural biological services such as nitrogen fixation.

The small area of remaining natural vegetation is found in the wetlands and in uncultivated smaller areas. The natural vegetation type occupying the low plains includes papyrus *Typha latifolia* (umuberanya), *Cyperus latifolialis* (urukangaga) while those in stagnant water or slow-flowing waters of Lake Muhazi are *Phragmites spec* (imiseke) and *Nymphaea maculate* (amarebe), which is not present in the Project Area. *Muhlenbergia capillaris* is the dominating species. Tree species include avocado, lemon, mango, and agave (*Agave braceosa*).

The vegetation on the 600 ha Project Area includes subsistence crops such as sorghum, banana, maize, beans, cassava, etc. these are being farmed on small, family-sized plots by local residents (Figure 8.11).

Fauna

The fauna of the district is characterized by a large diversity of bird species and small wild animals compatible with the existing vegetation cover in the sector. A biodiversity survey in the Project Area has revealed that, except for the Deutsche Welle site no other areas can be characterised as habitat for wild/protected species. The Deutsche Welle site, a 70 ha biodiverse and forested area with no public access, comprises a large number of mature trees and is home to more than 50 species of birds and other small wild animals rarely seen in proximity to the capital.

No fauna species can be seen on the Project Area except for farm animals such as goats, sheep and migratory birds that are non-protected and move from wetlands to different areas of dry land. The birds include Red-billed Firefinch (*Lagonosticta senegala*), Yellow-billed Kite (*Milvus aegyptius*), Pied Crow (*Corvus albus*), Tawny-flanked Prinia (*Prinia subflava*), Brimstone Canary (*Crithagra sulphurata*), Dark-capped Bulbul (*Pycnonotus tricolor*), etc. The wetlands surrounding Kinyinya Hill are not part of the Project Area but may be habitat of protected species and provide important ecological functions.

According to the pESIA, there was no evidence of wildlife observed within and around the Project Area during field visits.

Summary:

Gasabo district has the largest forest cover compared to the other districts in Kigali City. However, the natural flora has been depleted and replaced with non-native species (mainly eucalyptus trees). Natural vegetation is represented mainly by small plants to be found in the wetlands and in small uncultivated areas.

The fauna of the district is characterised by a large diversity of bird species and small wild animals compatible with the existing vegetation cover in the sector. The wetlands, which are surrounding the Project Area, have great potential to be a place of habitat for protected species. Besides, in the Project Area could be noticed only some goats, sheep and migratory birds that are non-protected.

Baseline recommendation for future sub-component ESIA:

It is recommended that a comprehensive desktop biological baseline of the Projects Area of Influence be prepared, considering major fauna groups such as mammals (terrestrial and flying); birds, herpetofauna (amphibians/reptiles), invertebrates and fish. International as well as available local datasets may be employed (e.g. IFC Integrated Biodiversity Assessment Tool – IBAT, IUCN Red List, Birdlife, etc.) Desktop baseline should provide prospective presence in the area based on their distribution and information on their Global/local conservations status (e.g. IUCN/Rwandan). Based on its outcomes it would inform a specific field survey (which may span from basic walkover surveys to more specific sampling surveys if warranted). Field survey data may allow to indicate relative abundance (specific to season of survey) within the Project Area and it's Area of Influence; which may cover both direct Project footprint and extend towards sensitive areas such as identified wetlands.

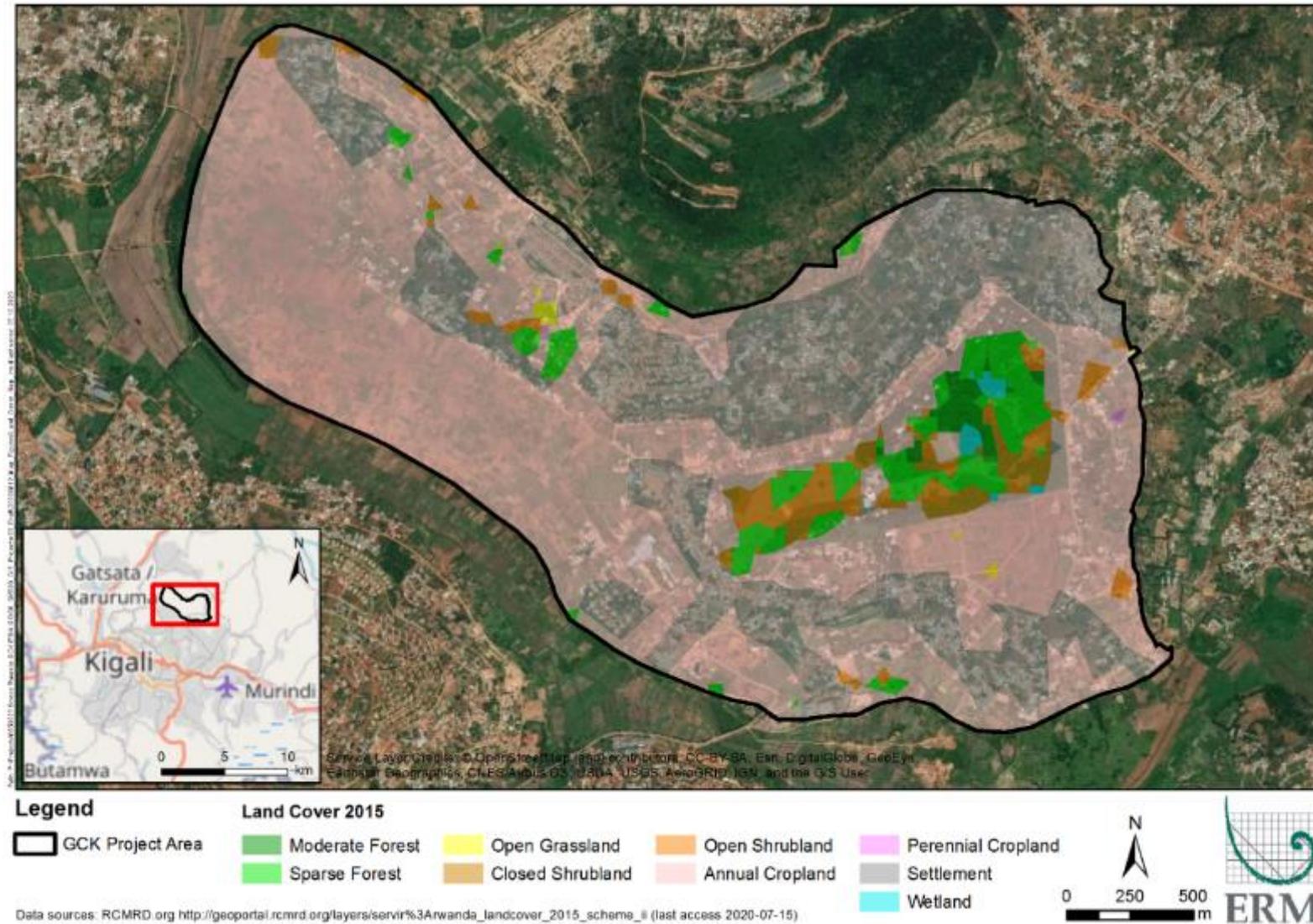


Figure 8.11 Land Cover and Habitat Types

8.2.2 Invasive Species

The term "invasive species" applies to introduced species (also called "non-indigenous" or "non-native") that adversely affect the habitats and bioregions they invade economically, environmentally, or ecologically.

The following invasive species have been found in wetlands and urban areas of Rwanda: *Eichhornia crassipes* (aquatic plant), *Imperata cylindrical* (grass), *Lantana camara* (shrub), and *Leucaena leucocephala* (tree).⁶⁵

In the pESIA no indication of invasive species in the Project Area was described (though Eucalyptus trees and *L. camara* shrubs are known to exist in the area). A quick survey on invasive species was conducted during the site visit to the Project Area for the purpose of the **High-Level ESIA**. No invasive species in the area were recorded. 

Summary:

No invasive species except Eucalyptus trees were recorded during the site visit or otherwise identified in the existing documentation.

Baseline recommendation for future sub-component ESIA:



During baseline field survey, specific attention should be paid towards prospective presence of invasive species, if possible being able to map location where these concentrate. It is important to verify which species have settled and that no new species are introduced derived from the Project construction activities (e.g. material transport from other areas). Project landscaping work may replace such species (where possible) with local species.

8.2.3 Protected Areas

According to the pESIA the wetlands in the southern part of the Project Area were marked as a sensitive ecosystem. The wetlands regulate the flow and flooding of the valleys around Kinyinya. The wetlands are connected to the Nyabarongo River.

The Nyabarongo River and wetlands have been identified as an Important Bird and Biodiversity Area and Key Biodiversity Area⁶⁶. Besides the Nyabarongo River and wetlands there are also the following protected areas within a radius of 50 km around the Project Area: Forêt de Murehe, Lacs du Nord, Rugezi Marsh and Rugezi-Bulera-Ruhondo a Ramsar (wetland of international importance) site north-east of the Project Area⁶⁷.

Summary:



There are wetlands in the proximity of the Project Area considered sensitive habitats and providing ecosystem services. The Nyabarongo River and wetlands have been identified as Important Bird and Biodiversity Area and Key Biodiversity Area. Main associated features to these sites are fish and bird species.

⁶⁵ Global Invasive Species Database. Retrieved from on 22.02.2021, available at:

<http://issg.org/database/species/search.asp?sts=sss&st=sss&fr=1&x=25&y=5&sn=&rn=Rwanda&hci=11&ei=-1&lang=EN>

⁶⁶ IBAT PS6 & ESS6 Report. Generated under licence 1605-11418 from the Integrated Biodiversity Assessment Tool on 24 September 2020 (GMT). www.ibat-alliance.org

⁶⁷ IBAT PS6 & ESS6 Report. Generated under licence 1605-11418 from the Integrated Biodiversity Assessment Tool on 24 September 2020 (GMT). www.ibat-alliance.org



Baseline recommendation for future sub-component ESIA:

Similar to flora/fauna desktop baseline preparation, a similar approach be followed in order to appropriately describe these sensitive areas and what biodiversity features of importance they support. Though these areas are considerably far from what could be considered direct project footprint; Project construction/operation could affect these through erosional processes, waste and storm water management. It is advised that should prospective impact pathways be identified (e.g. discharge locations, watershed ramifications, etc.) that areas potentially affected be also visited by the baseline field survey.

8.2.4 Critical Habitats

Critical habitats are areas with high biodiversity value, including (i) habitat of significant importance to Critically Endangered and/or Endangered species; (ii) habitat of significant importance to endemic and/or restricted-range species; (iii) habitat supporting globally significant concentrations of migratory species and/or congregatory species; (iv) highly threatened and/or unique ecosystems; and/or (v) areas associated with key evolutionary processes.

Within a radius of 50 km of the Project Area, currently 35 species on the IUCN red list have been identified. The following **Table 8.4** lists the IUCN Red List of Critically Endangered (CR) and Endangered (EN) species within 50 km of the Project Area. Areas used by these species is likely to be classified as critical habitat. Based on desktop review, there is no indication of presence of critical habitat in the Project Area itself⁶⁸.

Table 8.4 IUCN Red List of Critically Endangered and Endangered Species within 50 km of the Project Area⁶⁹

Species Name	Common Name	Population Trend
<i>Critically Endangered</i>		
<i>Ceratotherium simum ssp. cottoni</i>	Northern White Rhino	Decreasing
<i>Diceros bicornis</i>	Black Rhino	Increasing
<i>Diceros bicornis ssp. michaeli</i>	Eastern Black Rhino	Increasing
<i>Diceros bicornis ssp. minor</i>	South-eastern Black Rhino	Stable
<i>Labeo victorianus</i>	Ningu	Decreasing
<i>Labeobarbus ruasae</i>	-	Unknown
<i>Varicorhinus platystoma</i>	-	Unknown
<i>Gabbiella parva</i>	-	Unknown
<i>Xyris exigua</i>	-	Decreasing
<i>Rotala robynsiana</i>	-	Unknown
<i>Necrosyrtes monachus</i>	Hooded Vulture	Decreasing
<i>Gyps africanus</i>	White-backed Vulture	Decreasing
<i>Gyps rueppelli</i>	Rüppell's Vulture	Decreasing
<i>Trigonoceps occipitalis</i>	White-headed Vulture	Decreasing
<i>Capparis lucens</i>	-	Decreasing

68 IBAT PS6 & ESS6 Report. Generated under licence 1605-11418 from the Integrated Biodiversity Assessment Tool on 24 September 2020 (GMT). www.ibat-alliance.org

69 IBAT PS6 & ESS6 Report. Generated under licence 1605-11418 from the Integrated Biodiversity Assessment Tool on 24 September 2020 (GMT). www.ibat-alliance.org

Species Name	Common Name	Population Trend
<i>Stemodiopsis ruandensis</i>	-	Unknown
<i>Rhamnus mildbraedii</i>	-	Unknown
<i>Endangered</i>		
<i>Smutsia gigantea</i>	Giant Ground Pangolin	Decreasing
<i>Phataginus tricuspis</i>	White-bellied Pangolin	Decreasing
<i>Potamonautes mutandensis</i>	Lake Mutanda Crab	Unknown
<i>Haplochromis erythromaculatus</i>	-	Decreasing
<i>Genlisea angolensis</i>	-	Unknown
<i>Psilotrichum axilliflorum</i>	-	Unknown
<i>Carpha angustissima</i>	-	Unknown
<i>Balearica regulorum</i>	Grey Crowned Crane	Decreasing
<i>Neophron percnopterus</i>	Egyptian Vulture	Decreasing
<i>Torgos tracheliotos</i>	Lappet-faced Vulture	Decreasing
<i>Aquila nipalensis</i>	Steppe Eagle	Decreasing
<i>Ardeola idae</i>	Madagascar Pond-heron	Decreasing
<i>Bradypterus graueri</i>	Grauer's Swampwarbler	Decreasing
<i>Cryptospiza shelleyi</i>	Shelley's Crimsonwing	Decreasing
<i>Psittacus erithacus</i>	Grey Parrot	Decreasing
<i>Helichrysum ruandense</i>	-	Unknown

Summary:

The Project Area is not located within a critical habitat. The majority of vegetation is associated with agricultural land (scrub) and eucalyptus trees which are non-native. Nonetheless, the basic screening provided has identified a number of species of conservation concern and thus require that a formal Critical Habitat Assessment be undertaken to verify that the area of analysis does not constitute Critical Habitat.

Baseline recommendation for future sub-component ESIA:

A formal Critical Habitat Assessment should be undertaken considering both desktop and survey data. The initial desktop screening may be able to identify species for which it is appropriate to carry out specific observations/sampling in order to verify their presence/absence and local distribution. Assessment should also focus at “habitat” level taking into consideration of wetland areas (whether protected or not) considering their importance to biodiversity. The Critical Habitat Assessment should follow the methodologies and thresholds for the different Critical habitat criteria set in ESS6 and its respective guidance note.

8.2.5 Ecosystem Services

Ecosystem services are the benefits that people, including businesses, derive from ecosystems. Ecosystem services are organized into four types: (i) provisioning services, which are the products people obtain from ecosystems; (ii) regulating services, which are the benefits people obtain from the regulation of ecosystem processes; (iii) cultural services, which are the nonmaterial benefits people

obtain from ecosystems; and (iv) supporting services, which are the natural processes that maintain the other services.

Rwanda is committed to follow sustainable economic development pathways that maintain their natural capital to secure ecosystem services that are critical for livelihoods and economic development. This imbedded in the new national environment and climate change policy 2019⁷⁰.

Over the past two decades, the Government of Rwanda has enacted policies and legislation governing land use, to ensure sound land use and environmental protection for sustainable development. The Government of Rwanda has been working with national and international partners to implement forestry and soil conservation programmes that contribute towards meeting the National Strategy for Transformation (NST1) and Vision 2050 goals.

As indicated earlier, planting trees to cope with drought, improve the rainfall and maintain the quality of air and soil is a government plan and strategy implemented by decentralized entities. It goes from the government to the provinces and so Kigali City, districts, sectors, cells and villages with participation of Non-Government-Organisations, public and private institutions depending on the mandate and activities.

Regarding the ecosystem services used by the population in the Project Area and close proximity, Mbonwa wetlands is used for brickmaking. In addition, small scale farming activities are implemented in various areas (mostly the south-western part). The use of ecosystem services should be assessed in more detail in the ESIA's for the Project's sub-components.

Summary:

Ecosystem services in the Project Area have influence from national and local level. On the national level Rwanda pledged to pursue sustainable economic development, therefore local government planting trees to cope with drought, improve the rainfall and maintain the quality of air and soil. Among existing ecosystem services from which benefiting local residents in the Project Area are small scale farming activities and brickmaking in wetlands areas.

Baseline recommendation for future sub-component ESIA:

Depending on the sub-component nature and activities the use of ecosystem services should be assessed in more detail in the ESIA's for the Project's sub-components. Wetland areas should benefit of particular attention as part of the baseline as they may provide valuable ecosystem services. The baseline will therefore aim at supporting inclusion of any required wetland restoration and protection into the Project (e.g. wetland profile re-shaping, riparian areas restoration, natural habitats increase, flow and erosion control structures, flood reduction features etc.) to enhance associated ecosystem services.

8.3 Social Environment

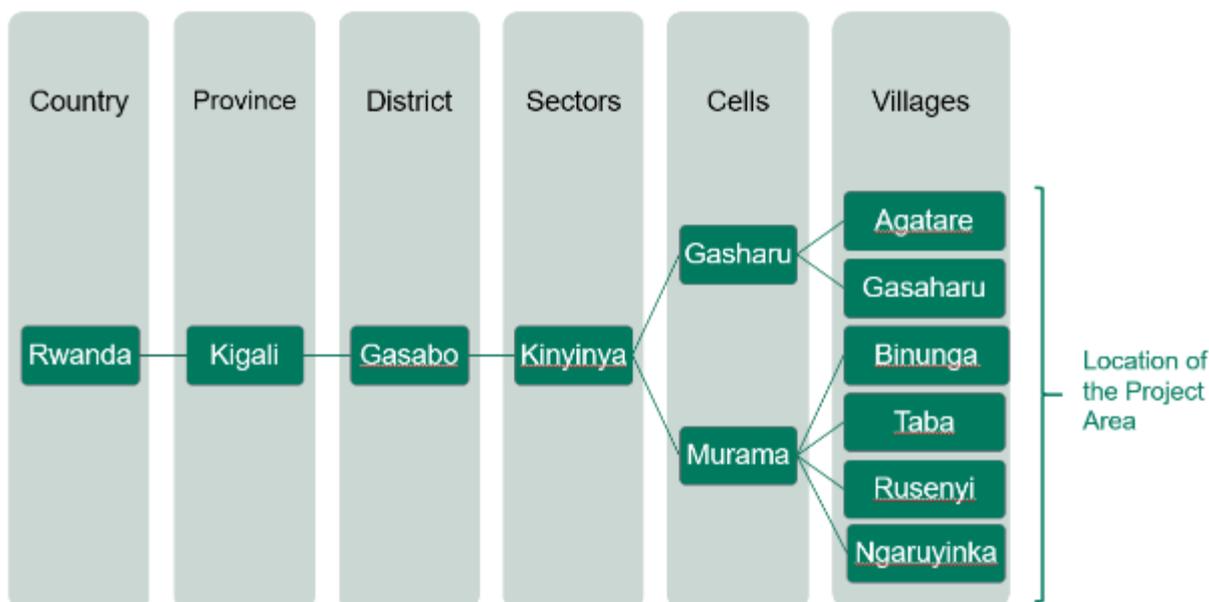
8.3.1 Administrative Division

This section outlines the overall administrative division relevant for the Project. Administratively, a district has four levels as defined by the National's Decentralization Policy. The top-bottom structures are: District (Akarere) level, Sector (Umurenge), Cell (Akagali) and Village level (Umudugudu). Currently, the Gasabo district has 15 Sectors, 73 Cells and 501 Villages.

Figure 8.12 below illustrates the administrative division relevant for the Project. The Project is located in Gasabo district, Kinyinya sector, specifically covering two cells of Gasharu and Murama within the sector and the villages of Agatare, Ngaruyinka, Rusenyi, Gasharu, Taba and Binunga in the two cells.

⁷⁰ Ministry of Environment, Rwanda (2019), available at:

<http://www.fonerwa.org/sites/default/files/Rwanda%20National%20Environment%20and%20Climate%20Change%20Policy%202019.pdf>



Source: ERM, 2020

Figure 8.12 Overview of administrative division of the Project Area location

8.3.2 Population

According to the preliminary results of the 4th Population and Housing Census (RPHC, 2012)⁷¹ the Kinyinya sector had in 2012 a population of 57,185 inhabitants representing 10.77% of the total population for Gasabo district (530,907 people) and 5.04% of the total population of Kigali City (1,135,428). Kimironko and Kinyinya are the sectors with the highest population inside the Gasabo district, constituting 5.22% and 5.04% of the total Kigali population respectively. The population of Kinyinya Hill are distributed into the two cells Gasharu (36.36%) and Murama (63.64%). The majority live in Agatare (24.19%) and Ngaruyinka village (22.40%). The following Figure 8.13 shows the distribution of the population in the six villages. However, there are no more recent population data for the Kinyinya sector and its villages, but the Integrated Household Living Conditions Survey 5 (EICV5)⁷² from 2016/2017 provides more recent data for the whole Gasabo district. In comparison to the 2013/14 identified 645,251 residents, in 2016/2017 the number of residents increased to 898,764 people. The total number of residents living in Kinyinya Hill is estimated⁷³ to be around 37,200 people.

The RPHC 2012 data shows that in Kinyinya sector average annual population growth rate during 2002-2012 period was 9.8% what brings to 155.7% of the total population change during that period. It is much higher than the numbers for the whole Gasabo district, which has only 65.8% of total and 5.2% of average annual population growth during mentioned 10 years.

The EICV5 states that the average household size is currently 4.4 persons. As per the RPHC, 2012 (Provisional Results Report)⁷⁴, the gender of the population of Kinyinya is relatively evenly distributed with 53% male (29,740) and 47% female (27,445). The households of Kinyinya are with 83.6%

71 National Institute of Statistics of Rwanda (2012) Fourth Population and Housing Census: Provisional results, Rwanda. Available at: <https://microdata.statistics.gov.rw/index.php/catalog/65>

72 Integrated Household Living Conditions Survey 5 (EICV5), Thematic Report Youth, Rwanda, 2016/17. Available at: <https://www.statistics.gov.rw/publication/eicv5thematic-reportyouth>

73 According to calculations in the SWECO (2020) Final Feasibility Study.

74 National Institute of Statistics of Rwanda (2012) Fourth Population and Housing Census: Provisional results, Rwanda. Available at: <https://microdata.statistics.gov.rw/index.php/catalog/65>

predominantly male headed, while 17.4% are female headed households. The sector is heavily urbanised with 91.9% of the population living in urban areas.

Most recent data from EICV5 suggests that in Gasabo district 73.7% of the households are male headed. It also states that 63.2% of district population are above 30 years old and 23.9% are below 26 years old.

Summary:

The Project Area is in the Kinyinya sector within the district of Gasabo. Six villages lie within the Project Area. There is no recent population data for the Project Area. Available data is limited to the district level only. Estimated calculation suggests that total number of residents living in Kinyinya Hill is 37,200 people. Satellite data from 2015 approximate that most populated villages in the Project Area are Agatare (24.19%) and Ngaruyinka village (22.40%). On a district level, data from 2017 indicates that 73.7% of the households are male headed and 63.2% of district population are above 30 years old.

Baseline recommendation for future sub-component ESIA:

Up-to date population data of all villages on Kinyinya Hill and bordering areas need to be obtained. This includes information on population numbers, gender and age distribution, population growth, household composition and size, ethnicity and religion, migration/influx and population change trends.

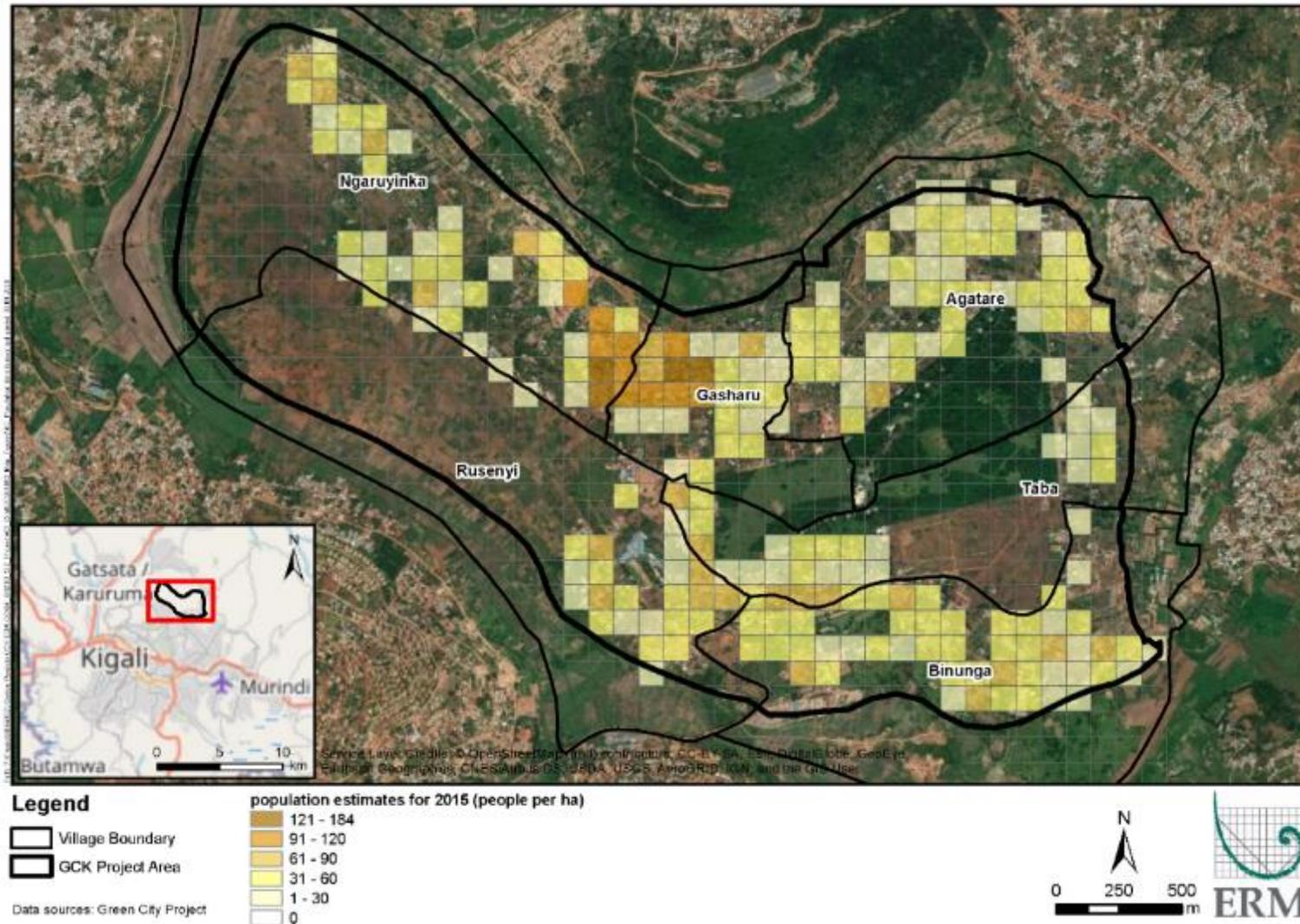


Figure 8.13 Population Estimate and Density (2015 Data)

8.3.3 Socio-Economic Characteristics

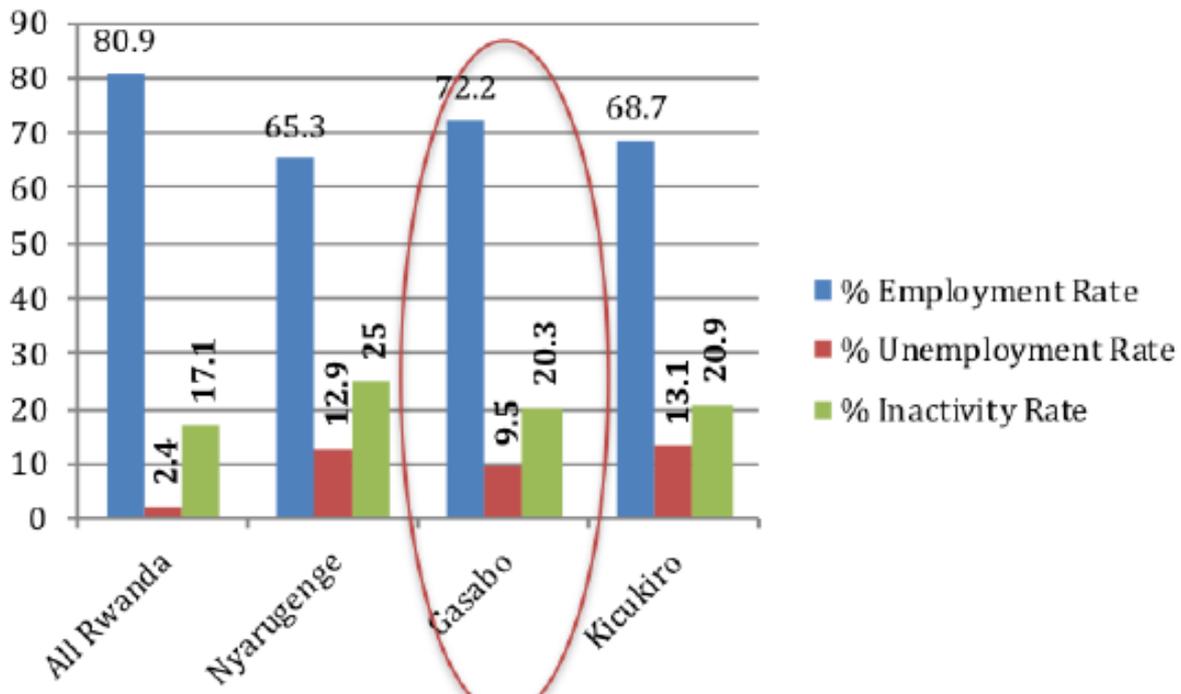
The EICV3⁷⁵ survey results indicated that the district's labour force (working population of above 16 years) is 280,000 people constituting 4.8% of the country's labour (5,888,000 people). While, the active labour force in the district totals 223,000 representing 79.6 % of the total labour force of 280,000. Similarly, the results showed the district has the highest labour force compared to the two districts in Kigali City: Nyarugenge (173,000) and Kicukiro (186,000).

Further assessment of the district's active population, from EICV3 data, indicates that approximately 115,000 are employed in the public and private sector representing 51.6 % and the majority is employed in private informal followed by private formal, public and parastatals as detailed in the **Table 8.5** below.

Table 8.5 Main sources of Employment for the Districts and the National Average⁷⁶

	<i>Public</i>	<i>Parastatals</i>	<i>Private, formal</i>	<i>Private, informal</i>	<i>Others</i>
<i>National</i>	9.1	3.4	16.2	69.5	1.7
<i>Nyarugenge</i>	11.5	4.9	35.3	45.5	2.8
<i>Gasabo</i>	10.6	3.1	25.8	57.4	3.2
<i>Kicukiro</i>	8.6	6.4	27.9	53.5	3.6

In terms of the employment rate, a key indicator for enhancing economic growth and poverty reduction, the Gasabo district is well positioned, as evidenced in the following **Figure 8.14** below.



Source: NISR (EICV3 dataset), 2012

Figure 8.14 Employment Status for the Different Districts in Kigali City

75 Integrated Household Living Conditions Survey 3 (EICV3), Rwanda, 2010/11. Available at: <https://www.statistics.gov.rw/publication/eicv-3-gasabo-district-profile-4>

76 EICV3 Survey, 2012

The population of Kinyinya belongs to the medium and low-income class. Further assessment of the district's active population indicates that half of the population depends on farm wages⁷⁷.

Important to note is that Gasabo district has a high number of labour force (16+ years) migrating for work compared to the other districts in Kigali City Province, both in terms of arrivals and departures. Gasabo registers approximately 41,000 arrivals and 30,000 departures compared to 37,000 and 28,000 arrivals realized in Kicukiro and Nyarugenge respectively (EICV3, 2012). The high number of labour force for Gasabo compared to other districts can be explained by the big share of the Kigali populations for Gasabo district. In fact, Gasabo has almost the double of the populations of Nyarugenge and Kicukiro districts.

The district's employment rate is approximately 72% in 2012 (EICV3, 2012). However, the district has the highest poverty rate of 15.8% compared to the sister provincial districts Kicukiro with 11.4% and Nyarugenge with 11.8%. Extreme poverty rates are similar, with 3.5% extreme poverty in Kicukiro, 4.5% in Gasabo, and 4.6% in Nyarugenge⁷⁹. Nevertheless, the Gasabo district's rates are better than the national rates of 39.3% and 16.5% for poverty and extreme poverty rates respectively and the revised target of 20% of extreme poverty by year 2020.

The Agricultural Household survey⁷⁸ states that in the Gasabo district during 2016/17 there were 2,292 listed households from which 615 (26.8%) were identified as a household whose largest source of income is derived from agricultural production (crop production and/or livestock). Furthermore, 34.4% are involved in crop production only, 6.9% only in livestock and 56.5% in both (crop production as well as livestock), the rest 2.2% were involved in both agricultural and non-agricultural activities. The average size of the agricultural household was 4.6.

The vast majority of households (87%) in Kigali live on a monthly income below RWF 500,000 and a large portion of households (30%) in Kigali live on an income below RWF 100,000. Wages and salaries of households in Kinyinya have an average of 227,387 RWF.⁷⁹

The number of workers expected to be working in the different Project sub-components at the same time will depend on the planning of the construction phase and its coordination through the components. While availability of the non-skilled workers should not be seen as issue in Project Area and the immediate surroundings, the skilled workers can be recruited from the district and other districts of Kigali City.

Household vulnerability in Rwanda is often defined not only by pure consumption poverty but also by households' ranking under the system known as *ubudehe*.

The categories of *ubudehe* are classified in A, B, C, D & E (Special Category). The categories mean:

A & B: Category of households with diverse life choices and self-reliant that spur community empowerment and graduation from poverty;

C & D: Category of self-reliant households that benefit from social protection interventions and multi-sectoral interventions and have to sign performance contracts (*Imihigo*) for graduation within a period of 2 years;

Special category E: This category of households is expected to benefit from full state social protection and individuals in this category are not expected to graduate and will not sign performance contracts.

It might be expected that the majority of the populations of the hill will be distributed in category C & D. The Resettlement Policy Framework (**RPF**) recommends to conduct a detail socio-economic-

77 https://gasabo.gov.rw/fileadmin/_migrated/content_uploads/Gasabo_DDP_2013-2018.pdf

78 The National Institute of Statistics of Rwanda (NISR): Agricultural Household Survey 2017. Available at: <https://www.statistics.gov.rw/publication/agricultural-household-survey-2017>

79 The Fifth Integrated Household living conditions survey, EICV5 (2016/17)

survey to assess the impact of land acquisition for the Project and sub-components on households including the distribution of *ubudehe* categories (refer to **RPF** for further details).

Agricultural activities

As per EICV3 in 2012, Gasabo district's agriculture sector is mostly based on cultivation of avocado (42.9%) and French beans (36.1%), as well as on cash crops like sugar cane (5%) and coffee (2.8%) (see **Table 8.6**). On a national level, the majority of households are growing French beans (65.8%), avocado (37.4%), squash (26.2%), sugar cane (10.9%) and coffee (10.8%).

Table 8.6 Percentage of cultivating households producing fruit, vegetables and export crops

	No. of HHs cultivating land for crop production (000s)	% of HHs producing selected fruit and vegetation					% of HHs producing export crops			
		French bean	Avocado	Squash	Pepper	Papaya	Coffee	Tea	Cane sugar	Sunflower
Gasabo	68	36.1	42.9	24.9	26.2	21.1	2.8	0	6	1.4
Rwanda	2,095	65.8	37.4	26.2	19.4	16.8	10.8	0.9	10.9	6.8

Source: EICV3, 2012

Agro-business opportunities

Agriculture offers agro-business opportunities through the commercialization of crop production. These opportunities are measured by the share of harvest sold (including households selling zero crops) which is 19.6% in Gasabo district and below national level (20.9%). The mean share of harvest sold for fruits and vegetables is lower (16.3%) than that of staple crops (20.1%) in Gasabo district.

Livestock production and productivity

The main type of livestock raised by Gasabo district's households are hens, goats and cattle. Gasabo district counted only one milk collection centre (March 2013), but it is not currently operational. Since 45.3% of the district's households own cattle already, the expansion of milk commercialization and investment in milk collection centres could be profitable for the district's economic development⁸⁰.

Tourism industry infrastructure

The tourism sector in the district and Kinyinya Sector can be a source of employment for a large share of the population, given the comparative advantage Gasabo has in education. However, tourism is not yet well developed in the district and Kinyinya. The fact that Kigali City hosts the largest portion of tourists in the country should provide an impetus for developing Kinyinya Sector as a tourist destination.

Hotel and restaurant facilities and businesses

According to the Establishment Census on Formal and Informal sector by economic sector (NIS 2011) Gasabo district counts 1,666 accommodations and food service activities.

Tour operation businesses

The tour operation businesses are concentrated in Kigali City. Eleven tour operation agencies are currently operating in Gasabo district.

⁸⁰ "Gasabo District Development Plan 2013-2018", Gasabo District, City of Kigali, 2012



Summary:

The data used provides an overview of the socio-economic characteristics on a district level. The 2012 survey indicates that Gasabo district’s labour force is accounted for 4.8% (280,000 people) of total country wide labour force. The district’s employment rate is approximately 70% and 50% of active labour force (223,000 people) are employed in the public and private sector. The district has a higher number of labour force migrating for work compared to the other districts in Kigali City Province.

On the district level, Gasabo has the highest poverty rate (15.8%) compared to other districts in the province. The population of Kinyinya belongs to the medium and low-income class, and half of it depends on farm wages.

Overall agriculture is an important source of income for the district, agro opportunities are mostly realised through the commercialization of crop production. Common crops cultivated in the district are avocado (43%) and French beans (36%). Regarding livestock activities in the district, residents prefer to raise hens, goats and cattle.

Another economic sector with good potential in the district is tourism. However, it is still poorly developed and needs significant improvements, even though it is located in close proximity to Kigali City, which hosts the largest portion of tourists in the country.



Baseline recommendation for future sub-component ESIA:

Specific information on socio-economic activities and characteristics of relevant villages in Kinyinya Hill and surrounding areas needs to be obtained, according to the sub-projects area of influence . Existing key livelihood strategies and income levels need to be identified and the dependency on agricultural activities needs to be confirmed. Vulnerabilities of residents in Kinyinya Hill need to be identified especially relating to unemployment and poverty levels.

Key socio-economic baseline conditions to be considered in the sub-components ESIA’s should include (but not be limited to);

- livelihoods including formal and informal businesses (e.g. informal street vendors or other potential economically-displaced persons etc., particularly in the informal settlements, but not only);gender aspects in relation to livelihoods;
- vulnerability/vulnerable groups;
- poverty and social inclusion;
- education and skills in the sub-component footprint and in the area of influence.

8.3.4 Land Use and Tenure

The approximate General Land Use Allocations (ha) of the Project Area (600 ha) are currently divided as shown in **Table 8.7** below:

Table 8.7 Current General Land Use Allocations (ha) of the Project Area

Land Use	Area
Residential	81 ha
Agriculture	225 ha
Industries	5 ha
Public Facilities	9 ha

RSSB	130 ha
Infrastructure	69 ha
Deutsche Welle Site	70 ha
Cactus Project	14 ha

The current land uses are illustrated in **Figure 8.15** and can be summarized into the following categories:

- Commercial
- Education/Religion
- Health
- Industry
- Residential formal
 - Large, medium and small houses
 - Under construction
- Residential informal
 - Open Space/Park
 - Workshops
 - Other

The planning area features a mix of formal and informal residential communities. Formal residential areas are generally clustered toward the ridge, neighbourhood centre and Deutsche Welle site, with informal settlements based away from the ridge and toward the wetlands (in particular the north side of the hill). All residential is low rise, single family housing with little to no multistore development identified.

Land tenure

Article 35 of the Rwandan constitution (as amended in 2015) stipulates that private ownership of land and other rights related to land are granted by the State. The 2021 Law Governing Land, which supersedes the Organic Land Law of 2005, guides land tenure regularization and the formalization of all land in Rwanda through the issue of leasehold titles. Therefore, properties are generally noted as informal by local authorities because the buildings are not compliant with planning or building guidelines or codes. Upon development of a property and provision of legal occupancy permit a leasehold title may be converted to a freehold upon application.

The structures in the area are mixed formal and informal. The share of informal settlements in consideration of formal settlements is not determined. However, information collected from the site states that informal settlements are around 96% of the total settlements with estimated 36,120 people living in informal settlements. Most of those people living in informal settlements have no land titles.

Land availability and productivity

As Kigali urban areas grow, the total agricultural land area in Gasabo district shrinks. The sector development strategy is focusing on techniques to intensify crop production on a smaller land base. Land consolidation and bench terracing have been vital in these efforts (which have also provided employment to 1,899 people through VUP Public Works).

According to EICV3, NISR (2011), farming households in Gasabo district which rely on crop cultivation utilize on average a 0.8 ha parcel of land, which is above the national average (0.59 ha), the rural average (0.6 ha) and the urban average (0.46 ha). Land use includes agricultural activities, livestock, fisheries and forestry.

Summary:

The Project Area features mainly informal residential communities. Information collected from the area estimates that 36,120 people (96%) are living in informal settlements and mostly based away from the ridge and toward the wetlands. While formal settlements are generally clustered toward the ridge, neighbourhood centre and Deutsche Welle site.

In general, agricultural land in Gasabo district is decreasing and urban areas are increasing. Households in Gasabo district which rely on agriculture utilize a parcel sized 0.8 ha on average, which is above the national average. Land use activities in the district include agricultural use, livestock, and forestry.





Baseline recommendation for future sub-component ESIA:

Sub-component ESIA's will have to include a detailed land use analysis where relevant. For example, where land is acquired for the Project development, the RAP and/or LRP will have to cover land acquisition impacts. Therefore, detailed information on existing land use and tenure will be required for each affected person (as indicated in the **RPF**).

Key particular baseline conditions of relevance from land use and tenure perspective to be provided in the sub-components ESIA's should include (but not be limited to):

- land ownership and use in the sub-component footprint and in the area of influence;
- gender aspects in relation to property rights;
- vulnerability/vulnerable groups.

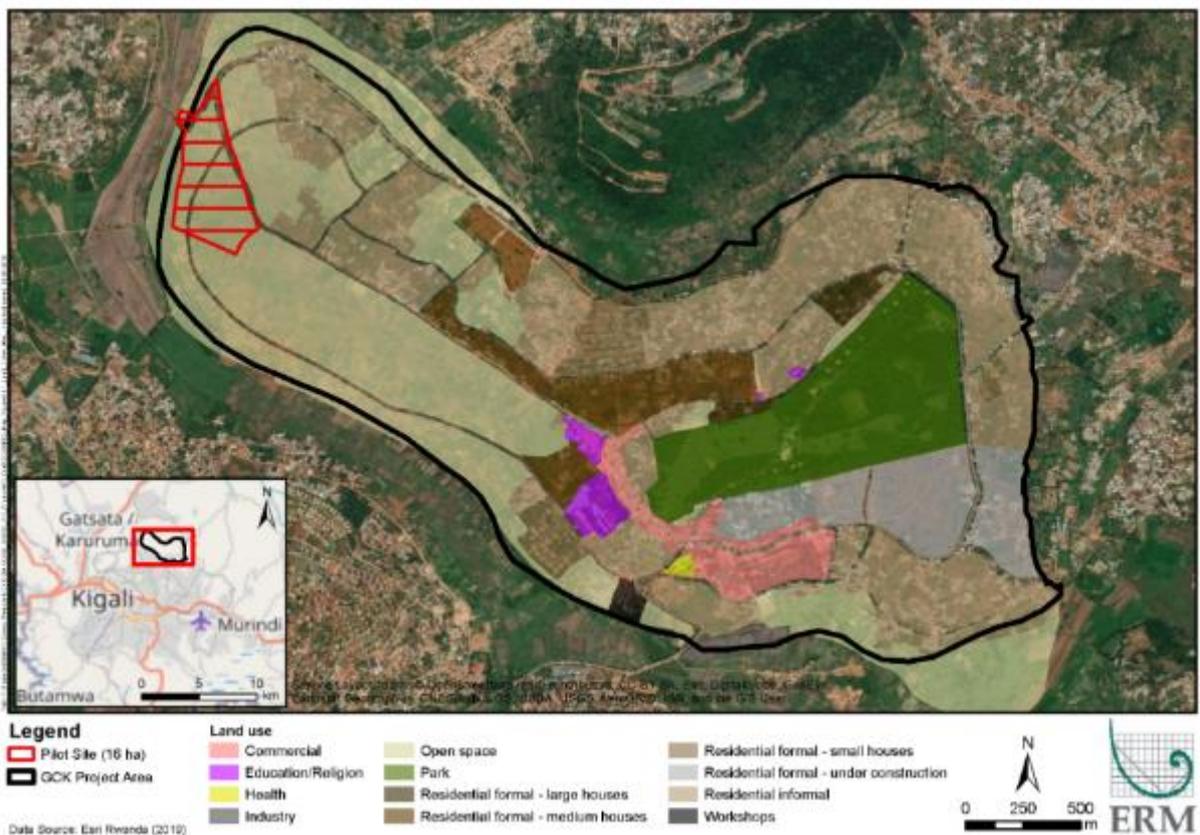


Figure 8.15 Land Use

8.3.5 Cultural Heritage

Rwanda has no properties inscribed on the World Heritage List. On its tentative list are Rwanda's genocide memorial sites, one of them⁸¹ is near Kinyinya sector in Gisozi (see **Figure 8.16**), approximately 10 km southeast from the Project Area. A single burial site is known in Taba village,;

81 ERM (2020) Site Walk-Over in December 2020.

and the probability to find single graves in individual properties is low considering Rwandan practice of using government approved burial sites.



Source: ERM, 2020

Figure 8.16 Kigali Genocide Memorial

There are a number of churches distributed in the area and people go to the church of choice based on belief. The churches include Church of Association of Pentecostal Churches of Rwanda (ADEPR), Jehovah, Catholic Church⁸² (see **Figure 8.17**).



Source: ERM, 2020

Figure 8.17 ADEPR Church, Jehovah, and Catholic Church (from left to right)

⁸² ERM (2020) Site Walk-Over in December 2020.



Summary:

Rwanda has no properties inscribed on the World Heritage List. There are no known or suspected cultural heritage sites in/adjacent to the Project Area. The chance of finding unmarked graves in the individual properties is low.



Baseline recommendation for future sub-component ESIA:

There is no indication for tangible finds from the high-level baseline. Each sub-component ESIA should however include adequate cultural heritage baseline (covering both tangible and intangible cultural heritage), in line with ESIA best practice.

8.3.6 Infrastructure and Public utilities

Housing and urbanization

The current settlement morphology of the Kinyinya Hill comprises three categories of neighbourhoods, namely planned, informal and mixed. Planned neighbourhoods are characterized by clearly demarcated plots, separated by the main tarmac road. These are very few high-income neighbourhoods and the residents also enjoy a greater access to urban infrastructures and services. On the other hand, informal neighbourhoods are precarious and mostly concentrated in the areas with difficult access to the main road. Houses are intersected with narrow paths and poor drainage system. They can be classified as 'spontaneous neighbourhoods' which are full of small individual houses made with bricks (often of the adobe type) or with breeze blocks but without any modern comfort and equipment. They look less attractive in terms of urban infrastructure and are commonly referred to as akajagari. These mixed neighbourhoods are hybrid of both planned and informal neighbourhoods, characterized by separate and demarcated plots on one part and small houses squeezing on the other smaller part. These neighbourhoods result from either unplanned growth of the planned settlements or upgradation of informal settlements.

Currently, 71.2% of Gasabo's households and 78% of Kigali's households are unplanned informal urban housing. In the Project Area, as mentioned above, informal settlements are predominant⁸³. The informal settlements are found in areas with greater distance from nearby earth roads and the main tarmac road that connects different areas of Kinyinya Hill. In this context it should be noted, that the designation of informal is not equal with a missing land title. Rather it is noted as informal by local authorities because the buildings are not compliant with planning guidelines or are built of what are considered to be insufficient materials.

There are several existing settlements within the Project Area (**Figure 8.18**) with a significant number of informal settlements and several developments planned or under consideration.

The key driver for the creation and growth of Informal Settlements in Kigali is from migrants to the city in search of jobs and economic opportunities, many of which are willing to settle in inadequate less inexpensive conditions (low-quality housing on small plots). This form of land usage creates a more competitive individualistic social context thus eroding the traditional social cohesion.

In addition, the Cactus Project of 14 ha and the RSSB/IFC Project of 22 ha are under development in the South East and South West of the Project Area. **Figure 8.20** below provides an overview of the existing situation on the Project Area highlighting existing roads, community focal points and blue/green infrastructure⁸⁴.

83 ERM (2020) Site Walk-Over in December 2020.

84 ERM (2020) Site Walk-Over in December 2020.

79.5% of the population of Kinyinya sector have declared to live in family or own properties while only 14.9% are renting. Others live in community provided shelter or shelter provided by the employer or neighbour (5.5%).

Consequently the majority of 75.77% have a single-family dwelling, followed by Single/Two Family Bungalow (16.40%), Single/Two Family Villa (3.75%), Multi-Family buildings (0.72%) (Figure 8.19).



Source: ERM, 2020

Figure 8.18 Informal settlement in the Project Area on the left and formal settlement (Dubai Estate) on the right



Source: ERM, 2020

Figure 8.19 Low and High Standing households in the Project Area (from left to right)



Source: ERM, 2020

Figure 8.20 Typical road within the Kinyinya Hill and Bus station in Kinyinya centre

The Project commits to address the issues raised by the existing informal settlements following two approaches i.e. Upgrading and Land Readjustment (densification). Through upgrading the goal is to include and retain the existing communities thus minimizing displacement and creating a more inclusive and diverse community. The possibility of creating citizen engagement via scheduled community work days will be explored during the Project implementation.

Upgrading aims at improving the existing footprint with an emphasis on community engagement at an early stage. The main interventions proposed are i) clustering and densification ii) the improvement of basic urban service provisions iii) creation and enhancement of public and green areas.

In practice, interventions focusing on the following improvements would be of benefit: i) environmental restoration by achieving a balance between human and natural activity ii) Using public transport to reconnect segregated areas into the local network iii) Provision of quality social services. The Informal Settlements at the Project site typically represent buffer zones between urban and rural land uses. This offers additional opportunities during their upgrading including irrigation strategies, security of tenure, agribusiness and small industry opportunities amongst other interventions.

The Land Readjustment approach will be preferred at areas with low density and where the units are dispersed within the site in an inefficient manner. The goal is to reconsider the layout of the plots and adjust them into a configuration that has more efficient land use and legibility in regards to infrastructure, circulation and community enhancement. There are several informal settlements on the site that fall into this category and could benefit from the principles promoted via Land Readjustment. This approach promotes bringing a group of adjacent landowners into a partnership of land contribution or an agreement of joint planning and servicing of their adjoining plots. Land Readjustment requires the selling or surrendering of land to finance infrastructure costs and public space requirements⁸⁵, therefore it will likely involve displacement⁸⁶.

Overall the Project will determine greater land use efficiency and connection to infrastructure. The above-indicated measures aim at avoiding displacement of people whenever possible, so that the existing residents can further stay within the 600 ha area of the Project. In cases when displacement cannot be avoided (see Land Readjustment approach), it will be performed according to on Resettlement Action Plans (RAPs) developed and implemented on the basis of the principles set out in the **RPF**.

Transportation and traffic

While standards in the transport sector in the district are still below other districts in Kigali City, improvements have been made over the past years as measured by usage rates for all-weather roads. Gasabo's usage rate stands at 86.2% compared to Kicukiro and Nyarugenge at rates of 97.4% and 95.9%. The satisfaction level for usage of all-weather roads indicates that 75.2% are satisfied, while 24.8% are not satisfied. However, the usage of public transport in the district is considered poor, with 40.4% regularly using public transport compared to 82.6% and 74.1% for Nyarugenge and Kicukiro respectively. This is because the majority expressed that they do not need it (67.2%) and around 29.3% said the bus stops are too far⁸⁷.

Kinyinya Hill has a main tarmac road that connects Kibagabaga to the bus station⁸⁸. Other areas of the hill are connected by earth roads that need to be upgraded to acceptable standards. Buses and motorcycles are the most reliable means of transport. A few number of people have their own cars and most of the population walk from one area to the other within the Gasabo district.

85 Urban Design Handbook (2019), available at: <https://greencitykigali.org/wp-content/uploads/Urban-Design-Handbook.pdf>

86 It is expected that in this case, owners give up their homes and land in exchange for a new higher quality home on the same plot. They do not leave the immediate area; being a case of replacement land and/or housing rather than displacement.

87 Gasabo district Development Plan, 2013-2018

88 ERM (2020) Site Walk-Over in December 2020

Information and communications technology

Internet access in Kigali City, including access via mobile phone, present within 39.1% of households, as reported in 2016/17, which can be compared to all Rwanda where access is reported to 17.2% households. In modern planned areas reported the highest access to internet 58.9%)⁸⁹.

Regarding the ICT usage 41.4% of the people in Gasabo district have never used internet and 33.3% are not aware of the service. 78.2% of the population of 6+ years have never used a computer⁹⁰.

The district of Gasabo including Kinyinya sector has a fiber internet network provided by Liquid Telecom and private individuals use internet and cell phones through the telephony networks of MTN and AIRTEL/TIGO⁹¹ (Figure 8.21).



Source: ERM, 2020

Figure 8.21 Airtel Telecommunication Towers

Energy

The energy demand for households and in the service sector in Rwanda would typically be divided into energy for cooking/heating, and electricity.

In 2016, 77.4% of urban households in Rwanda were connected to the grid as compared to 15.6% of rural households⁹². The cost for a connection to the electric grid for any new installation is charged according to an established cost table. There is a connection fee as well as a cost for the extension. Kinyinya Hill falls within the scope of Kigali City Master Plan and its anticipated grid expansion.

Water and Sanitation

Access to improved drinking water' indicators⁹³ show that 84.7% of the households in the district have improved water sources with 36.9% households receiving water from a public standpipe⁹⁴ (Figure 8.22), 16.7% from a protected spring and 4.8% from protected wells. In addition, based on district data the households that have access to clean water represent 82.0% of all households.

89 "Main Indicators Report". Kigali, National Institute of Statistics Rwanda (NISR). November. The Fifth Integrated Household Living Conditions Survey EICV5 (2016/17)

90 Gasabo district Development Plan, 2013-2018

91 ERM (2020) Site Walk-Over in December 2020

92 Koo, Rysankova et al. 2018

93 Gasabo district Development Plan, 2013-2018

94 ERM (2020) Site Walk-Over in December 2020.

The Water and Sanitation Corporation's (WASAC) central water supply system serves parts of Kinyinya Hill, as shown in the map below (Figure 8.24). Many households and businesses are connected to this central supply. Those without a connection typically walk to a water kiosk to purchase water from the central water supply. Currently there is a need to do intermittent rationing of water in the system (for instance, supply water 3-4 days/week) since the demand in Kigali exceeds the supply.

It is indicated that 74.3% household have improved sanitation. The majority of households use pit latrines with solid slab (67.2%) and pit latrines without slab (23.6%). The households using flushing toilets are only 7.1%.

Both the Gasabo district and Kinyinya Hill need to improve water and sanitation access in order to reach the Vision 2020⁹⁵ targets of 100% of population having access to improved sanitation and access to clean water.

There is no central sewage system for treatment of domestic wastewater in the Kinyinya Hill nor in Kigali City in general. No industrial sewage water is discharged from the hill as there are no heavy or light industries located in the areas. Unimproved pit latrines are used by the majority of the people living in the Kinyinya Hill. The future plan of the Project is to provide improved sanitation.



Source: ERM, 2020

Figure 8.22 Public standpipe

Summary:

The principal infrastructures in the Project Area are roads, social infrastructures such as health centres, schools and churches, transport facilities, electricity, water networks, sport centres and environmental infrastructure such as parks and recreational spaces.

The Kinyinya Hill comprises three categories of neighbourhoods, namely planned, informal and mixed. In the Project Area mixed neighbourhoods could be observed with a majority of informal

95 Ministry of Finance and Economic Planning (MINECOFIN) (II), Republic of Rwanda (2012) Rwanda Vision 2020 Progress and Way Forward" (PDF) available at:

http://www.devpartners.gov.rw/fileadmin/templates/docs/Events/DPR/2011_DPR/Day%201/Vision%202020%20Progress%20and%20Way%20Forward.pdf

settlements. Furthermore, a significant number of informal settlements and several developments planned or under consideration in the Project Area.

On the district level, the transportation infrastructure development is still lower than in other districts in Kigali City. Buses and motorcycles are the most reliable means of transport. Kinyinya Hill has a main tarmac road that connects Kibagabaga to the bus station. Other areas of the hill are connected by earth roads that need to be upgraded to acceptable standards. In Kigali City, 39.1% of households have internet access (including via mobile phone). This is about twice higher than national level (17.2%). The energy demand in Rwanda would typically be divided into energy for cooking/heating, and electricity. Based on district data, 84.7% of the households in the district have improved water sources and 82.0% of all households have access to clean water. There is no central sewage system for treatment of domestic wastewater in the Kinyinya Hill nor in Kigali City. No industrial sewage water is discharged from the hill as there are no heavy or light industries located in the areas. The majority of households use pit latrines with solid slab (67.2%) and pit latrines without slab (23.6%). While the households using flushing toilets are only 7.1%. The future plan of the Project is to provide improved sanitation in the Project Area.



Baseline recommendation for future sub-component ESIA:

The E&S impact assessment performed for each sub-component is to comprise (but not be limited to):

- detailed baseline information on housing conditions and social context in the sub-component's area of influence;
- existing infrastructure conditions including roads;
- transportation and traffic;
- water and sanitation, energy supply system;
- information and communication infrastructure.

Further, the baseline is to be adequate to inform on the resettlement action planning that may be required by the Upgrading and Land Readjustment associated with each sub-component. Any such displacement, or loss of livelihood (in case of greenfield sites) will be subject to a Resettlement Action Plan defined and implemented on the basis of the principles set out in the **RPF**.

8.3.7 Health

The Rwandan health system has seen an improved performance in recent years, based on quality of care and decentralization of health care systems. Policies and programmes have been developed in an effort to respond to the population's health care needs and to align the health system with the global health agenda. In 2015, Rwanda spent 11.2% of its gross domestic product on the health sector. The CoK is the main provider of primary health care services, in conjunction with the Ministry of Health. Funds come from government contributions, development partners, health insurance contributions, social solidarity funding and cross subsidizing among the community. The district of Gasabo relies on two public hospitals, one private hospital and 18 health centres. Most of the villagers from Kinyinya get their health care at Kibagabaga hospital. In Kinyinya Hill, the most frequently used health facility is the Kinyinya Health Centre in Murama Cell.



Summary:

The CoK is the main provider of primary health care services, mainly through clinics distributed throughout the city. On the district level, residents of Gasabo rely on two public hospitals, one private hospital and 18 health centres. Most of the residents from Kinyinya get their secondary health care at Kibagabaga hospital and primary care through clinics, such as the Kinyinya Health Centre in Murama Cell, which provides primary care to residents of the project area.



Baseline recommendation for future sub-component ESIA:

Up-to date information on health status of residents on Project Area is required. This includes information on key health challenges (e.g. communicable diseases, chronic conditions, etc.) as well as accessibility, quality and adequacy of available healthcare infrastructure and emergency services.

8.3.8 Education

There are currently three schools within the Project Area:

- Pefa Nursery School: primary level;
- Groupe Scholaire de Kinyinya: secondary A level⁹⁶ (Figure 8.23); and
- College Amis Des Enfants: secondary A level.

Further, a new academic campus of the Kigali International Community School (KICS) will be developed on 8 ha of the RSSB land. Figure 8.25 gives an overview of educational facilities in a close proximity to the Project Area at the present moment.



Source: ERM, 2020

Figure 8.23 Groupe Scholaire de Kinyinya (Secondary School)

In relation to education the most recent data from EICV5⁷⁹ states, that 92.8% of the population aged 6 and above (92.0% of female and 93.3% of male) in the Gasabo district have attended school. It brings the district on the second place compared to other districts in Rwanda, with Kicukiro district at 95.0% in first place. The average national rate of the population aged above 6 who have ever attended school is 87.2%. Net attendance rate at primary school in the Gasabo district is with 86.4% slightly below the national level of 87.6%. The girl/boy attendance at primary level is equally balanced with 86.5% and 86.3%. In secondary school the net attendance rate is 33.0% (28.7% for female and 37.7% for male) which is above the 23.2% rate in whole Rwanda. In terms of literacy levels, the EICV5 states that the district's literacy rate of the population aged 15 and above is 87.7% (83.4% for female and 89.0% for male) and rates registered in Kicukiro and Nyarugenge are at 90.5% and 87.7% respectively. This is above the national average rate of 73.2%. The district level is below the country's target of 90% and 100%, as stipulated in the 7YGP and Vision 2020 respectively. The computer literacy rate for persons of 15 years and older stands at 20.3% (18.8% for female and 21.9% for male) what is above the national rate of just 8.9%. The district recognizes the need to improve the computer literacy rates to boost up ICT innovations and private sector led economy. The data for the Gasabo district from the Ministry of Education⁹⁷ shows that the students-per-classroom ratio for primary level is at 35.9, below the national standard of 46 pupils per classroom. Computer and internet usage in

⁹⁶ ERM (2020) Site Walk-Over in December 2020.

⁹⁷ Ministry of Education: 2018 Educational Statistic. Available at: <https://www.statistics.gov.rw/publication/2018-education-statistics-report>

primary schools is through 254,602 computers and 1,029 schools nationwide in Rwanda have internet access.

Summary:

Data about education situation is available only on the district level. Survey from 2017 states that 92.8% of the population aged 6 and above (92.0% of female and 93.3% of male) in the Gasabo district have attended school. This supports also the fact that literacy rate in the district is higher compared to the national level (87.7% and 73.2% respectively). Three schools exist in the Project Area and a new academic campus of the Kigali International Community School (KICS) will be developed on 8 ha of the RSSB land as part of the Project.

Baseline recommendation for future sub-component ESIA:

Up-to date information about education infrastructure and education levels in the specific Project Area needs to be obtained for subsequent ESIA's. This will include education system and facilities, education and skill levels and will feed into the identification of vulnerabilities to be taken into account when implementing and managing the Project's sub-components as relevant.

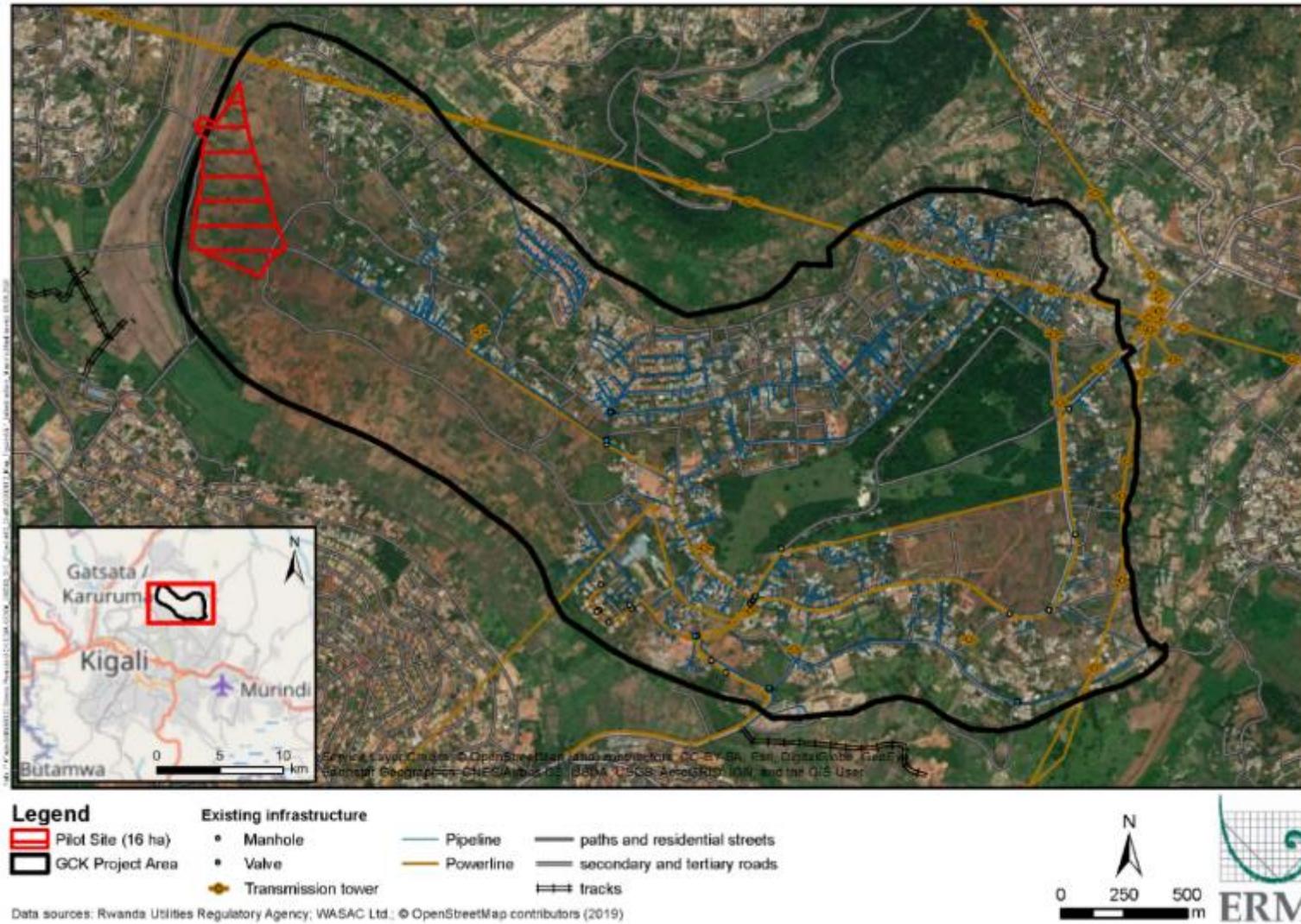


Figure 8.24 Existing Infrastructure

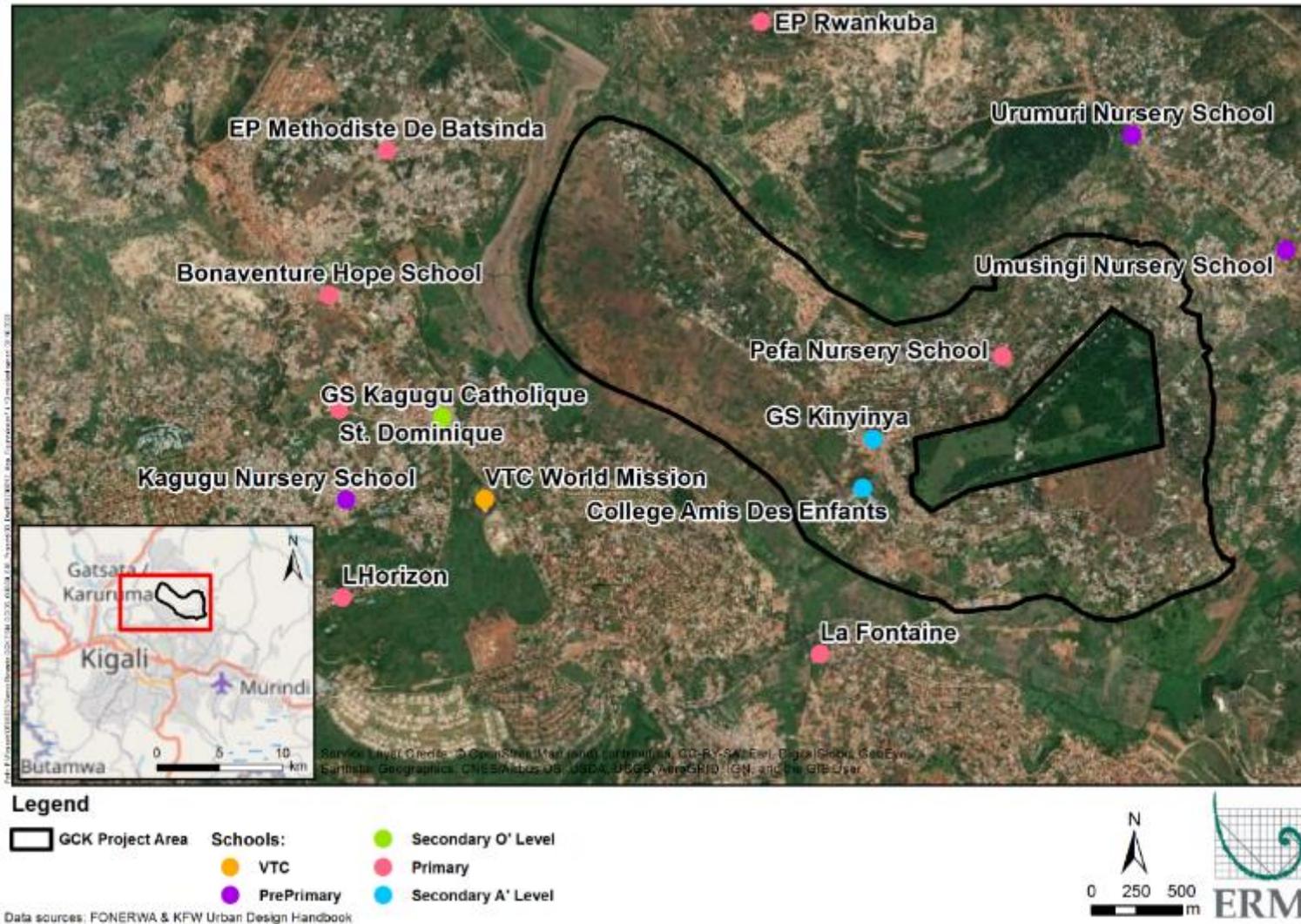


Figure 8.25 Schools in the proximity of the Project Area

9. IDENTIFICATION AND ASSESSMENT OF ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS



Strategic context:

One of the purposes of the SESA is to integrate sustainability aspects of the GCK Model into future masterplans considering cumulative impacts and mitigation measures as they devolve progressively from an urban development model to project.

A reasonable comparison of the identified GCK Project High-level impacts is that with similar high-level impacts identified as part of the RUDP II Project, described in its respective ESMF.

The potential adverse environmental and social risks and impacts associated with the RUDP II project included:

Air, water, soil and noise pollution; drainage congestion; erosion and siltation; disturbance or loss of flora and fauna; fisheries and aquatic life; biodiversity and presence of natural and/or critical habitats in the wetlands or other project areas; cumulative environmental impacts caused by the different works and investments in the project areas; solid waste management practices and changes in local hydrology and flood pattern.

Social risks were found to include disruptions of access to homes and businesses; disruptions of utility services e.g. water/ electricity; temporary or permanent loss of agricultural land, housing and/or commercial structures; impacts on archaeological / historical / social / cultural / religious sites; inadequate labour and working conditions including failure to implement of national labour laws, potential road traffic accidents and transmission of diseases/illnesses associated with construction worker influx

This section includes a high-level assessment of E&S risks and potential impacts, including identification of any red flags and fatal flaws, reflecting information from the **High-Level ESIA** and other available baseline information; as well as a brief descriptions of the different physical, biological and social impacts that may occur in other Rwandan geographies from similar existing urban development projects.

9.1 Identification of Project Potential Significant Effects

This chapter provides an overview of the sources of potential E&S issues related to the proposed Project based on the on the proposed Project description as set out in the GCK SPA Masterplan and the results of the baseline. The impact assessment is structured as per the World Bank Environmental and Social Standards (WB ESS).

The initial identification of potential impacts is based on the prospective Project features and their interaction with existing receptors; the development of a high level matrix of potential interactions (i.e. a modified Leopold matrix) is devised with proposed activities (rows) and the relevant environmental/social aspects in the project area (columns). The key objective of this exercise is to focus the subsequent stages of the assessment on those impacts⁹⁸ that are likely to result in significant effects⁹⁹. To achieve this, the following were performed:

- Identification of potential interactions between the Project and the physical, biological and socioeconomic environment that may be affected (intersections in the Leopold matrix); and
- Identification of potential significant impacts of the Project that will require investigation in subsequent stages (using a colour coding for the intersections in the Leopold matrix).

E&S resources and receptors that could potentially interact with the Project include:

⁹⁸ Any alteration of existing conditions, adverse or beneficial, caused directly or indirectly by the Project

⁹⁹ The specific consequence (to a resource/ receptor) arising from an alteration of existing conditions caused by the Project. In this sense, it is technically the effect whose significance is assessed in the Impact Assessment process. However, it is recognized that the predominant practice in the industry is to report on the significance of "impacts" rather than "effects".

Physical Environment

- Air quality (e.g. atmospheric emissions from stationary sources and from vehicles and machinery);
- Noise and vibrations;
- Surface water quality (e.g. from wastewater discharges and due to storm water runoff);
- Groundwater quality (e.g. due to spills and discharges);
- Soil conditions (e.g. due to soil sealing/covering, topsoil management, spills);
- Landscape and visual.

Biological Environment

- Habitat loss and transformation (including terrestrial habitats and aquatic habitats as result of effects on water flow patterns and water quality);
- Flora and fauna (i.e. effects to natural plants and animals through direct loss and/or disturbance, introduction of invasive species, pests and nuisances);
- Ecosystem Services.

Socio-Economic and Cultural Environment

- Physical and economic displacement (physical displacement of people, economic displacement, permanent or temporary due to Project land take and land access);
- Implications to the human society distribution, demography, settlement patterns, changes to the cultural lifestyle and indigenous knowledge of the local society;
- Changes in land use systems and the general land utilization types where applicable;
- Infrastructure and services (due to landscape alterations and changes to infrastructure facilities);
- Local economy (effects associated with income generation opportunities created by the project due to the prospective construction and operations);
- Community health and safety (effects associated with the construction and operation activities and related handling and disposal of generated wastes, construction workforce interactions and related hazards/risks such as HIV/AIDS, disease out breaks, use of medical/sanitary facilities, etc. ;
- Cultural Heritage.

The potential interactions between the Project and the resources and receptors were analysed and indicated in **Table 9.1**. The matrix displayed generic Project activities (through entire life cycle) against resources/receptors and allowed a preliminary identification of the potential interactions each activity may have on the range of resources/receptors. This exercise allowed the preliminary identification of potential interactions between Project activities and resources/receptors to develop generic conclusions as to the interactions likely to lead to significant effects. This exercise is to be performed on case-by-case basis for each for each sub-component as part of the E&S impact assessment to allow identification of interactions leading to significant effects in each particular sub-component case.

The exercise performed indicated that while potential impacts would be expected for all Project phases, Project activities during the construction phase are typically expected to cause the majority of potential impacts. It also indicated that implementation of adequate mitigation strategy in line with the approach set forth in the **ESMF** may result in a number of **Positive Impacts** including:

- Avoiding unsafe informal settlement by providing affordable and inclusive housing;
- Hiring temporary and permanent workers for construction and operation of the Project will create jobs and boost the local economy;
- Water design included in the GCK SPA Masterplan will ensure reduced and delayed storm water runoff volumes, reduced localised floodings and a storm water pollutant reductions;
- Improved waste and waste water management will have a positive impact on the community;
- Project design focuses on increasing resilience to climate change by incorporating energy efficiency (e.g. water use, green energy, etc.) and resilient housing into planning and design;
- Improvement of transportation, sewerage, water and energy supply, ICT networks;
- Improvement of security; and
- Improvement of quality of life (e.g. less air pollution due to alternative transportation systems, sufficient public parks for recreation).

A colour code was used to display the results of the performed analysis of Project activities - receptors interactions as indicated in the legend embedded in the Leopold matrix.

Table 9.1 Generic Project Activities - Receptors Interactions Matrix

Activity/Aspect/Receptor	Environmental and Socio-economic Aspects														
	Physical / Biological										Socio-economic				
	Air Quality and Climate Change	Noise and vibration	Surface water quality	Groundwater quality	Geomorphology and Soil quality	Visual Landscape	Habitats	Flora	Fauna	Ecosystem Services	Displacement	Demography, cultural & local society	Local Economy	Community H&S	Infrastructure and Services
Aspect Key:															
An interaction:															
- that may have a positive impact with implementation of Project-embedded and ESIA-defined mitigation (Green)															
- that is unlikely to have an interaction or of minor consequence (White)															
- that may have a significant negative impact (Orange)															
Pre-Construction Phase															
Land acquisition and land access															
Construction Phase															
Site preparation works: land clearance and earthworks															
Land occupation (permanent + temporary)															
Use of vehicles and heavy machinery															
Masonry and concrete works; steel works, roofing; electrical/power distribution, plumbing.															
Presence of workers (including recruitment and influx)															
Waste production and management															
Water abstraction and use															
Materials abstraction and transport (aggregates, steel, timber, use of quarries)															
Landscaping works															
Demobilisation of construction front															
Operation Phase															
Storm water management															
Solid waste/wastewater management															
Utilities operation (lighting, electricity, running water)															
Residential activities: Presence of housing Project and associated population and traffic															
General maintenance services															

As per the generic Project matrix above, given the nature and size of the Project (e.g. magnitude of construction activities, sensitivity of receptors, etc.), certain significant E&S impacts may be expected. The **High-Level ESIA** identified a number of potential impacts associated with the overall Project based on the assumed activities and possible sub-components of the Project outlined in the masterplan to be implemented on the 600 ha Project Area. The following Project aspects associated with potential significant impacts were identified:

- Air Quality;
- Water/Groundwater;
- Waste Management;
- Noise and Vibration;
- Landscape and Visual;
- Flora and Fauna;
- Ecosystem Services;
- Community and workers H&S; and
- Displacement (economic and physical) as result of Project land acquisition and land access.

The below sections summarize the main impacts identified. **Table 9.2** provides a complete list of potential significant impacts and refers to the whole Project Area (600 ha) aiming to provide an overview of the relevant E&S topics that need to be addressed or further assessed during pre-construction, construction and operation phases. With its objective and vision for a sustainable city, the Project is expected to have an overall positive impact on environment and people in comparison to a possible unplanned development characterized by informal settlements.

A high-level ESMP is included in **Chapter 10**, which lays out mitigation strategies to be implemented for Project sub-components and further, more detailed guidance is provided in the **ESMF**. The High-Level ESMP and the **ESMF** provide E&S management guidance for implementation at each sub-component level.

9.2 Physical Environment

The Project will likely have significant impact on the physical environment in the Area of Influence. During construction of the Project especially air quality and noise are expected to have a significant impact. Ambient air quality is expected to be affected during construction, due to emissions and dust generation. The Project-related activities during construction and operation causes the release of GHG emissions into the atmosphere. In the long-term view of the Project operation, the design incorporating energy efficiency (e.g. water use, green energy, cooking method, etc.) will have a positive impact by avoiding GHG emissions.

Project works execution may be associated with a number of key areas of impact including:

- Noise and dust;
- Excavations and earthworks resulting in erosion and sediments transport by storm water runoff;
- Solid waste generation (construction debris, metal, wood and paint wastes, and other residues); and
- Vegetation removal.

The Project implies extending the areas occupied by constructions and infrastructure. This will determine generation of high volumes of stripped topsoil which represent a valuable resource to be appropriately managed and reused. Adequate enforcement of specific procedures for topsoil

management (stripping, storage handling and reuse) is therefore required during Project implementation (further guidance provided in the [ESMF](#)).

Noise and vibration during construction poses a potential risk to the health of workers and to sensitive neighbouring receptors such as residential areas, schools, hospitals, churches and recreation areas. In addition, vibration can disturb people and cause damage to buildings.

The Project may have a moderate significant impact on Landscape of the Project Area. The planned interventions such as permanent aboveground structures including housing and infrastructure are expected to alter the landscape of the Project Area. However, the sub-components are not deemed adequate to significantly affect the landscape, therefore a *moderate* significance is assigned to the impact. **Figure 9.1** shows how the Project can be integrated in the natural landscape at proposed hillside settlements.



Source: UADC Masterplan, 2020

Figure 9.1 An overview of the Pilot Site proposal in the GCK SPA Masterplan

Change of surface water regime due to Project activities may be associated with the civil works including excavation, earthworks and slope cuts. The discharge of site runoff during construction may lead to water pollution from leaks and spills of hydrocarbons, wastewater and other materials, as well as insufficient construction runoff control. Due to the sensitivity of the surrounding wetlands and the proximity to Nyabarongo River, as well as the likelihood of occurrence, the impact is evaluated as *major*. The water design included in the GCK SPA Masterplan will ensure reduced and delayed storm water runoff volumes, reduced localised floodings and a storm water pollutant reductions which will have a positive impact on the water quality during operation.

The Project will generate substantial construction wastes. During operation, the Project is considering incorporating waste management and treatment facilities for organic waste within the Project Area. Local collection and recycling stations are planned as well. This will have a positive impact on the waste treatment at Kinyinya Hill.



Physical Impacts from activities under similar urban development initiatives in Rwanda.

Activities to occur in CoK as well as other Rwandan secondary cities such as the construction of asphalt roads and access streets, stormwater drains, pedestrian walkways, streetlights and earthworks for wetland rehabilitation which may generate emissions from excavation equipment, other machinery and construction traffic. The emissions may also include greenhouse gases (GHGs) from engine fuel combustion (exhaust emissions) and evaporation and leaks from vehicles (fugitive emissions) and emissions from asphalt works. The emissions from construction activities will deteriorate the ambient air quality. During operations, emissions from local road traffic along the markets and other infrastructures may affect the ambient air quality. Road traffic will be increased due to construction of these infrastructures in the different project areas.

Noise will be produced by vehicular movement, excavation and other construction machinery, concrete mixing, and other construction activities. During operation, noise levels along the access roads, depots, collection centres and camp offices will be increased due to the higher traffic volume and mass gatherings. Traffic noise will be a significant nuisance to the sensitive receptors.

During the construction phase activities can potentially cause some localized increase in water turbidity to ponds, canals, streams and rivers. Construction camps and other site facilities such as offices and warehouses will also generate waste effluents. Other possible causes of land or water contamination include accidental leakage or spillage of fuels, oils, and other chemicals, as well as waste effluents released from construction sites. During operation, generally paved roads/surfaces increase the amount of impermeable surface area, which increases the rate of surface water runoff. Increased storm water flow rates can lead to stream erosion and flooding downstream, cause soil erosion, channel modification and siltation of streams.

Soils in the construction area and nearby lands that are used for agriculture will be prone to pollution in a similar manner to water pollution from the construction activities, construction sites, workers camps and other construction areas. Fuel and hazardous material storage sites and their handling are also potential sources for soil and water pollution. Improper siting, storage and handling of fuels, lubricants, chemicals and hazardous materials, and potential spills from these will severely impact the soil and water quality and also cause safety and health hazards. Soil organic layer will be removed and during raining periods runoff will carry sediments to streams and houses entrances. Other aggregates such as sand, base and other materials will cause erosion and siltation issues.

Solid waste generated during the construction phase may include excess construction materials and waste from construction offices and camps. Furthermore, small quantities of hazardous waste will also be generated. Inappropriate disposal of these wastes can lead to soil and water contamination. During operations, solid waste will be generated from recreational places, markets and other amenities and also during regular operation and maintenance activities of the constructed infrastructures. Hazardous waste will also be generated from road maintenance.

9.3 Biological Environment

Biodiversity & Nature Conservation can be impacted by temporary and permanent land-take for the Project, loss of vegetation and biodiversity and impact on fauna.

Although no critical habitat was identified in the Project Area, land will be occupied permanently and temporarily during construction requiring clearance of existing vegetation and possible removal of habitats and species of nature conservation interest. The majority of vegetation is associated with agricultural land (scrub) and eucalyptus trees which are non-native. The significance is minor due to the urban/agricultural character of the area.

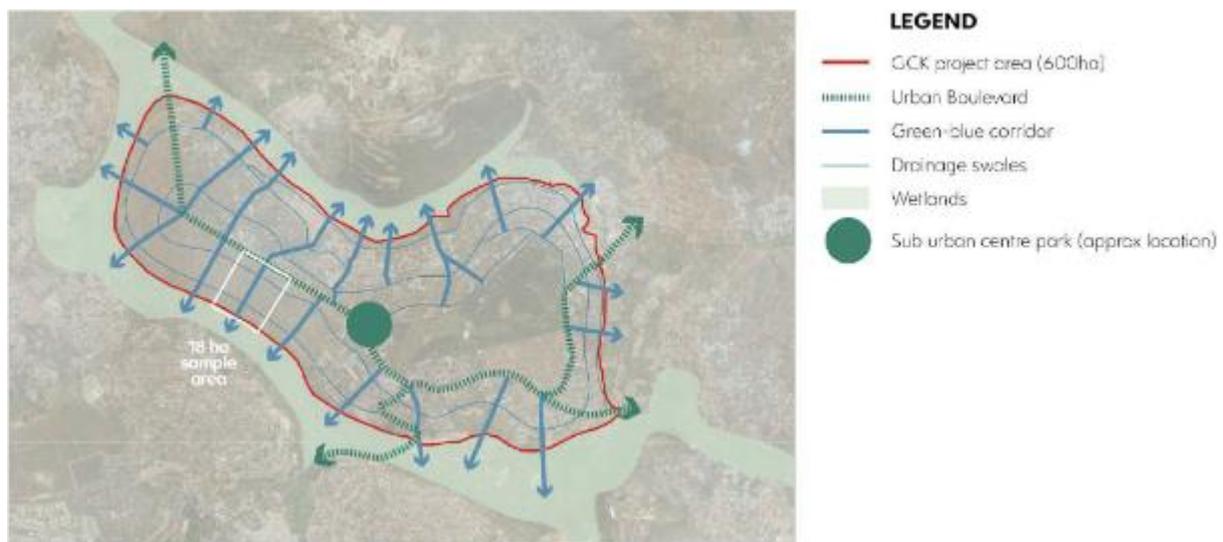
There are wetlands in the proximity of the project site that the baseline information indicate as sensitive. Overall, the Project is expected to have positive effects for recovering the structure and functions of wetlands. However, during construction, adequate runoff control and drainage is required to mitigate impacts on the wetlands ecosystems and surface water bodies. Furthermore, adequate site restoration using native species is required at the end of construction.

The Nyabarongo River and wetlands have been identified as Important Bird and Biodiversity Area and Key Biodiversity Area. The significance is *major* due to the close proximity to the wetlands.

A detailed assessment of the wetlands shall be conducted as part of the future Project ESIA and in the framework of required primary data collection, and if deemed necessary a critical habitat assessment including suitable mitigation measures. This shall also include the wetlands potentially affected by the land conversion.

The Project will include the development of a blue-green system, as a network of connected corridors aimed at managing the Project land and the water in a way inspired by nature and designed to replicate natural functions and provide ecosystem services. The envisaged blue-green system seeks to protect the ecological and social values of the urban landscape and water cycle, also providing flood management and increased connectivity functions, while enhancing residents' access to nature.

The green-blue network will connect and utilize the existing wetlands, local natural systems and ecosystem services. This network will follow the natural contours and will interconnect newly-created green spaces such as local parks, green streets and green and blue corridors (see **Figure 9.2** below).



Source: GCK Urban Design Handbook, 2020

Figure 9.2 Proposed Green-Blue Structure

The green-blue component of the Project will allow for embedding biodiversity no-net-loss and net-gain principles by avoiding and where avoidance is not possible by creating areas for offsetting the loss of biodiversity (i.e. by re-placement of lost trees, and vegetation areas) In particular the creation of the green-blue network will provide opportunities for wetland restoration potentially including earthworks to re-shape the profile of the wetland, restoration of riparian areas, increase biodiversity natural habitats, construction of flow and erosion control structures, development of flood reduction features to increase infiltration and restore the original functions of the wetlands and re-vegetation.



Biological Impacts from activities under similar urban development initiatives in Rwanda

Dust will be generated during earthwork and deposited on the leaves of nearby trees; this will obstruct the growth of trees. Construction activities will increase sediment loading of streams and changes in turbidity will impact adversely upon fishes and aquatic animals. Diversions at bridge sites will act as barriers to the migration of fishes and aquatic animals. Noise generation from the construction vehicles and equipment can create disturbance for birds and wildlife.

Disturbance due to construction/ earthmoving works especially during wetland rehabilitation will disturb habitats and may destroy some biodiversity. Works will also create new habitats with the remediation works.

Sand extraction from ponds and other wetlands, re-excavation of canals, repairing of culverts-bridges and construction of roads, cement plant, camp areas may potentially disturb aquatic habitats by increasing water pollution and affecting nitrate concentration, oxygen concentration, water turbidity, among other parameters. Some sensitive and important habitats exist in other Rwandan cities such as water bodies where urban drains discharge the water collected into wetlands and remaining native vegetation which are important habitat for migratory birds, endemic amphibians and fish species.

9.4 Social Environment

Permanent and temporary land acquisition for development of the Project may lead to displacement of existing land uses, property and people. Physical or economic displacement are expected. Current residential land is expected to be majorly used as residential areas by the Project, so physical displacement could be temporary (for the duration of construction of new housing) in specific cases. Land currently used for agriculture is expected to receive other uses causing permanent economic displacement. Impact on vulnerable groups is expected (e.g. informal land users, etc.). The impacts on livelihoods and the potential physical or economic displacement are evaluated as *major*.

The Project developers are committed to implement a number of measures aiming at avoiding displacement of people whenever possible, so that the existing residents can further stay within the 600 ha Project area. This will be attained due to a more efficient land use, through Upgrading and Land Readjustment (densification).

Through upgrading (i.e. improvement of the existing footprint) the goal is to include and retain the existing communities thus minimizing displacement and creating a more inclusive and diverse community. It is envisaged that the Upgrading approach will be primarily applied at existing denser populated areas. The Land Readjustment (i.e. adjusting land plots configuration for increased land use efficiency, typically through landowners' partnership in joint planning and servicing) will be preferred at areas with lower density and where the units are dispersed within the site in inefficient manner. The goal is to reconsider the layout of the land plots and adjust them into a configuration that has more efficient land use and legibility in regards to infrastructure, circulation and community enhancement.

While above approach aims at applying the displacement avoidance principle, the displacement will likely not be possible to be completely avoided.

In particular, the Land Readjustment approach implies bringing a group of adjacent landowners into a partnership of land contribution or an agreement of joint planning and servicing of their adjoining plots. Commonly this requires the selling or surrendering of land to finance infrastructure costs and public space requirements. In all cases when displacement cannot be avoided, the displacement will be performed based on Resettlement Action Plans (RAPs) developed and implemented on the basis of the principles set out in the **RPF**.

Through adequate stakeholder engagement it will be essential to encourage the local community's input (in addition to land owners and local government stakeholders' involvement) at an early stage to foster a sense of joint ownership and responsibility over the long term.

Further, Project works execution may be associated with a number of key areas of impact including:

- Disruption of traffic and day-to-day life in populated areas;
- Temporary constraints in access to properties (houses, schools, public spaces, etc.);
- Damages in public services (roads, electricity or water supply);
- Road accidents;
- House damages (e.g. structural damages/cracking) due to vibrations from operating heavy equipment; and
- Open excavations/ditches posing community safety accident risks workers and pedestrian accidents and injuries).

Part of the sub-components will be implemented in populated areas and will use the existing basic infrastructure (road network, water and electricity supply, public transport infrastructure). Part of the construction sites will be located in the vicinity of residential areas, schools and other public facilities which are likely to be affected by project construction works.

Construction work-force related risks include occupational health and safety, non-discrimination and equal opportunity in employment, worker's organizations, child labour, forced labour, grievance mechanism. These are to be applicable to employed direct and contracted workers and primary supply chain workers.

During construction the Project has the potential to impact on neighbouring communities' health and safety through e.g. increased traffic and increased risk for accidents. Noise and dust emissions from construction activities could impact community and labour health (refer to impacts to physical environment). Also, the influx of workers to the Project Area during construction is likely to result in potential social impacts e.g. increased local population, demand on public and social services, and community stability. Anti-social behaviours, gender-based violence and/or the spread of transmissible disease (including e.g. Covid-19, or sexually infectious diseases) could also increase due to the itinerant nature of the construction workforce. However, during operation a positive impact for the community, including better quality of life e.g. due to improvement of transport, sewerage, water supply and ICT networks, is anticipated.

Continuous Stakeholder Engagement is throughout project implementation is required. The objective of the **SEF** prepared for the Project is to provide applicable guidance and set requirements for the various elements of adequate stakeholder engagement and grievance management for the Project.

Stakeholder Engagement refers to a process of sharing information and knowledge, seeking to understand and plan to address stakeholder needs and interest in the Project and building relationships based on collaboration. Stakeholder consultation and disclosure are key elements of engagement and essential for delivery of successful projects ensuring adequate E&S performance.



Social Impacts from activities under similar urban development initiatives in Rwanda.

Probable impacts on income and livelihoods are deemed minor since urban development Projects will try to avoid acquisition of land and involuntary displacement of people. However, temporary economic displacement with the examples of some vendors and businesses along sites to undergo infrastructural upgrade construction activities and of farmers in case of wetland rehabilitation activities.

One of the key potential risks associated with the infrastructure upgrade sub-projects is the increased risk of road accidents due to increased traffic of construction vehicles and congestion as a result of diversions; this is deemed to also occur during operations due to increased traffic.

Workers will be exposed to health and safety hazards for example during welding, placing asphalt and

road bases, excavations, manipulating hazardous substances, lifting and handling of heavy equipment, operating machinery and electrical equipment, working near water or at height, etc. The Project will need fuels, oils, and asphalt during the construction phase. Inappropriate handling or accidental spillage/leakage of these substances can potentially lead to safety and health hazards for the construction workers as well as the local community.

Sub-projects from other initiatives will generate also positive impacts when providing employment to a significant number of labour force during construction. The majority of labour will be locally hired, with the exception of skilled workers who may not be found in the project site areas.

9.5 Associated Facilities

Associated Facilities include all activities that are not developed under the umbrella of the 600 ha GCK development, but are nevertheless required as a consequence of the Project. Associated Facilities may include new access roads, public transport systems, transmission lines, substations, pipelines, and expansion of brickmaking in the wetlands, new quarry sites and borrow pits developed solely for the purpose of the Project. Associated activities may include traffic and transport, construction material sourcing and –deposition, major construction activities, presence of large numbers of workforce, water provision and wastewater treatment, waste management, other utilities.

Associated facilities will have additional impacts on the ecological and social environment, e.g. land acquisition, construction disturbances, land clearance in case the associated facilities are not included in the national impact assessment requirements, either as part of the future components, or standalone projects. The impacts and risks resulting from the Associated Facilities should be assessed and considered in the ESIA of a sub-component and control measures (including monitoring) should be included in the ESMP.

Example:

The development of a housing or infrastructure project requires a certain amount of raw material e.g. stone and sand. A strong increase of these local construction materials can lead to the development of new quarries as a direct result from the project. If the quarries are solely developed due to the project – but not financed as part of the project - then they are considered Associated Facilities. Otherwise, if the activities are financed as part of the project then they would be considered a component of the project itself). Stone and sand quarrying causes damage to property, depletion of ground water, loss of fertile top soil, degradation of forest land, adverse effect on the aquatic biodiversity and public health. The impacts and risks resulting from the Associated Facilities should be assessed and considered in the ESIA and control measures (including monitoring) should be included in the ESMP.

It is important that development activities, whether servicing the Project as a whole or its sub-components, include an assessment of E&S risks and impacts inclusive of Associated Facilities, as well as management and monitoring proposals to control for such risks and impacts. This will also be necessary where the national legislation does not require any E&S assessment. Associated Facilities will meet the requirements of the WB ESSs, to the extent that the Implementing Entity has control or influence over such Associated Facilities. It will be required to demonstrate the extent to which exercise cannot be controlled or influenced over the Associated Facilities by providing details of the relevant considerations, which may include legal, regulatory and institutional factors.

Recommendation for future sub-component ESIA:

Creating a list of pre-approved facilities could minimize the risks. The previously evaluated facilities such as quarries and borrow pits used for the Project will be listed to ensure that associated E&S risks are avoided and mitigated and only certified facilities are used for the Project. In addition, the

individual sub-component ESIA's can refer to this list. This can avoid a simultaneous or repetitive assessment of the same Associated Facilities.

On a sub-component level the different sub-components of the Project might need to be considered associated facilities to each other, when they are financed differently. To avoid the moderate risk of neglected or ignored impacts of Associated Facilities, every sub-component ESIA needs to identify and assess the Project's Associated Facilities as per the WB ESS definition. However, since all sub-components are developed under the umbrella of the 600 ha Green City Kigali development, the sub-components are considered cumulative impact and will be assessed as such in the respective sub-component ESIA's.

9.6 Cumulative Impact

A cumulative impact is defined as follows: the impact on the environment and community resulting from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Cumulative effects can be positive as well as negative, depending on the discipline being evaluated. It is possible that some environmental disciplines can be negatively affected and others positively affected.

The Project will include several developments and interactions among existing features and future components. Sub-components being developed at the same time can cause cumulative impacts (e.g. land clearance, construction noise and other impacts, erosion, drainage, etc.).

Cumulative impacts are likely to occur in case different sub-components are built at the same time. In addition, other projects being realized in line with the rapid urbanisation in Kigali are likely to cause cumulative impacts as well.

- The impact's significance is expected to be moderate, due to the uncertainty and extent of the future activities planned.
- Other sub-components to be identified having a potential to cause cumulative impacts with the Project.

The cumulative impact of the works and presence of contractors and construction equipment at each sub-component area requires careful supervision to minimize risk of accidents and potential conflicts with the vehicle and pedestrian traffic. Cumulative impacts may also occur as result of concurrent activities different contractors at the same area and which may apply different health and safety management processes. The subcomponents' ESMPs will require consideration of adequate safety culture and its constant reinforcement throughout implementation.

The sub-components that will be planned and assessed individually may have cumulative effects. Potential cumulative impacts will be considered during the assessment of future sub-components, as well as the overall E&S management and monitoring throughout the Project development.

Example:

Cumulative impacts occur from the combined effects over a given resource of a mix of different types of projects; for example, the development of a housing project, (access) roads and public transportation system such as a metro line, transmission lines, telecommunication services such as telephone lines and broadband systems, water and sewer pipelines and other adjacent land uses happening simultaneously. Therefore, the impact from each individual project on the environment can be minor but the cumulative impact increases the significance of the impact. If all the above mentioned sub-components are developed at the same time, an increased impact of construction noise or community safety is highly likely.



9.7 Impact Assessment Overview

9.7.1 GCK Project level impacts

The following **Table 9.2** lists all potential impacts identified during this high-level assessment. The list is structured according to the World Bank ESS and shows not only the source of impact and the initial assessment, but also indicates the impact significance and proposed assessment and mitigation approach. Impact significance is shown colour-coded as:

- Minor (yellow)
- Moderate (orange)
- Major (red), or
- Positive impact (green).

The significance is assessed PRIOR to the application of the mitigation measures in the right-hand column. Assuming the appropriate implementation of these measures, the resulting impact significance should then be at a reduced significance level.

Table 9.2 High-Level Impact Assessment Table

	Impact Topic (WB ESS)*	Sources of Potential Impact	Initial Assessment	Expected Impact Significance	Proposed Assessment and Mitigation Approach	Assessed in other urban development initiatives ¹⁰⁰
1	Environmental and Social Management Plan (ESMP) and Management Plans (ESS1)	Major activities of the Project and sub-components will have E&S Impacts. Land clearance for construction activities will impact physical, biological and social environment. In addition, small works or activities not requiring an ESIA as per Rwandan legislation might cause impact on the physical, biological or social environment	Every project, component or activity needs to have a certain level of assessment, management and monitoring in place. All contractors engaged need to operate in a manner consistent with the requirements of the ESSs	<i>Moderate</i> significance, because some impacts might be neglected or ignored by these activities, which currently not require any assessment or action.	<ul style="list-style-type: none"> Apply the impact assessment and management processes defined in the ESMF, as well as the attached tools. Develop and implement a robust and detailed ESMP or equivalent for all Project activities. The ESMP needs to include the mitigation measures, monitoring requirements, responsibility, frequency, timeline, and costs for implementation. The general ESMP needs to be accompanied by a set of specific management plans, as outlined in the ESSs below. 	<ul style="list-style-type: none"> Environmental and Social risks and Impacts have been preliminarily identified based on field visits, consultations with primary stakeholders including communities and implementing agencies (Secondary City district officials, LODA, REMA and CoK). Detailed ESIA and ESMP will be prepared.
2	Associated Facilities (ESS 1)	May include access roads, transmission lines, pipelines, quarry sites etc. and associated activities such as traffic and transport, construction material sourcing and deposition, major construction activities, presence of large numbers of workforce, water provision and wastewater treatment, waste management, other utilities, etc.	Associated facilities will have additional impacts on the ecological and social environment, e.g. land acquisition, construction disturbances, land clearance in case the associated facilities are not included in the national impact assessment requirements, either as part of the future components, or standalone projects.	<i>Moderate</i>	<ul style="list-style-type: none"> Identify and assess the Project's associated facilities as per the WB ESS definition. Include considerations for the associated facilities in all management and monitoring plans to be prepared in the future. 	<ul style="list-style-type: none"> GAP: No mention on associated facilities
3	Cumulative Impacts (ESS 1)	The Project will include several developments and interactions among existing features and future components. Sub-components being developed at the same time can cause cumulative impacts (e.g. land clearance, construction noise and other impacts, erosion, drainage, etc.).	There may be cumulative impacts related to land conversion, as well as livelihoods, emissions during construction etc. The cumulative impacts will result mainly during future stages, e.g. during construction of the Project's sub-components. Cumulative impacts are likely in case different sub-components are built at the same time. In addition, other projects being realized in line with the rapid urbanisation in Kigali are likely to cause cumulative impacts	The impact's significance is expected to be <i>moderate</i> , due to the uncertainty and extent of the future activities planned.	<ul style="list-style-type: none"> Other components to be identified having a potential to cause cumulative impacts with the Project. The Project components that will be planned and assessed individually may have cumulative effects. Potential cumulative impacts will be considered during the assessment of future components, as well as the overall E&S management and monitoring throughout the Project development. 	<ul style="list-style-type: none"> Cumulative impacts are acknowledged in case of simultaneous activities.
4	Labour and Working Conditions (ESS 2)	Occupational Health and Safety during construction and operation of the Project	Construction projects can present risks to workers from small incidents to major accidents. This Project will involve major construction activities including earth works	Impact significance is rated as <i>moderate</i> since project activities such as housing/road construction are very common and standardised practices can be used.	<ul style="list-style-type: none"> Address workers' H&S and describe requirements for the H&S management. Each sub-component to identify OHS hazards and risks. Ensure that the occupational health and safety management and risk mitigation measures are detailed described in the ESMP. Consider the development of Project specific Occupational Health and Safety Management Plan, compliant with both the national requirements and international standards (WB) and best practice. Ensure that adequate resources are dedicated for the OHS management during construction and include the requirement for HS performance in the contractors. Monitor and report on OHS incidents and accidents. Apply a worker's grievance mechanism (including access to workers engaged by contractors and subcontractors). 	<ul style="list-style-type: none"> A Labor Management Plan (LMP) has been prepared, which defines the labour, occupational health and safety procedures and measures to be taken.

¹⁰⁰ based on RUDP II ESMF

	Impact Topic (WB ESS)*	Sources of Potential Impact	Initial Assessment	Expected Impact Significance	Proposed Assessment and Mitigation Approach	Assessed in other urban development initiatives ¹⁰⁰
5		Worker's influx and management of worker relationships	Working conditions, terms and conditions of employment, as well as potential discrimination, and child labour (underage 16-18 years) poses a risk if not addressed adequately.	Major significance due to (i) expected workforce/workers influx, as well as amount of contractors and activities taking place simultaneously and (ii) influx construction workforce interaction with local residents with potential for Gender Based Violence.	<ul style="list-style-type: none"> Include the OHS plan in all supplier contracts and evaluate the performance of the contractors based on the plan measures. 	<ul style="list-style-type: none"> It is estimated that a significant workforce will be required for the construction implementation of all project investments, which is positive to provide jobs for men and women. The majority of the unskilled workers will be sourced from the community members in the project sites and a few required skilled workers from outside of the project area.
6		Hiring temporary and permanent workers for construction and operation of the Project	The Project will provide a number of temporary and permanent employment opportunities Enhance local employment and procurement.	Implementation of adequate workforce management planning at the level of each sub-component has the potential for <i>positive</i> impacts on local employment and local economy in general.	<ul style="list-style-type: none"> Develop and implement an HR/Labour Policy and a Labour Force Management Plan (or include equivalent mitigation measures in the ESMP) in line with Rwandan law, and where gaps exist, requirements of WB ESS2. The Plan should include requirements and mitigation/monitoring measures related and limited to the following topics: <ul style="list-style-type: none"> Specific terms and conditions of employment (e.g. hours of work, wages, overtime, compensation, workers accommodation, etc.) need to be communicated to employees and contractors prior to any works conducted. They should be included in all the employment and supplier contracts. Requirements to avoid (gender) discrimination (i.e. hiring process, compensation (including wages and benefits), working conditions and terms of employment, access to training, job assignment, promotion, termination of employment or retirement, or disciplinary practices, measures to prevent and address harassment, intimidation and/or exploitation). Exclusion of child and forced labour as per WB definition. Requirement for workers' rights to form and to join worker's organizations of and bargain collectively without interference. Workers grievance mechanism and means of information, submission of grievances, follow up procedures, responsibilities, etc. Procedures for demobilisation of the workforce are to be determined and support with finding new employment on completion of the Project. It has to be ensured that clear management and monitoring procedures and indicators need to be formulated in the specific Plan or ESMP. These will also apply to contracted employment, community and primary supply workers (if employed by the Project). As part of each sub-component ESMP, develop and implement, a Gender-based Violence Management Plan at sub-component level, on the basis of the Gender Action Plan prepared for the Project. 	
7	Resources (ESS 3)	Raw materials and resources required for the construction and operation of the Project	Construction of the Project will potentially require substantial quantities of materials for construction and operation. Existing quarry sites could be utilized.	The sustainability of such resources at the extraction sites will be negatively affected, as they are not renewable in the short term. The extraction sites may be <i>moderately</i> affected in several ways including landscape changes, displacement of animals and vegetation, poor visual quality and opening of depressions on the surface leading to several human and animal health impacts.	<ul style="list-style-type: none"> The sources of raw materials shall be screened and considered as associated facilities. The future ESIA's of project components shall provide information on the suppliers and estimates of the quantities of materials that will be required for the construction and operation of the Project and will define the principles and practices to be adopted in sourcing materials. Develop mitigation measures to be included into the ESMP with regard to resource use and efficiency. 	<ul style="list-style-type: none"> Maintain balance for demand of raw materials use by exploring use of local materials, recycled aggregates, use of innovative technology so as to minimize the project's footprints on finite natural resources.

	Impact Topic (WB ESS)*	Sources of Potential Impact	Initial Assessment	Expected Impact Significance	Proposed Assessment and Mitigation Approach	Assessed in other urban development initiatives ¹⁰⁰
8		Energy consumption	The Project will use energy during construction and operation. The Project needs to be designed and planned as energy efficient as possible.	Minor significance since energy efficiency is one of core principles of Project overall objectives,	<ul style="list-style-type: none"> Design of sub-components is to be planned in an energy efficient manner, including energy management considerations. Potential impacts need to be addressed in the ESMP developing specific mitigation measures with regard to energy use and efficiency. The mitigation measures include the development of an energy management plan, choosing state of the art, energy efficient over inefficient technology and equipment 	<ul style="list-style-type: none"> Efficient energy use, water usage during construction
9	Soils (ESS 3)	Construction activities	There is a risk of spills of oils, fuel or other materials causing contamination of soils during construction.	Moderate risks associated with fuel storages and handling on unprotected land.	<ul style="list-style-type: none"> Adequate spill control and preventive erosion control and soil management measures will be applied as described in the ESMP (e.g. plan to retain trees and other vegetation, use of natural contours for roads and drainage networks, excavated drainage channels, design of drainage system) 	<ul style="list-style-type: none"> Identify pollution management practices: offset risks and impacts of pollution from dust and emission, spills, wastes etc. Erosion control practices incorporated
10		Soil erosion	Due to the hilly nature of the Project Area, construction works and daily activities may cause soil erosion following vegetation clearing during rainy periods.	Moderate due to the construction activities taking place on hillside.		
11	Water Environment (ESS 3)	Change of surface water regime due to Project activities Groundwater abstraction for construction and operation needs	Impacts caused by use and abstraction of surface water and groundwater during construction and operation phase.	Although the sensitivity of the surrounding wetlands might imply a major risk, no high amounts of water abstraction are expected during construction. Therefore, the potential impact is evaluated as moderate.	<ul style="list-style-type: none"> An assessment of the affected rivers including baseline description (ecology, water flow and downstream users) against which potential impacts shall be conducted and mitigation and monitoring measures need to be included in the ESMP. Mitigation measures as per the ESMP include prioritising the use of rainwater/ storm water over surface water/groundwater abstraction by using harvesting equipment and systems on site. 	<ul style="list-style-type: none"> Detailed hydrological and morphological study of the site (in drainage and other related structures) should be conducted; Proper design and construction accordingly to accommodate design flows;
12		Discharge of site run off during construction and operation (e.g. accidental spills)	There is a risk of water pollution from leaks and spills of hydrocarbons, wastewater and other materials, as well as poor management of construction runoff. Further, given the hilly site configuration, erosion and sediments transportation with the stormwater runoff into the water bodies is considered a risk for the project.	Excavation, earthworks and hilly configuration of the site poses risks for erosion sediment transport with the runoff into the water bodies. Due to the sensitivity of the surrounding wetlands and the proximity to Nyabarongo River, as well as the likelihood of occurrence, the impact is evaluated as major.	<ul style="list-style-type: none"> The ESMP will set out good site practices that will be adopted to minimise these risks. Ensure implementation of adequate erosion control, sediment retention and stormwater runoff management. Ensure appropriate containment and disposal of construction wastewater, including sanitary water. Ensure appropriate and safe storage of contaminants such as fuels, construction materials and wastes. Provide absorbent and intervention materials in sufficient quantities and at relevant locations for intervention in case of leakages/spills. 	<ul style="list-style-type: none"> Provision of sufficient sizes of drains to take design flows; Wastes should not be disposed near any water body. All waste depending on its characteristics, should be disposed of in a controlled manner.
13		Improved Storm Water Runoff collection and discharge	Following the construction stage, during operation the Project infrastructure will result in improved storm water runoff collection, peak flows buffering/attenuation by employing green infrastructure techniques and measures aimed at increasing storm water infiltration rates.	Positive impact with implementation of embedded mitigation measures considered in the Project design.	<ul style="list-style-type: none"> Ensure overall model as laid out in the masterplan regarding water design plan are integrated in detailed design of relevant sub-components. 	<ul style="list-style-type: none"> Inclusion of a Stormwater management master plan.
14	Reduced Localized Flooding	GCK will increase the absorption of rain through various green infrastructure approaches, there will be less storm water available to pond in roadways, homes and businesses.	Positive impact with implementation of embedded mitigation measures considered in the Project design.			
15	Storm water Pollutant Reductions	Green Infrastructure techniques infiltrate runoff close to its source and help prevent pollutants from being transported to nearby surface waters. Once runoff is infiltrated into	Positive impact with implementation of embedded mitigation measures considered in the Project design.			

	Impact Topic (WB ESS)*	Sources of Potential Impact	Initial Assessment	Expected Impact Significance	Proposed Assessment and Mitigation Approach	Assessed in other urban development initiatives ¹⁰⁰
			soils, plants and microbes can naturally filter and break down many common pollutants found in storm water.			
16	Waste (ESS 3)	Waste generated during construction and operation	The Project will generate construction wastes. Where these cannot be re-used or recycled, they will require disposal with the potential for impacts during transport and at the disposal site. During operation waste will be generated. Currently, final disposal point is an unsanitary landfill.	The magnitude of negative consequences related to E&S issues occurring from insufficient waste management is high. The current waste management situation in Kinyinya Hill combined with an unsanitary landfill as endpoint suggests a high likelihood and thus suggests a <i>major</i> significance of the topic.	<ul style="list-style-type: none"> Waste management related activities and/or components should be considered in the future assessment. The ESMP will define the principles and practices to be adopted in disposing of waste. This includes collecting and segregating wastes and ensuring safe storage and in line with legal requirements. Ensure disposal through waste contractors licensed for treatment/ removal/ recycling of each of the waste types. Excavation and construction activities might produce hazardous substances. Develop and implement a waste management plan including sound handling of hazardous waste (storage, transport, disposal) comprise emergency response provisions. Waste streams shall be quantified based on the detailed design, including an assessment of potential waste minimization, recycling and re-use in the local economy. The preparation of a Waste Management Plan including considerations for hazardous streams and substances needs to be considered. 	<ul style="list-style-type: none"> Incorporation of Solid Waste Management at Construction Sites Develop waste management plan for various specific waste streams (e.g., reusable waste, flammable waste, hazardous construction debris, food waste etc.) prior to commencing of construction
17		Hazardous waste	Hazardous waste generated during construction may include spent oils, paints, solvents, batteries, chemicals, asbestos etc. These require sound on-site management that can be ensured through adequate construction procedures enforcement. However available receiving facilities and infrastructure is limited.			
18		Project Waste Management facilities	Project is considering incorporating waste management and treatment facilities for organic waste within the Project Area. Local collection and recycling stations are planned.			
19		Reduced Sewer Overflow Events	Using the natural retention and infiltration capabilities of plants and soils, the Project infrastructure will reduce the frequency of sewer overflow events by reducing runoff volumes and by delaying storm water discharges. This benefit may be critical in Kinyinya Hill, where there is no central sewage system, only septic tanks were constructed for some houses.			
20	Air Quality & Climatic Factors (ESS 3, ESS 4)	Generation of construction dust	Various construction activities can cause dust generation. Dust can have a negative impact on the local communities and can also affect flora and fauna, as well as water quality. Construction of sub-components could take place at the same time, impacting dust generation in a cumulative way. In addition, air pollution is already a problem in Kigali in general.	Major significance, dust and air pollution is already a problem in the area with Project construction activities only adding on to this issue. Sensitive receptors like the wetlands have been identified within the Project Area. In addition, cumulative impacts due to several sub-components built simultaneously are likely.	<p>The ESMP will set out measures to minimise dust emissions during construction: e.g. traffic routes shall be selected carefully, modern vehicles shall be used which are maintained regularly.</p> <ul style="list-style-type: none"> Ensure watering of transportation roads during dry and windy conditions. Generally keep roads in good condition. Minimise areas of land cleared and undeveloped at any one time. Cover truck loads with canvas to avoid dust blow. Ensure optimal traffic routes. Enforce vehicle speed limits on unpaved roads. Ensure appropriate stockpile management (friable materials) to minimise dust blow. Minimise drop heights for material transfer activities such as unloading of friable materials. 	<ul style="list-style-type: none"> Identify pollution management practices: offset risks and impacts of pollution from dust and emission, spills, wastes etc.
21		Increased road traffic	Increased traffic during construction and operation is source dust generation due to the poor road conditions. Emissions from the trucks have the potential for adverse impacts on local air quality both in the vicinity of the Site.			
22		Air quality	Ambient air quality to be affected during construction, due to exhaust emissions and dust.			
23		GHG emissions	The Project-related activities during construction and operation causes the release of GHG emissions into the atmosphere.			
			The effects are long-term. Sustainable green infrastructure and design will be used to minimise GHG emissions and improve energy		<ul style="list-style-type: none"> Planned planting of trees and other vegetation supporting carbon sinking. In addition, energy efficient housing approaches will support the minimisation of emissions. 	<ul style="list-style-type: none"> Establish targets for Greenhouse Gas Emissions Mitigated (metric tons of CO₂)

	Impact Topic (WB ESS)*	Sources of Potential Impact	Initial Assessment	Expected Impact Significance	Proposed Assessment and Mitigation Approach	Assessed in other urban development initiatives ¹⁰⁰
24				efficiency. Which leads to a <i>minor</i> significance of the impact.	<ul style="list-style-type: none"> Quantifying GHG emissions during planning and monitoring during operations, in case of exceeding international thresholds for GHG emissions. Annual monitoring is required Appropriate mitigation measures will be defined in the ESMP. 	
		Climate adaptation and resilience	Future climate change characteristics may have potential impacts on the Project design and integrity of the road and building structures. The core of the Project design focuses on increasing resilience to climate change by incorporating energy efficiency (e.g. water use, green energy, etc.) and resilient housing into planning and design.	The Project will incorporate and enhance the benefits of green infrastructure strategies for adapting to climate change, including <i>inter alia</i> reducing storm water flows, lowering heat stress e.g. by implementation of the green-blue corridors	<ul style="list-style-type: none"> The detailed design of the Project components shall consider climate change risks and hazards for the Project and appropriate adaptation measures will be defined in the ESMP. Cumulative effects of the Project and its contribution to climate adaptation and resilience should be evaluated and communicated. 	<ul style="list-style-type: none"> Provision of flood risk reduction infrastructure in flood-prone areas located near the upgrading sites to mitigate erosion, reduce and manage storm water run-off along settlements, enhance wetland buffer zones, and address flood hotspots.
25	Noise & Vibration (ESS 3, ESS 4)	Noise and vibration generated by movement of construction vehicles on and offsite, operation of construction equipment, piling or blasting, diversion of existing local traffic during construction	Noise and vibration during construction poses a potential risk to the health of workers and to sensitive neighbouring receptors such as residential areas, schools, hospitals, churches and recreation areas. In addition, vibration can disturb people and cause damage to buildings.	<i>Moderate</i> significance, because although the duration of construction activities will be limited, sensitive receptors have been identified within the Project Area. During operation increased traffic might potentially have noise effects.	<p>The ESMP will set out measures to be taken to minimise these risks including limits of working times and informing people about exceptionally noisy activities, which cannot be avoided.</p> <p>The ESMP will include provisions for noise and vibration management and follow international best practice according to IFC EHS guidelines.</p> <ul style="list-style-type: none"> Limit the hours of operation for specific pieces of equipment or operations, especially mobile sources operating through community areas or close to residential houses (typically between 10 pm and 7 am). Avoid vehicle movements at night. Inform the affected communities about activities and mitigation measures. Use of state-of-the-art technology and limit the number of machines operated simultaneously. Ensure the use of modern and well-maintained equipment (e.g. use of silencers). Set traffic speed limits. Verify drivers' behaviour with respect to driving speed and safety. 	<ul style="list-style-type: none"> Strict measures for noise pollution control to be undertaken during construction activities
26	Landscape and Visual Component (ESS 3)	Presence of above ground structures during construction and operation.	Permanent aboveground structures such as the housing and infrastructure have the potential to impact on the landscape setting. Construction activities will result in a temporary effect.	The planned interventions are expected to permanently alter the landscape and current visuals of the Project Area. However, the consider components are not deemed adequate to significantly affect the landscape, therefore a <i>moderate</i> significance is assigned to the impact.	<ul style="list-style-type: none"> Impacts on landscape need to be taken into consideration during detail design of components. Cumulative impacts of all components need to be considered. During construction, effort will be made to reduce visual nuisance and landscape impacts. 	<ul style="list-style-type: none"> Measures considered to avoid the damaging of aesthetics of the sites
27	Management of pesticides (ESS3)	Potential use of herbicides during construction and operation for vegetation clearance purpose. Potential use of pesticides for malaria prevention	It is expected that vegetation clearance will be needed for the developed areas. In case herbicides will be applied, this needs to be addressed accordingly. In case the Project activities include prevention of malaria spread, pesticides might have an impact on the surrounding habitats and community health and safety.	<i>Minor</i> significance of the impact is expected through minimization and avoidance of pesticides use.	<ul style="list-style-type: none"> Develop a Pesticide Control Program or include equivalent measures in the ESMP including clear guidelines and instructions on the procurement, storage and use of pesticides. The Project will not use any pesticides or pesticide products or formulations proven to cause adverse impacts on human health and environment. These requirements need to be included in the supplier contracts. 	<ul style="list-style-type: none"> GAP: No mention on pesticide management
28	Community H&S (ESS 4)	Improved human health	The Project aims for a clean and healthy environment which contributes to a higher quality of life (e.g. less air pollution due to alternative transportation systems, sufficient public parks for recreation). In addition, the	<i>Positive</i> impact on the quality of life for the community.	<p>The following measures should be applied:</p> <ul style="list-style-type: none"> Include the security requirements in the Community Health, Safety and Security Plan based on a risk assessment and ensure that the 	<ul style="list-style-type: none"> Measures included towards Community Health and Safety planning

	Impact Topic (WB ESS)*	Sources of Potential Impact	Initial Assessment	Expected Impact Significance	Proposed Assessment and Mitigation Approach	Assessed in other urban development initiatives ¹⁰⁰
29		Improved Infrastructure	Project components and related activities are deemed to improve living conditions. Project activities will lead to improvement of transport, sewerage, water supply and ICT networks. Such services are a prerequisite for the development in the region.	Positive impact on the quality of life for the community.	<p>Voluntary Principles on Human Rights (VPHR) and ESS4 requirements are addressed.</p> <ul style="list-style-type: none"> Inform the affected communities about activities and mitigation measures. Use of state-of-the-art technology and limit the number of machines operated simultaneously. Ensure the use of modern and well-maintained equipment (e.g. use of silencers). Set traffic speed limits. Verify drivers' behaviour with respect to driving speed and safety. Target signage and outreach activities to improve public awareness of traffic changes and potential hazards for high-risk sections of public roads, including near the site and laydown areas. In case of security personnel at the site, ensure proper training and in the use of force and appropriate conduct toward workers and affected communities. Shield lighting downwards towards the site to avoid side-spill. Avoid tall masts where possible. Ensure vehicles and equipment are switched off when not in use. Ensure optimal traffic routes to minimise lengths of travel while avoiding settlements if possible. 	
30		Enhanced Security	During the construction and operation of the Project facilities, security will be enhanced in the premises of Kinyinya Hill and the houses through distribution of suitable security lights and presence of security guards.	This will lead to improvement in the general security in the surrounding area. Positive impact on the quality of life for the community.		
31		Construction of the Project	The Project has the potential to impact on local residents and neighbouring communities due to construction noise and air emissions. Accidents risks are associated with the construction traffic and residents access to ongoing construction areas.	Significance of the impact is moderate.		
32		Presence of construction workers from outside the area	<p>The influx of workers to the Project Area during construction is likely to result in potential social impacts e.g. increased local population, demand on public and social services, and community stability. Anti-social behaviours and/or the spread of transmissible disease (including e.g. Covid-19, or sexually infectious diseases) could also increase due to the itinerant nature of the construction workforce. Gender-based violence is also a potential associated risk.</p> <p>There could also be positive impacts associated with increased local economic activity bought about by the construction workforce which should be captured and maximised.</p>	High likelihood of occurrence mainly during construction, since a large number of workers is needed for the Project development. This concludes to a moderate significance.		
33	Increased traffic	The Project has the potential to impact on neighbouring communities and those existing in the Project Area by construction traffic and additional traffic generated by the operation of the development. These will affect noise and air quality due to increased truck traffic during construction of the Project. Increased traffic will also affect road safety.	Magnitude of the impact is moderate. The magnitude of impact could become Major in case of any traffic incidents/accidents (possibly fatal).	<p>Develop measures to mitigate the impacts including speed limits, drivers' training and informing the affected communities.</p> <ul style="list-style-type: none"> Schedule traffic activities to avoid peak hours on local roads if feasible. Implement the Grievance Mechanism to be used by the community (see Stakeholder Engagement). Ensure safe driving by Project personnel (e.g. through training/induction). Organise carpools/buses for worker transportation where possible to avoid additional traffic pressure. Prevent storage of construction materials, equipment and machineries on traffic lanes. <p>Ensure adequate monitoring and follow up procedures are included in a Traffic Management Plan/ESMP to</p>	<ul style="list-style-type: none"> Measures included towards controlling the movement of construction traffic 	

	Impact Topic (WB ESS)*	Sources of Potential Impact	Initial Assessment	Expected Impact Significance	Proposed Assessment and Mitigation Approach	Assessed in other urban development initiatives ¹⁰⁰
34		Ecosystem services	The Project design integrates ecosystem values into the urban planning. The value of wetland ecosystem services is expected to increase as result of Project implementation with the wetlands being considered as living systems that will maintain or even improve their functionality as result of flood risks reduction, water quality improvement. However during the construction stage, land clearance and changes in land use may cause a temporary loss of and/or difficult access to ecosystem services.	Moderate significance due to temporary loss of or difficulties in access to ecosystem services during the construction stage.	<p>ensure community safety with regard to traffic/road hazards on public roads. Include these measures in the supplier contracts.</p> <ul style="list-style-type: none"> On case-by-case basis, sub-components ESMPs are to include management measures aimed at minimizing impacts and access disturbance to ecosystem services by the local residents. 	<ul style="list-style-type: none"> Design and implement wetland restoration activities that integrate biodiversity and ecosystem values in urban development and enhance ecosystem services in a priority wetland. GAP: no consideration of ecosystem services beyond those of wetlands.
35	Displacement of Existing Land Uses, Property and People (ESS 5)	Permanent and temporary land acquisition for development of the Project	Land acquisition and economic resettlement are expected. Potential physical resettlement might take place.	The impacts on livelihoods and the potential physical or economic displacement are evaluated as <i>major</i> .	<ul style="list-style-type: none"> For every activity that might include acquisition of land and resettlement, the principles outlined in the existing Resettlement Policy Framework prepared for the Project need to be followed and included. These need to be considered starting from the initial concept and planning phase (to avoid resettlement to the extent possible, assessment of alternatives etc.) and should extend during the whole lifetime of the Project and its components. Land acquisition involving expropriation or resulting in physical and/or economic displacement will require the preparation of a LACP/RAP (covering physical and economic displacement aspects) to establish the land acquisition process, compensation and support provisions and grievance management (as part of stakeholder engagement). The following aspects need to be addressed at the next stage of the Project in line with ESS5: Provide a short project description and the impact of the Project on livelihoods. The Project needs to collect baseline data with regard to the current land uses, properties, formal and unofficial land uses, structures, residences, identification of vulnerable people etc. within the area of intervention of the Project. Provide information regarding the land acquisition process conducted to date and a gap analysis between the national standards and ESS5 and international best practice. Demonstrate clearly that all PAPs using the land to be recovered are eligible for resettlement and compensation process regardless the degree of formalization on the land and assets they own and use. Project needs to ensure that all affected people will be able to improve or at least restore their standard of living/ livelihoods in accordance with ESS 5. The Project needs to ensure and document that assets are compensated to the full replacement costs 	<ul style="list-style-type: none"> Specific resettlement Policy Framework RPF prepared to address ESS5.
36			Physical or economic displacement are expected. Current residential land is expected to be majorly used as residential areas by the Project, so physical displacement could be temporary (for the duration of construction of new housing) in specific cases. Land currently used for agriculture is expected to receive other uses causing permanent economic displacement. Impact on vulnerable groups is expected (e.g. informal land users, etc.)	A permanent and significantly altered impact with a large magnitude and very likely to occur leads to a <i>major</i> significance of the impact.		
37			Land acquisition and resettlement related to informal or non-existing ownership titles. The baseline indicates that informal housing in the Project Area exists. Residents of informal housing are considered vulnerable.	A permanent and significantly altered impact with a large magnitude and very likely to happen leads to a <i>major</i> significance of the impact.		
38			Resettlement during planning of future projects	Land acquisition and physical or economic displacement are expected.		

	Impact Topic (WB ESS)*	Sources of Potential Impact	Initial Assessment	Expected Impact Significance	Proposed Assessment and Mitigation Approach	Assessed in other urban development initiatives ¹⁰⁰
					<ul style="list-style-type: none"> After investigating the applied compensation methodology and identifying the gaps between agreed payments and current market rates Engagement and grievance mechanism: In line with ESS 10, the Project needs to ensure that meaningful participation of affected communities and persons will take place during the planning, implementation, monitoring, and evaluation of the compensation process, livelihood restoration activities, and relocation process. The Project needs to provide a Stakeholder Engagement Plan with focus on land acquisition and resettlement. This plan must at least allow to identify stakeholders, list all the meetings and events held (participants, subjects, outcomes, concerns) and present the methodology used to ensure the perspective of all stakeholders (including disadvantaged ones) be captured and considered in the resettlement design and implementation process. The plan must provide adequate access to project grievance mechanism in accordance with ESS 10. Vulnerable groups potentially affected need to be included. The Project needs to provide information regarding the collaboration with UIA and other relevant agencies. If applicable, relevant arrangements need to be included in the Livelihood Restoration Plan and/or Resettlement Action Plan, including the specification of financial responsibilities (top-up rates). 	
39	Biodiversity & Nature Conservation (ESS 6)	Temporary and permanent land-take for the Project	Although no critical habitat was identified in the Project Area, land will be occupied permanently and temporarily during construction requiring clearance of existing vegetation and possible removal of habitats and species of nature conservation interest. The majority of vegetation is associated with agricultural land (scrub) and eucalyptus trees which are non-native.	The significance is <i>minor</i> due to the urban/agricultural character of the area.	<ul style="list-style-type: none"> Primary data collection and field surveys for flora and fauna need to be undertaken to identify types of habitat and typical species in the affected area. This survey shall include the project-site and its surroundings, as well as any associated facilities. Where relevant, a critical habitat assessment shall be conducted (refer to impact on wetlands). The ESMP will include mitigation and compensation measures for the clearance of trees and plants and expected impacts to biodiversity in general. Limit vegetation clearing to areas within the site boundary where it is absolutely necessary. Avoid clearing mature trees. Avoid off-road vehicle traffic. Use existing roads. Ensure revegetation of cleared areas where possible after construction using native species. 	<ul style="list-style-type: none"> Measures for protection of flora include those for specific vegetation clearance mitigations.
40		Loss of vegetation and Biodiversity	Clearance of existing vegetation and possible removal of habitats and species of nature conservation interest.	The significance is <i>minor</i> due to the urban/agricultural character of the area.	<ul style="list-style-type: none"> Assess the occurrence of protected areas and/or natural/critical habitats at and around the construction site. Avoid these areas where possible through traffic management and site setup. 	<ul style="list-style-type: none"> Sites assessed have preliminary Integrated Biodiversity Assessment Tool (IBAT) screening.
41		Impacts on Fauna	Removal of habitats	The significance is <i>minor</i> due to the urban/agricultural character of the area.	<ul style="list-style-type: none"> Carry out an assessment of protected species Develop and implement mitigation and compensation measures for the clearance of trees and plants and expected impacts to biodiversity in general 	<ul style="list-style-type: none"> A biodiversity management and monitoring plan will put in place to: i) identify the biodiversity of the areas to intervene to measure as minimum the richness and abundance of fish, birds, amphibians and macroinvertebrates. ii) develop measures to improve the habitat of endangered, critically

	Impact Topic (WB ESS)*	Sources of Potential Impact	Initial Assessment	Expected Impact Significance	Proposed Assessment and Mitigation Approach	Assessed in other urban development initiatives ¹⁰⁰
42		Encroaching of wetlands	There are wetlands in the proximity of the project site that the baseline information indicate as sensitive. The Nyabarongo River and wetlands have been identified as Important Bird and Biodiversity Area and Key Biodiversity Area.	Major	<ul style="list-style-type: none"> A detailed assessment of the wetlands shall be conducted as part of the future Project ESIA and in the framework of required primary data collection, and if deemed necessary a critical habitat assessment including suitable mitigation measures. This shall also include the wetlands potentially affected by the land conversion. 	<ul style="list-style-type: none"> engendered, vulnerable, migratory, endemic and congregational species. Measures identified to avoid the encroachment of the water bodies and wetlands
43	Archaeological & Built Heritage (ESS 8)	Excavation works during construction and land conversion	Construction of the Project may result in disturbing archaeological features and the discovery of unknown archaeological finds.	Minor significance, since there is no indication for known cultural heritage.	<ul style="list-style-type: none"> A Chance-finds-procedure needs to be prepared for the Project according to ESMF and needs to be shared with the contractors. Ensure all chance finds of cultural heritage (e.g. graves, old ceramic, old building fragments) are reported immediately to the relevant authority. If possible, avoid excavation in the ultimate neighbourhood of a chance find, fence the chance find and await instructions from the competent authority. 	<ul style="list-style-type: none"> ESIA process(es) to prescribe measures so that subproject activities preserve ancient monuments and/or archaeological site(s), protected, and religious structures/shrines of local importance.
44		Intangible Cultural Aspects	Cultural identity and way of living can be altered e.g. influx of foreign workers, increased migration and tourism	Social cohesion and blending with existing communities and the GCK houses and other facilities occupants, as well as workers during construction may pose a minor potential impact for conflicts.	<ul style="list-style-type: none"> Stakeholder engagement should take into consideration the cultural heritage aspects as defined in the Project's SEF and SEP- 	
45	Stakeholder Engagement (ESS 10)	National legislation does not require continuous Stakeholder Engagement	Not conducted yet. Currently, stakeholder engagement is at an initial and non-systematic stage. Engagement has been carried out as per Rwandan legislation. Additional actions to achieve compliance with WB ESS10 are required.	Major significance due to the high profile, scale and duration of the Project, relevant number of interested and affected parties including vulnerable groups, potential expropriation and resettlement etc.	<ul style="list-style-type: none"> All the activities should take into consideration the ESS10 requirements and the Project's Stakeholder Engagement Framework and Stakeholder Engagement Plan. Future SEPs are to be prepared in accordance with the SEF, in consideration of gender issues and specifically identifying and addressing the needs of vulnerable groups. 	<ul style="list-style-type: none"> Large group of stakeholders (government agencies, urban inhabitants, farmers, rural communities, NGOs, etc.). The project will interact with the stakeholders during planning, construction and delivery of works. Affected stakeholders will have grievance mechanisms to reach the project implementing agencies.

9.7.2 Replicability of Impacts in other Rwandan Cities

The previous table provides a comprehensive description of the expected E&S impacts that may reasonably occur as part of the GCK Project/Model, and reference is made towards what similar safeguards are being expected to/being put in place from other similar urban development interventions along the Rwandan geography (e.g. in the six secondary cities, described in the RUDP II ESMF). As described so far, it is evident that similar impacts are expected to occur, with impact significance varying according to the specific features of these interventions, along with the particular sensitivity of the physical/biological/social baseline features; which are likely to change from one area to another (e.g. presence/absence of wetland areas adjacent to Project sites).

It is deemed that present GCK Project/Model results are comparable to those described for other urban development interventions that are of similar nature; though the assessment has found that specific WB ESS safeguard features may have been missed (e.g. gap towards explicit management of pesticides; ecosystem services and the identification of associated facilities as part of scope of E&S assessments; the latter two considered for the GCK Model as of moderate significance). Nonetheless, the overall assessments and mitigating approaches for the GCK Project/Model and other interventions are quite similar and comprehensive.

10. HIGH-LEVEL MITIGATION MEASURES



Strategic context:

A key aspect of the GCK Project/Model is that its successful implementation, and lessons learned throughout its specific environmental management framework, lead to enable its overall replicability to secondary cities. In alignment to the impacts identified in the previous section, which are deemed common to similar interventions that may occur along Rwanda, mitigation measures identified for these impacts in the present section may also be replicated to other similar prospective interventions in the near future.

10.1 Mitigation Measures at Project Level

The **High-Level ESIA** has been prepared to identify and assess the potential E&S risks stemming from the future development within the 600 ha Project Area. As mentioned throughout the report at hand, the Project will be implemented via a number of sub-components, each of which will be subject to specific E&S assessment (and permits/approvals) as applicable under Rwandan regulations.

The **High-Level ESIA** provides an overall E&S context to facilitate alignment of the separate studies with the Project goals and standards, as well as to provide a scoping basis for the sub-component ESIA's to be developed.

General mitigation measures for the Project impacts (the future development within the 600 ha Project Area) as identified in **Chapter 9** above were taken forward and detailed in the high-level ESMP (**Section 10.3**).

On the basis of the high-level ESMP supplemented by the step-by-step guidance in the **ESMF**, each sub-component will be subject to specific E&S impact assessment, which in turn will inform the sub-component E&S management planning.

This staged approach is explained in the following sections and further detailed in the **ESMF**.

10.2 Sub-Component ESIA and E&S Management Approach

The development of Project sub-components will need to apply the listed high-level mitigation measures as part of the design. In addition, a further, iterative assessment will be undertaken to review potential impacts in greater detail. This will also help to provide site-specific mitigation and enhancement measures, as appropriate. Each Project sub-component is to be appraised at an early stage to determine associated E&S risks and impacts. This entails undergoing a screening process aimed at identifying and appraising the type and scale of any E&S risks and impacts that may arise from the sub-component implementation. For this purpose each sub-component will be screened for potential E&S impacts and assigned a category from "A" (high risk) to "C" (low risk). This initial E&S screening and categorization will define the path as well as the type and scope of E&S impact assessment a specific sub-component will undergo.

The **ESMF** details the requirements for E&S assessment of sub-components, including screening and categorisation as per good international industry practice.

The **High-Level ESIA** was conducted when no sub-components were yet planned in detail. As soon as sub-components are in the detailed design stage, a further sub-component E&S assessment must be carried out. Further, in accordance with the categorisation outcome, the ESIA process and key requirements are highlighted and exemplification of methodologies and processes to be employed at the various ESIA stages are provided to allow for high-quality sub-components ESIA development, in line with good international industry practice.

For each single sub-component project ESIA, the objective is to (i) identify E&S risks and potential impacts caused by the respective sub-components and (ii) to define appropriate management and monitoring measures of these risks applying the hierarchy of avoidance, mitigation and (iii) - if avoidance and mitigation are not feasible – compensation of impacts. The impact assessment will be based on primary baseline data collection, as well as site surveys and studies.

The Project, as well as its individual components, shall have a robust ESMP and accompanying specific ESMPs in place, as outlined in the high-level ESMP and the requirements of the **ESMF**. The sub-component ESIA will identify the embedded E&S controls¹⁰¹ and will define the mitigation measures required to address the residual E&S impacts and ensure that the Project requirements, regulations and standards are met throughout the sub-component implementation. Addressing the E&S risks and impacts represents a Project commitment, more specifically a commitment by the relevant Project sub-component developers to ensure that these measures will be implemented during the execution of all sub-components through a combination of processes implemented by the sub-components Developers and their contractors.

With regard to the identified potential risks on people and livelihood, the objectives of the **RPF** need to be taken into consideration during the feasibility and design of the component. Where project related land acquisition results in physical and/or economic displacement, a Resettlement Action Plan (RAP) and/or Livelihood Restoration Plan (LRP) will be prepared separately to address land requirements, affected properties, displaced persons and livelihoods due to the proposed Project, as per the requirements of WB ESS5 and the Project's **RPF**.

The stakeholder engagement activities throughout the project cycle will be guided by the existing **SEF** for the Project and the future SEPs for each sub-component.

10.3 High-Level Environmental and Social Management Plan

An ESMP is a project-specific package of management plans setting out how the requirements, management and mitigation measures, and the commitments resulting from the Project's ESIA process will be implemented, managed and monitored. The ESMP will generally lay out information such as the person responsible for implementing the project commitment, any monitoring requirements and associated standards or thresholds, the timing of monitoring, check methods and corrective actions.

The High-level ESMP lays out a set of actions that need to be implemented during the construction and operations of the Project, and by whom. The sub-component developers have the overall responsibility to ensure that the **High-Level ESIA** obligations are implemented as intended.

Table 10.1 sets out a comprehensive list of E&S commitments by key themes that would need to be fulfilled by the Project Implementing Agency and the Project, during the construction and operation activities. As described earlier, key themes may be subject to one or more specific management plans that provide greater detail. The mitigation measures taking into consideration the impacts and the general mitigation measures identified in **Chapter 9**, and thus may change depending on the specificities of final Project design.

Recommendation:

A substantial amount of excavation material is expected from construction activities. It is recommended to set up an interactive management platform to offer the possibility for material exchange amongst the sub-component developers. For example, material that has been excavated at one sub-component construction site can be reused as a filler at a neighbouring construction site to avoid unnecessary transport trips and avoid creating new borrow sites and disposal areas.

¹⁰¹ The term "Embedded Controls" refers to those protective measures that are anyhow already included in the approved Project Design, such as air filters, wastewater treatment, etc. – therefore such items do not normally need to also be added as a further commitment.

Coordination between the different sub-components under an overarching plan could enable this exchange of material, so that a surplus of soil in one sub-component of the project can compensate for a shortage in another. The platform could also serve for other types of construction materials.

A further indicative list of best practice mitigation measures according to the IFC EHS Guidelines is included in the Best Practice Mitigation Tool in the **High-Level ESIA**. The General EHS Guidelines contain information on cross-cutting environmental, health, and safety issues potentially applicable to subsequent projects. Other mitigation measures are more tailored towards each individual sub-component project and ultimately based on the outcome of the individual ESIA's.

Environmental and Social Management System

The vehicle for the integrated management and implementation of ESMP and associated E&S procedures is an Environmental and Social Management System (ESMS). An ESMS consists of four elements planning, doing, checking and acting (**Figure 10.1**).

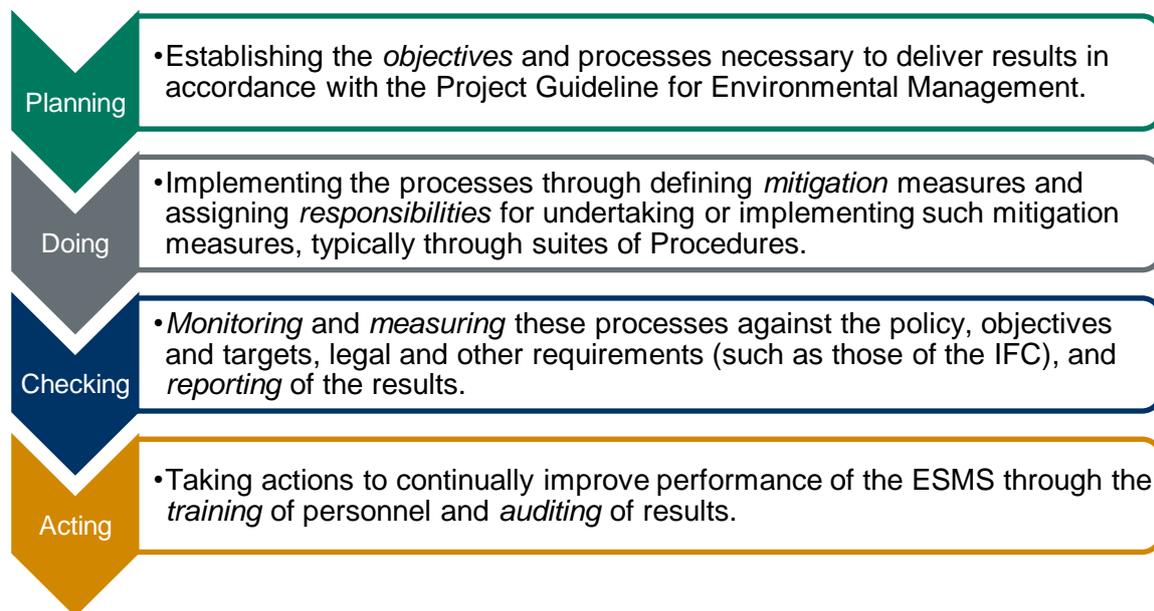


Figure 10.1 Environmental and Social Management System

An ESMS must be established and implemented by the respective sub-component developers to:

- Assist management in establishing priorities for E&S impacts;
- Provide a mechanism for ensuring that the existing ESMP and associated Procedures are updated to include the measures identified in the ESIA, and that these measures are implemented;
- Track changes in national legislation and/or Lender standards so that they can be addressed in a timely manner;
- Provide a framework for compliance auditing and inspection programs;
- Ensure E&S (including Project induced health issues) continue to be integrated into business decisions;
- Provide a framework for mitigating impacts that may be unforeseen or unidentified until construction or operation is underway;
- Encourage and achieve appropriate E&S performance and awareness from all employees and contractors; and

- Provide assurance to regulators, stakeholders and lenders that their requirements with respect to E&S performance are being managed.

The tendered contractor for a specific sub-component may already have a corresponding management system in place including e.g. OHS guidelines, code of conducts. Nevertheless, an overarching ESMS is necessary to cover specific topics and guaranteeing the compliance with Applicable Standards.

Monitoring

Further, FONERWA (supported by REMA as Rwandan institution in charge of ESS monitoring) and developers of the respective sub-component projects will undertake a monitoring program to ensure that the actions of all Project-related organisations and staff are aligned with the requirements in the ESMP. During the construction period this monitoring will be more intensive than during the subsequent operations period. This monitoring will require specialists to be in the field and checking the contractor works with respect to E&S protection, as well as health and safety of workers and the public.

The sub-component developers will be required by the Lenders of a sub-component to provide periodic reports on the monitoring and status of ESMP implementation, and in addition the Lenders will conduct their own monitoring periodically to confirm the status.

Table 10.1 High-Level Environmental and Social Management Plan

	Topic/Potential Impact	Reference Standards	Mitigation, Management and Enhancement Measures	Means of Verification	Responsibility	Monitoring Procedure
E&S Assessment and Management						
1	Cumulative impacts from existing features and future components	ESS 1-10	<ul style="list-style-type: none"> Include potential cumulative impacts during the assessment of future components, as well as the overall E&S management and monitoring throughout the Project development 	ESIA, ESMPs and monitoring plans in place, addressing cumulative impacts	Sub-component Developer and Contractor	Monitor cumulative impacts during Project development
2	Associated Facilities	ESS 1	<ul style="list-style-type: none"> Identify Associated Facilities as per WB ESF. Assess associated Project facilities/ infrastructures a separate project-related ESIA or in a separate study. Include impacts from associated facilities in Project's management and monitoring plans. 	ESIA assessing associated facilities Associated facilities integrated in the Project's E&S processes	Sub-component Developer and Contractor	Review project-related ESIA's
Occupational and Community HS & Labour and Working Conditions: standalone plans such as: "H&S Management Plan", "Site-security Management Plan", "Workforce Management Plan" can be developed, grouping key mitigations centred on their respective themes.						
3	Occupational Health and Safety; Working Conditions	ESS 2	Prepare an OHS Plan based on the occupational risks and hazards identification	OHS Plan in place	Sub-component Developer and Contractor	OHS performance Incidents/accidents reported
4			Provide H&S Training to the construction workforce (including sub-contractors, temporary workers and drivers)	Training performed and recorded	Sub-component Developer and Contractor	Check Training records
5			Ensure site premises are provided with appropriate fencing (where applicable) and lighting. Use hazard notices/signs/barriers to prevent access to dangerous areas.	H&S planning of construction site done, items installed	Sub-component Developer and Contractor	Random site inspection
6			Ensure speed limits on site and on transporting routes.	Speed signs installed	Sub-component Developer and Contractor	Random site inspection
7			Ensure the use of Personal Protective Equipment (PPE) for workers.	PPE used on-site by workers	Sub-component Developer and Contractor	Random site inspection

	Topic/Potential Impact	Reference Standards	Mitigation, Management and Enhancement Measures	Means of Verification	Responsibility	Monitoring Procedure
8			Maintain high standard in housekeeping on site.	Good housekeeping on-site	Sub-component Developer and Contractor	Random site inspection
9			Ensure the workforce has access to primary healthcare on site, providing prescriptions and vaccinations.	Healthcare available on site Medical surveillance records	Sub-component Developer and Contractor	Random site inspection Review of grievance records Review of medical records (in case not confidential)
10			In case more than 35 workers are present on site, ensure that a hospital, medical clinic or a health centre can be reached within a period of 45 minutes.	Medical centres in the proximity of the site.	Sub-component Developer and Contractor	Medical centres in the proximity of the site identified once prior the commencement of works
11			Ensure provision of welfare facilities at the Project site, including shaded welfare areas, bathrooms, and potable water. Provide hygienic, adequate facilities for workers, ensuring toilets and changing rooms be separated to male and female employees.	Welfare facilities provided at site	Sub-component Developer and Contractor	Random site inspection
12			Provide housing conditions in accordance with all applicable health and safety regulations and norms by ensuring the provision of adequate space, supply of water, adequate sewage and garbage disposal system, appropriate protection against heat, cold, damp, noise, fire and disease-carrying animals, adequate sanitary and washing facilities, ventilation, cooking and storage facilities and natural and artificial lighting, and in some cases basic medical services.	Appropriate housing conditions for workers	Sub-component Developer and Contractor	Random site inspection Worker interviews
13			Ensure that the workers camp and construction areas are open only to formal employees.	Access controlled	Sub-component Developer and Contractor	Random site inspection
14			Prepare accident and incident reporting	Accident and Incident register	Sub-component Developer and Contractor	Workers grievance mechanism log Random site inspection

	Topic/Potential Impact	Reference Standards	Mitigation, Management and Enhancement Measures	Means of Verification	Responsibility	Monitoring Procedure
				Worker's grievance mechanism		
15	Labour Rights	ESS 2 ESS 1, IFC/EBRD Worker's Accommodation: processes and Standards	Prepare a Workforce or Labour/HR Management Plan	Workforce or Labour/HR Management Plan in place	Sub-component Developer and Contractor	Site Inspection
16	Provide workers access to and ensure awareness about the Grievance Mechanism		Grievance Mechanism in place and grievances recorded	Sub-component Developer and Contractor	Review of grievance register	
17	Ensure minimum legal labour standards as per ILO regulations (child/forced labour, no discrimination, working hours, minimum wages) are met		Grievance Mechanism Records, Training recorded	Sub-component Developer and Contractor	Inspection reports (also from labour authorities), Review of grievance register and training record	
18	Community Health and Safety	ESS 4	Prepare a Community Health and Safety and Security Plan, along with Code of Conduct.	Plan in place	Sub-component Developer and Contractor	Review of grievance register
19	Ensure all contractors implement codes of conduct concerning employment and workforce behaviour (including but not limited to safety rules, zero tolerance for substance abuse, environmental sensitivity of the area, dangers of sexually transmissible diseases and HIV/AIDS, gender equality and sexual harassment, respect for the beliefs and customs of the populations and community relations in general).		Workers Code of Conduct Grievance Mechanism records	Sub-component Developer and Contractor	Review of grievance register	
20	Outreach activities to improve public awareness of traffic changes and potential hazards for high-risk sections of public roads, including near the site and laydown areas. Ensure that site areas are provided with appropriate security, fencing, signage and lighting. Use hazard notices/signs/barriers to protect children and other vulnerable people from harm and prevent access to non-workers.		Warning signs Minutes of Meetings	Sub-component Developer and Contractor	Inspection if traffic routes, Review of grievance register	

	Topic/Potential Impact	Reference Standards	Mitigation, Management and Enhancement Measures	Means of Verification	Responsibility	Monitoring Procedure
21			In case of security personnel at the site, ensure proper training and in the use of force and appropriate conduct toward workers and affected communities.	Training Records	Sub-component Developer and Contractor	Review of training records and grievance register
22			Develop and conduct appropriate trainings and apply recruitment procedures and policies to avoid social tensions, increases in crime, prostitution and to pressures on local services (health, leisure, police, etc.) or incidence of diseases such as HIV/AIDS posed by the temporary presence of construction workers.	Recruitment policy	Sub-component Developer and Contractor	Review of training records and grievance register
23	Communicable Diseases: Harming the community's health	ESS 4	Report any occurrence of any communicable diseases amongst the workforce (STD, HIV/AIDS, TB, malaria and Hepatitis B and C) and set up disease prevention programme if needed.	Communicable Diseases Register	Sub-component Developer and Contractor	Review of diseases register and disease prevention programme if available.
24	Housekeeping	ESS 2 ESS 4	Maintain high standard in housekeeping on site. Construction materials and light equipment should be stored properly.	Visual verification of good housekeeping on-site	Sub-component Developer and Contractor	Random site inspection
25	Fire Prevention, Emergency Response Planning	ESS 2 ESS 4	Prepare and implement an emergency response plan.	Emergency response plan	Sub-component Developer and Contractor	Regular site inspection
26			Ensure minimum first aid provisions on site. (suitably stocked first-aid kits; a person, respectively an adequate number of first-aid helpers and ensure that staff and workers are informed about first-aid arrangements)	Suitable first aid kits on site Ensure the presence of first aid helpers in all shifts First aid certificates	Sub-component Developer and Contractor	Regular monitoring of first aid kits Review of First Aider Certificates Review of number of First Aiders required by local legislation
27			Ensure immediate cleaning of any spills and remediation of contaminated areas after construction.	Workers trained. Emergency response team (ERT) is in place	Sub-component Developer and Contractor	Random site inspection after spill events One-time inspection after construction Review of training records Review of ERT

	Topic/Potential Impact	Reference Standards	Mitigation, Management and Enhancement Measures	Means of Verification	Responsibility	Monitoring Procedure
28			Provide necessary fire prevention equipment on site in line with applicable regulations.	Fire prevention equipment in place;	Sub-component Developer and Contractor	Regular site inspection
29			Provide necessary prevention equipment and teams on site in line with applicable regulations to respond to emergency scenarios e.g. fire, explosion, floods, natural hazards etc.	Prevention equipment and team is in place Training performed and recorded	Sub-component Developer and Contractor	Regular site inspection Review list of equipment Review of ERT Review of training records
Resource Efficiency: a standalone “Energy Management/Efficiency Plan” can be developed, grouping key mitigations centred on management of resource use.						
30	Energy consumption during construction and operation	ESS 3	Identify energy sources and needs. Include efficiency aspects in the project development. Consider energy efficiency aspects in the tender documentation for technology and equipment. Monitor the energy consumption of the Project.	Monitoring Plan ESMP	Sub-component Developer and Contractor	Monitoring records
31	Raw materials	ESS 3	Identify sources of raw materials for construction. Ensure they are included in the assessment and management plans (e.g. as associated facilities)	Monitoring Plan ESMP	Sub-component Developer and Contractor	Monitoring records
Ambient Air Quality and Climate: a standalone “Pollution Prevention and Control Plan”; can be developed, grouping key mitigations centred on Project atmospheric emissions.						
32	Dust emissions (especially in dry conditions)	ESS 3, ESS 4	Ensure watering of transportation roads during dry and windy conditions. Generally keep roads in good condition.	Watering conducted, roads in good conditions	Sub-component Developer and Contractor	Random site inspection, inspection of roads
33			Cover truck loads with canvas to avoid dust blow.	Trucks covered	Sub-component Developer and Contractor	Random site inspection
34			Ensure optimal traffic routes. Enforce vehicle speed limits on unpaved roads.	Speed limit signs Driver Training Records	Sub-component Developer and Contractor	Random site inspection
35			Ensure appropriate stockpile management (friable materials) to minimise dust blow. Minimise drop	No extensive dust blow	Sub-component Developer and Contractor	Random site inspection

	Topic/Potential Impact	Reference Standards	Mitigation, Management and Enhancement Measures	Means of Verification	Responsibility	Monitoring Procedure
			heights for material transfer activities such as unloading of friable materials.			
36	Emissions from equipment and vehicles	ESS 3, ESS 4	Use equipment and vehicles in appropriate technical conditions. Provide emissions control equipment where applicable (e.g. filters).	Technical Specification Sheet	Sub-component Developer and Contractor	Each time new equipment/vehicle is used at the site Random site inspection on regular basis Review of grievance records
37			Use low sulphur content fuels, in line with legal provisions in force as well as local availability.	Technical Specification Sheet	Sub-component Developer and Contractor	Random site inspection
38			Ensure optimal traffic routes to minimise lengths of travel while avoiding settlements if possible.	Optimal routes chosen	Sub-component Developer and Contractor	Random site inspection
39			Ensure vehicles and equipment are switched off when not in use. Sensitise drivers.	Engines switched off	Sub-component Developer and Contractor	Random site inspection
40			Quantify greenhouse gas (GHG) emissions. In case of exceeding international thresholds for GHG emissions (100,000 tons of Scope 1 and 2 CO ₂ e emissions per year), conduct annual monitoring. Develop a monitoring plan with baseline data to compare emission rates during construction and operation.	Emissions monitoring plan	Sub-component Developer and Contractor	Monitoring records
Noise and Vibrations: a standalone “Pollution Prevention and Control Plan”; can be developed, grouping key mitigations centred on management of nuisance such as sounds and vibrations.						
41	Harming health of workers/ employees/ neighbours) at the construction site and from construction traffic	ESS 2; ESS 3; ESS 4; IFC EHS General Guidelines	Limit the hours of operation for specific pieces of equipment or operations, especially mobile sources operating through community areas or close to residential houses (typically between 10 pm and 7 am). Avoid vehicle movements at night.	No work conducted between 10pm and 7 am/ Grievance Mechanism	Sub-component Developer and Contractor	Random site inspection, Review of filed grievances, review of timesheets of workers
42			Locate stationary equipment (such as power generators) as far as possible from nearby receptors (e.g. worker resting areas, populated areas and	Distances between equipment and receptors are kept	Sub-component Developer and Contractor	Once prior to commencement of works

	Topic/Potential Impact	Reference Standards	Mitigation, Management and Enhancement Measures	Means of Verification	Responsibility	Monitoring Procedure
			environmentally sensitive areas). Make sure that noise levels do not exceed 120db in case of equipment or vehicle use.			
43			Inform the affected communities about activities and mitigation measures.	Attendance List, information notification, etc.	Sub-component Developer and Contractor	Monitoring Plan
44			Use of state-of-the-art technology and limit the number of machines operated simultaneously.	Grievance Mechanism	Sub-component Developer and Contractor	Spot checks, Review of filed grievances
45			Ensure the use of modern and well-maintained equipment (e.g. use of silencers).	Technical Specification Sheet	Sub-component Developer and Contractor	Random site inspection
46			Set traffic speed limits. Verify drivers' behaviour with respect to driving speed and safety.	Speed limit signs Driver Training Records as part of Induction training	Sub-component Developer and Contractor	Random site inspection, Review of training records
47			Plan vehicle routes to avoid settlements where possible.	Safest routes selected, Grievance Mechanism	Sub-component Developer and Contractor	Review of traffic routes, Review of filed grievances
48			Use protective hearing equipment for workers conducting noisy activities.	Protective hearing equipment used.	Sub-component Developer and Contractor	Random site inspection
Traffic and Transport: a standalone "Traffic and Transport Management Plan" can be developed, grouping key mitigations centred on management of vehicle use.						
49	Increased traffic due to construction and operation activities	ESS 4	Prepare a Traffic and Transport Management Plan for the Project.	Traffic Management Plan in place	Sub-component Developer and Contractor	Random site inspection
50			Schedule traffic activities to avoid peak hours on local roads if feasible. Implement the Grievance Mechanism to be used by the community (see Stakeholder Engagement).	Peak hours on local roads avoided, Grievance Mechanism	Sub-component Developer and Contractor	Review of filed grievances

	Topic/Potential Impact	Reference Standards	Mitigation, Management and Enhancement Measures	Means of Verification	Responsibility	Monitoring Procedure
51			Ensure that work site boundaries and limits are in accordance with plans agreed upon in advance. All construction activities should be carried out within boundaries.	Marking the borders of works site boundaries and usage of warning signs	Sub-component Developer and Contractor	Site inspection prior to commencement of activities.
52			Ensure safe driving by Project personnel (e.g. through training/induction).	Driver Training Records as part of Induction training	Sub-component Developer and Contractor	Review of training records
53			Organise carpools/buses for worker transportation where possible to avoid additional traffic pressure.	Carpools/ buses used	Sub-component Developer and Contractor	None
54			Prevent storage of construction materials, equipment and machineries on traffic lanes.	Dedicated storage areas in place	Sub-component Developer and Contractor	Random site inspection
Waste, Wastewater, Hazardous Substances: a standalone “Pollution Prevention and Control Plan”; can be developed, grouping key mitigations centred on management of chemical/hazardous substances.						
55	Pesticides management	ESS 3	Avoid the usage of any pesticides or pesticide products or formulations proven to cause adverse impacts on human health and environment. Develop a Pesticide Control Program including clear guidelines and instructions on the procurement, storage and use of pesticides. Include these requirements in the supplier contracts.	Pesticide Control Program Procurement register	Sub-component Developer and Contractor	Random site inspection
56	Waste and hazardous materials	ESS 3 IFC EHS Guidelines	Develop and implement a Waste Management Plan including considerations for hazardous waste and substances	Waste Management Plan in place	Sub-component Developer and Contractor	Random site inspection, Review of waste inventories
57		Waste Management Facilities	Collect and segregate wastes and ensure safe storage and in line with legal requirements.	Waste collection areas existent, waste inventories	Sub-component Developer and Contractor	Random site inspection, Review of waste inventories
58		IFC EHS Guidelines for Water and Sanitation	Identify waste management facilities and waste management contractors.	Waste management contracts Waste transfer notes	Sub-component Developer and Contractor	Inspect waste management facilities Proof of Review of waste transfer records

	Topic/Potential Impact	Reference Standards	Mitigation, Management and Enhancement Measures	Means of Verification	Responsibility	Monitoring Procedure
59			Ensure disposal through waste contractors licensed for treatment/removal/recycling of each of the waste types. Ensure disposal or landfilling compliant with the WBESS.	Disposal through licensed contractors	Sub-component Developer and Contractor	Random site inspection, Inspect offsite waste disposal facilities if feasible contractors' certifications
60			Ensure appropriate and safe storage of contaminants such as fuels, construction materials and wastes. Provide absorbent and intervention materials in sufficient quantities and at relevant locations for intervention in case of leakages/spills.	Safe storage of hazardous materials, Spill remediation equipment in place.	Sub-component Developer and Contractor	Random site inspection
61			Minimise the waste production to the extent possible.	Records of waste production are kept Waste Management Plan Training performed and recorded	Sub-component Developer and Contractor	Monitor (e.g. monthly) the amount of waste produced Review of training records
62			Document all waste related operations (type of wastes, quantities produced etc.).	Storage, transport and treatment of waste is documented Waste transfer notes Waste inventories	Sub-component Developer and Contractor	Review of waste transfer records Review of waste inventories
63			Implement appropriate secondary containment and spill controls for maintenance or refuelling works.	Containment and spill controls in place	Sub-component Developer and Contractor	Random site inspection
64			Ensure immediate cleaning of any spills and remediation of contaminated areas after construction.	Workers trained.	Sub-component Developer and Contractor	Random site inspection One-time inspection after construction
65			Wastewater	ESS 3 IFC EHS Guidelines for Water and Sanitation	Reuse wastewater wherever feasible.	Detailed Design Wastewater reused
66		Ensure appropriate containment and disposal of construction wastewater, including sanitary water.	Water disposal compliant with legal requirements		Sub-component Developer and Contractor	Random site inspection

	Topic/Potential Impact	Reference Standards	Mitigation, Management and Enhancement Measures	Means of Verification	Responsibility	Monitoring Procedure
Soil: a standalone “Soil and Reinstatement Management Plan”; as well as a Topsoil management and Site Reinstatement Plan can be developed, grouping key mitigations centred on soil protection and site restoration.						
67	Soil erosion, altered soil layers; changes in soil structure (function for habitats, infiltration, etc.)	ESS 3	Ensure appropriate storing of topsoil removed. After construction, topsoil will be used as backfill for restoration of the area.	Topsoil stored and re-used	Sub-component Developer and Contractor	Random site inspection
68			Limit stockpile height to 2 m maximum to avoid soil compensation.	Stockpile height limited	Sub-component Developer and Contractor	Random site inspection
69			Reinstatement of construction working area to the best possible after construction activities are completed.	Reinstatement completed	Sub-component Developer and Contractor	One-time inspection after construction
70			If construction takes place on inclined surfaces/slopes, ensure preventive erosion control measures are applied (e.g. plan to retain trees and other vegetation, use of natural contours for roads and drainage networks, excavated drainage channels).	Preventive erosion control measures in place	Sub-component Developer and Contractor	Random site inspection
Water and Hydrology: a standalone “Water Management Plan” can be developed, grouping key mitigations centred on the management of water abstraction and use.						
71	Water Use: Decreased groundwater tables and changes in surface water course (e.g. discharge) caused by the abstraction of surface water during construction phase	ESS 3	Prioritise the use of rainwater/ stormwater over surface water/groundwater abstraction by using harvesting equipment and systems on site.	Water harvesting equipment and use Measurement of water discharge at different intervals (daily, weekly)	Sub-component Developer and Contractor	Random site inspection
72	Drainage: Increased surface runoff	ESS 3	Include drainage and stormwater management in the Project planning.	Detailed design	Sub-component Developer and Contractor	Random site inspection
73	Increased surface water runoff/ flooding	ESS 3 ESS 4	Ensure to keep the following distances from permanent water course and outside of floodable areas; sensitive urban services and buildings (health centre, school, water supply for populations); any housing;	Marking the borders of works site boundaries in line with given limits and usage of warning signs	Sub-component Developer and Contractor	Site inspection prior to commencement of activities.

	Topic/Potential Impact	Reference Standards	Mitigation, Management and Enhancement Measures	Means of Verification	Responsibility	Monitoring Procedure
74	Surface Water: Degradation of surface water quality due to leaks and spills of hydrocarbons and other materials or poor management of construction runoff.	ESS 3	Restrict excavation activities during periods of intense rainfall. Use temporary bunding to reduce the risk of sediment, oil or chemical spills to the receiving waters.	No excavation during intense rainfall	Sub-component Developer and Contractor	Random site inspection Check weather forecast and inspect the site conditions prior to excavation
75	Surface water/rainfalls: interruption of excavation work due to entering water	ESS 3	Carry out excavation works in cut off ditches to prevent water from entering excavations.	No water entering excavations	Sub-component Developer and Contractor	Random site inspection
Flora and Fauna: a standalone “Biodiversity and Ecosystem Services Management Plan” can be developed, grouping key mitigations centred on habitats, biodiversity and ecosystem services. In case specific sensitivities are identified on specific habitats/species, a Biodiversity Action Plan can be devised with additional measures.						
76	Areas of high ecological value: Disturbance of ecosystems, destruction of habitats including encroaching of wetlands	ESS 6	Assess the occurrence of protected areas and/or natural/critical habitats at and around the construction site. Avoid these areas where possible through traffic management and site setup.	areas of ecological value avoided	Sub-component Developer and Contractor	Random site inspection
77			Sub-component developer	Inspection of construction practices.	Avoid natural habitats disturbance.	No habitats disturbed
78			Carry out a wetlands assessment, especially for the Nyabarongo River and wetlands, to propose further management measures.	Wetlands assessment	Sub-component Developer and Contractor	Inspection
79			Ensure to stay out of surrounding wetlands areas.	Pre-construction survey to make sure that site is not in wetlands areas	Sub-component Developer and Contractor	During site selection
80			Carry out a survey or primary data collection or the presence of flora and fauna species in the Project Area.	Protected species assessment	Sub-component Developer and Contractor	Inspection
81	Site Clearance- Vegetation removal and habitat disturbance:	ESS 6	Limit vegetation clearing to areas within the site boundary where it is absolutely necessary.	Vegetation clearing minimal	Sub-component Developer and Contractor	Random site inspection

	Topic/Potential Impact	Reference Standards	Mitigation, Management and Enhancement Measures	Means of Verification	Responsibility	Monitoring Procedure
82	Disturbance of ecosystems and violation of ecosystem services		Describe the methods of vegetation clearance. Ensure that no chemicals/pesticides are used, burning of vegetation is restricted etc. Do not clear vegetation more than two months in advance of operations	No use of fires or chemicals on site Marking the borders of works site boundaries Usage of warning signs	Sub-component Developer and Contractor	Site inspection prior to commencement of activities. Site inspection during site clearance
83			Avoid clearing mature trees.	No mature trees cleared	Sub-component Developer and Contractor	Random site inspection
84			Avoid off-road vehicle traffic. Use existing roads.	No off-road traffic	Sub-component Developer and Contractor	Random site inspection
85			Ensure revegetation of cleared areas where possible after construction using native species.	Revegetation completed	Sub-component Developer and Contractor	One-time inspection after construction
86			Avoid clearance of trees and plants to the extent possible. Apply offset strategy in case vegetation clearance occurs	List of existing vegetation and overview of compensation means for the respective vegetation to be removed	Sub-component Developer and Contractor	Random site inspection
87	Light: Disturbance of fauna due to light emissions	ESS 6	Shield lighting downwards towards the site to avoid side-spill. Avoid tall masts where possible.	Light nuisance minimised	Sub-component Developer and Contractor	Random site inspection
Site Rehabilitation: a standalone “Soil and Reinstatement Management Plan”; as well as a “Topsoil management and Site Reinstatement Plan” can be developed, grouping key mitigations centred on site restoration.						
88	Vegetation	ESS 3 ESS 6	Ensure revegetation and restoration of cleared areas where possible after construction using native species.	Revegetation completed	Sub-component Developer and Contractor	One-time inspection after construction
89	Health & safety	ESS 4	Ensure that rehabilitated areas do not pose health and safety risks (such as holes, ponds).	Reinstatement completed	Sub-component Developer and Contractor	Inspection after construction

	Topic/Potential Impact	Reference Standards	Mitigation, Management and Enhancement Measures	Means of Verification	Responsibility	Monitoring Procedure
						Inspection after heavy rainfalls and snow
90	Infrastructure, logistics		Reinstatement of construction working area to the best possible after construction activities are completed.	Reinstatement completed	Sub-component Developer and Contractor	One-time inspection after construction Inspection after heavy rainfalls and snow
91			Rehabilitate borrow areas, backfill material stockpile sites and access roads, where applicable.	Rehabilitation completed	Sub-component Developer and Contractor	One-time inspection after construction Inspection after heavy rainfalls and snow
Socio-Economic: standalone plans such as: “Stakeholder Engagement Plan”, “Livelihoods Restoration Plan”, “Land Acquisition and Compensation Plan” can be developed grouping key actions centred on their respective themes.						
92	Stakeholder Engagement and Grievance Mechanism	ESS 10 ESS 1 ESS 5 ESS 8	Engage/ communicate with communities and plan sufficient time for participation. Ensure regular consultations with the local authorities and communities regarding the management of construction. See also SEF/SEP provisions.	Minutes of Meetings Grievance Mechanism	Sub-component Developer and Contractor	Review of grievance register
93			Initiate an efficient Grievance Mechanism to allow potentially affected individuals to voice their concerns on the Project. See also ESMF provisions.	Grievance Mechanism in place, grievances recorded	Sub-component Developer and Contractor	Review of grievance register
94	Land acquisition and land take	ESS 5	Avoid to the extent possible land take of both formal and informal land owners/land users. If land take is inevitable, no forced eviction should take place. Owners should be compensated prior to access to land. Engage with the local community to understand the land ownership and land use.	Grievance Mechanism Management Plan for Land Acquisition and Compensation if needed	Sub-component Developer and Contractor	Once during site selection Review of grievance log Follow up of land acquisition/compensation process
95	Displacement of Existing Land Uses, Property and People	ESS 5	Prepare a resettlement action plan (RAP) or a LACP as per the RPF requirements	RPF and RAP/LACP in place	Sub-component Developer and Contractor	RPF principles fulfilled
96	Resettlement of residents	ESS 5	Prepare a resettlement action plan (RAP) as per the RPF requirements	RPF and RAP in place	Sub-component Developer and Contractor	RPF principles fulfilled

	Topic/Potential Impact	Reference Standards	Mitigation, Management and Enhancement Measures	Means of Verification	Responsibility	Monitoring Procedure
97	Local Employment & Procurement: Employment of locals for project-related activities.	ESS 2 ESS 3	Ensure local population will be preferred for temporary and long-term employment for the Project as Project personnel, where appropriate. To the extent that the supply of goods and services can be provided locally, the local community and economy (suppliers, service providers) will be selected.	Local Procurement and Employment Records	Sub-component Developer and Contractor	Review procurement and employment rules and records
98	Changes to landscape	ESS 3 ESS 8	Minimise visual impacts	Visual inspection and comparison with adjacent undisturbed areas.	Sub-component Developer and Contractor	Review of grievance records
99	Damage to livelihoods	ESS 5	Engage with the local community and potential affected households to understand their needs and identify the risk of damage to their livelihood basis through the Project (e.g. take of pasture land, lack of access to water).	Minutes of Meetings Grievance Mechanism records	Sub-component Developer and Contractor	Review of grievance register and meeting minutes
Cultural Heritage: a standalone “Cultural Heritage Management Plan” can be developed, grouping key mitigations centred on the protection of potential cultural heritage features, including the development of the Chance Finds procedure.						
100	Damage of Cultural Heritage (tangible and intangible)	ESS 8	<ul style="list-style-type: none"> ■ Prepare a Chance Finds Procedure which has to be shared with all contractors. ■ Ensure all chance finds of cultural heritage (e.g. graves, old ceramic, old building fragments) are reported immediately to the relevant authority. ■ If possible, avoid excavation in the ultimate neighbourhood of a chance find, fence the chance find and await instructions from the competent authority. ■ Grant access to sacred places (if any) for local communities. ■ Include intangible aspects during project construction and operation. 	Chance Finds Procedure in place Training records, records about chance finds Communication reference to affected communities	Sub-component Developer and Contractor	Random site inspection

11. INSTITUTIONAL CAPACITY

11.1 Overview

According to SIDA (2019)¹⁰², Rwandan policy frameworks are “*by and large adequate and the institutional set-up for managing environmental challenges is quite robust*”.

For more than a decade, Rwanda has taken a proactive approach to address environment and climate change issues in most of the country’s policies, programmes and plans. To become a climate-resilient, low-carbon economy by 2050, Rwanda initiated the Green Fund (FONERWA), with the purpose to provide technical and financial support to the best public and private projects that align with Rwanda’s commitment to a green economy. Such green initiatives include “*Developing Rwandan Secondary Cities as Green Model Cities with Green Economic Opportunities*”, which includes four pillars for green growth: i) Climate resilient and low carbon city; ii) Integrated urban planning; iii) Local green economy, and iv) City governance and wellbeing (SIDA, 2019). The GCK Model/Project is aligned with such initiatives, and is intended to serve as meaningful reference towards other initiatives; particularly that of the other six Rwandan secondary cities (i.e. Huye, Muhanga, Musanze, Nyagatare, Rubavu and Rusizi).

As described in **Chapter 5**; in August 2018, Rwanda published a new Environment Law which regulates both EIA and SEA. It is yet to be fully adopted for full implementation, enforcement and follow-up. Rwanda is quite mature in its legal frameworks and use of EIA on project level – much due to the Organic Law on Environment of 2005 (No. 04/2005) - but lacks sufficient capacity on SEA at policy, plan and program levels. The Rwanda Environmental Management Authority (REMA) is the central authority responsible for implementing EIA and SEA. Despite such a comprehensive framework “*main challenges are related to effective implementation and enforcement of existing legislation, rules, regulations and policies*” (SIDA, 2019).

The following sections provide a brief diagnostic of the capabilities of relevant institutions to: i) plan, ii) implement and/or iii) maintain/monitor the performance of the GCK Model/Project. The evaluation considers the environmental and socioeconomic implications of the GCK Project/Model, and the specific mandates of these organisations towards the management of the environmental/social impacts and consequences.

11.2 GCK Model Institutional Setup

This section focuses on describing the capacities of FONERWA and relevant Rwandan institutions toward their environmental management goals (e.g. planning, licensing, audits, reporting, fines, etc.) within the GCK Model/Project, as well as within other comparable projects expected to be undertaken elsewhere in Rwanda, such as the six secondary cities.

11.2.1 Planning functions

The key planning institution is FONERWA, which is considered the GCK Project Execution Agency and which sits under the oversight of the Ministry of Environment (MoE) through two specialised committees:

- A Technical Committee, which acts as technical advisor, and is at the same time chaired by FONERWA. It provides the technical capabilities (further information in **Section 11.3.1.2**) towards resolving technical aspects of the GCK Model.
- A Steering Committee, which acts as an oversight body and chaired by the MoE.

¹⁰² Swedish International Development Cooperation Agency (SIDA). 2019. *Policy Brief. Rwanda Environment and Climate Change Analysis*. Available at: https://sidaenvironmenthelpdesk.se/digitalAssets/1748/1748556_environment-and-climate-change-analysis-rwanda-2019-06-05.pdf

From a strategic perspective, planning functions of other initiatives such as the RUDP II, do not lie with the MoE but rather with the MININFRA, given its institutional mandate for policy and coordination on urbanization. The RUDP II indeed also includes work themes in Kigali City.

Similar to the GCK Model/Project, The RUDP II has a National Steering Committee (composed of MININFRA, MINECOFIN, MINALOC, MoE, MINEMA, LODA, REMA and CoK) and a Project Technical Committee (comprised of relevant technical staff such as Department Heads involved in project implementation at LODA, CoK, REMA, RHA, RTDA, MINALOC, RFA and WASAC, and chaired by MININFRA).

Project licensing in Rwanda is managed through the RDB, which is the institution mandated to oversee the development of an EIA for Projects (derived from these two initiatives, as well as any other current/future initiatives) and issuing a certificate.

It is expected that the GCK Model/Project at the planning level would not interfere with the planning of other initiatives, considering the lead agencies are different, though at licensing level, there may be overlap with EIA document review, considering the common channel through the RDB.

11.2.2 Implementation functions

The key implementation and management responsibilities within the GCK Model are:

- The Green City Kigali Company (GCKC), which is the Special Purpose Vehicle (SPV) created for the sole management of the GCK Pilot Project (i.e. the first of a series of sub-components derived from the GCK Model). Thus, the GCKC is tasked with the Project level responsibilities towards the actual construction of the GCK Pilot features.
- FONERWA, similar to GCKC, will act as implementation body of the proposed upgrade site (as described in [Chapter 3.3](#));
- City of Kigali: acts as enforcement body of the City of Kigali Masterplan 2050, and thus will oversee that Pilot/Upgrade sites as well as future sub-components are implemented according to the zoning and land use considerations overseen by the CoK Planning Department. The CoK OSC will further issue corresponding building permits and monitor that Projects meet the applicable building codes.

From a strategic perspective, implementation functions of other initiatives such as the RUDP II will be led by the Project Implementation Units (PIU) of the LODA and REMA. An Environmental and Social coordinator at MININFRA will be responsible to oversee all environmental and social specialists working at the implementing agencies (i.e. CoK, REMA and LODA) and at the district level, ensure coordination among agencies and compliance with the ESF instruments.

It is expected that the GCK Project at the implementation level may represent a meaningful synergy between similar initiatives, where capacity building and staffing may be shared to serve a common purpose.

11.2.3 Monitoring functions

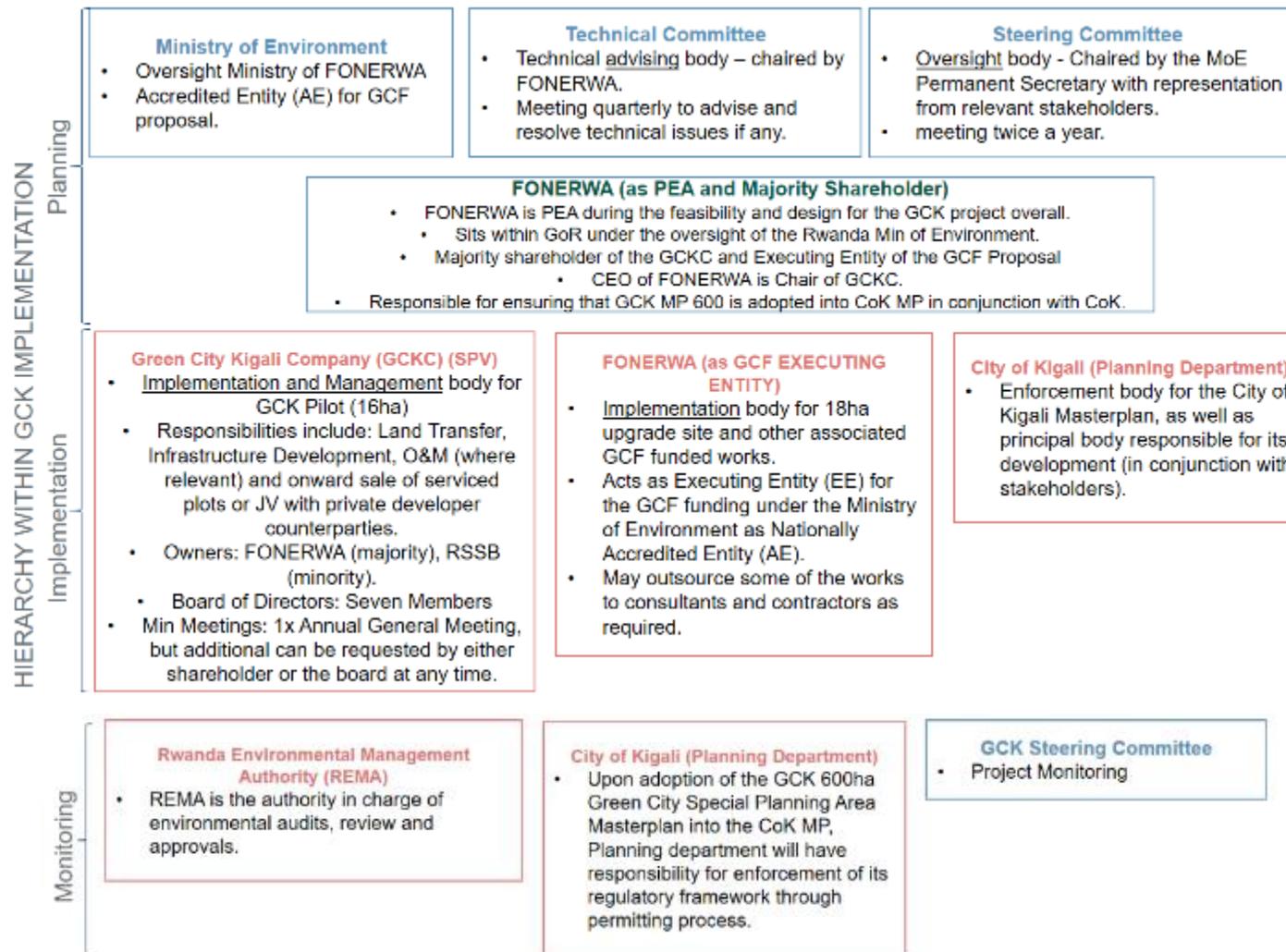
Key monitoring responsibilities are include at both strategic and Project level:

- Strategic-level monitoring is provided by the GCK Steering committee.
- Project-level monitoring is undertaken by the REMA, who is in charge of the environmental audits derived from Project EIA's, whereas CoK Planning Department will oversee the environmental performance of the full GCK Special Planning Area as part of the city's Masterplan.

From a strategic perspective, monitoring functions of other initiatives such as the RUDP II lie with both REMA and CoK/Districts. It is expected that REMA will hire one professional to work as combined E&S specialist (full time) for the RUDP project implementation; whereas district E&S officers from CoK/secondary cities will be involved in supervisory activities.

Similar to implementation functions, it is expected that the GCK Model/Project at the monitoring level may also represent a meaningful synergy between similar initiatives.

A graphical/hierarchical depiction of the institutional arrangements of the GCK Project, as per its planning, implementation and monitoring functions previously described is outlined in **Figure 11.1**.



Source: Sweco/ERM, 2021.

Figure 11.1 Institutional Hierarchy of the GCK Project

11.2.4 Strategic/Project Level Decision-Making

According to the REMA 2011 SEA guidelines, a “lead agency”, which formulates and implements a policy, plan or programme, is responsible for conducting an SEA for the policy, plan or program. It is, however, common practice for a team of independent experts to be appointed to **conduct the SEA** on behalf of a policy, plan or program (PPP) formulation team.

The present SESA is not to be understood as a comprehensive diagnostic of a PPP related to housing, climate change or the environmental/natural resources sector; it is focused rather on the GCK Model. Thus, in the present SESA case.

- The corresponding “lead agency” would be the Ministry of Environment (MoE), through FONERWA, which is the “strategic decision maker” (as indicated in previous **Figure 11.1**; is tasked with the feasibility/design of the Project) for the GCK Model;
- The SEA (in this case a SESA) is **conducted by** an appointed GCK Project Management Consultancy.

Project level decision making is undertaken by the GCKC-SPV, as explained above. The GCKC organigram is shown in **Figure 11.2**.



Source: Sweco/ERM, 2021

Figure 11.2 GCK Project Decision-Making Body Organigram

11.3 Institutional Capacity Analysis

This chapter describes the organisation of the relevant institutions, with a focus on the institutional departments/directorates involved with the GCK Model/Project as well as with specific EIA/SEA duties. The institutional capacity analysis provides an overall picture of the resources available to both oversee Pilot Project works, as well as in the foreseeable future be able to bear the work associated to the expanding developments as part of the GCK Model, as well as other urban development initiatives in parallel (e.g. Rwanda Urban Development Project II – RUDP II¹⁰³, focused on both Kigali as well as the other six Rwandan secondary cities).

The latest “Assessment Report for the Implementation of Environment and Climate Change activities by Sector Ministries and Districts” of 2018-2019 (REMA, 2020¹⁰⁴) offers some insights concerning the status of EIA/SEA in Rwanda:

¹⁰³ Rwanda Urban Development Project II (RUDP II), 2020, *Environmental and Social Management Framework (ESMF), Final Document*, available at: <https://documents1.worldbank.org/curated/en/571311598032720851/pdf/Environmental-and-Social-Management-Framework-ESMF-Second-Rwanda-Urban-Development-Project-P165017.pdf>

¹⁰⁴ REMA (2020), *Assessment Report for the Implementation of Environment and Climate Change activities by Sector Ministries and Districts, 2018 – 2019*, available at: https://pea4sdqs.org/sites/default/files/2020-10/ECC%20Implementation%20Assessment%20report_%202018-2019_Draft%20%281%29.pdf

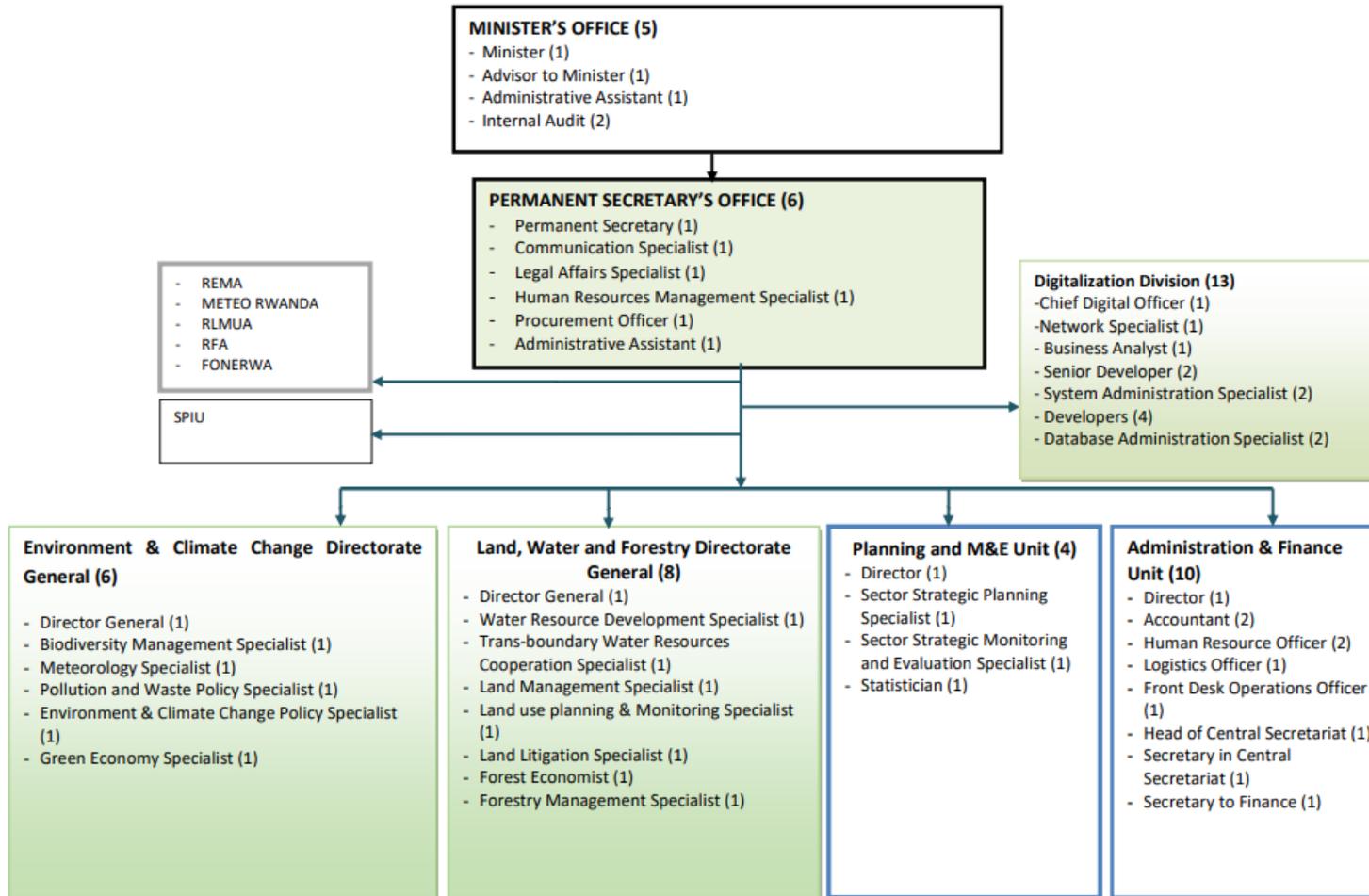
- Key observations and recommendations for the Infrastructure Sector indicated that Master plans of the City of Kigali and Secondary Cities were developed without conducting SEA.
- During the first five years (2014-2019) since MoE/REMA started the assessment of Environment and Climate Change (ECC) integration and implementation in Sectors /Districts, EIA is mostly not reported and remains embedded in the feasibility study. The overall recommendation being to establish an effective mechanism for EIA implementation to ensure the quality of EIA studies' reports and effective monitoring of EMP implementation.
- SEA is still new in Rwanda and it was not mentioned in any annual report 2018/19 while the country undergoes some major policies and plans such as Kigali master plan, National Land Use and Development master plan, among others, which require synergetic SEA studies before their implementation.
- REMA/ MoE should put in place appropriate mechanism for monitoring and evaluation of EIAs and SEAs to make sure that EIA/SEA issues are solved.
- Rwandan districts should integrate EIA and SEA in Districts annual action plans (SAP); indicating a clear budget for EIA and SEA implementation and not make it lost in the budget for the feasibility studies of different projects/programs as is currently the case.
- REMA in close collaboration with the Ministry of Environment should make a narrative report on her monitoring activities for EIA/EMP and SEA implementation.

11.3.1 Relevant institutional frameworks

11.3.1.1 Ministry of Environment (MoE) and associated institutions

The latest organisational structure and job profiles for the Ministry of Environment were published in the Official Gazette n° 32 bis of 19/10/2020 (**Figure 11.3**). Within this organigram, both REMA and FONERWA were already present (FONERWA is separately discussed in **Section 11.3.1.2**). The MoE includes an Environment and Climate Change Directorate General, with 7 staff which includes an Environment & Climate Change Policy Specialist. Article 61 of the Law on Environment provides for the appointment of Inspectors, by the Authority. An Inspector may at any reasonable time enter any premises for the purpose of ensuring compliance with the Law on Environment.

MINISTRY OF ENVIRONMENT (MoE) ORGANISATIONAL STRUCTURE



Source: Official Gazette n° 32 bis of 19/10/2020

Figure 11.3 Organisational Structure of the MoE

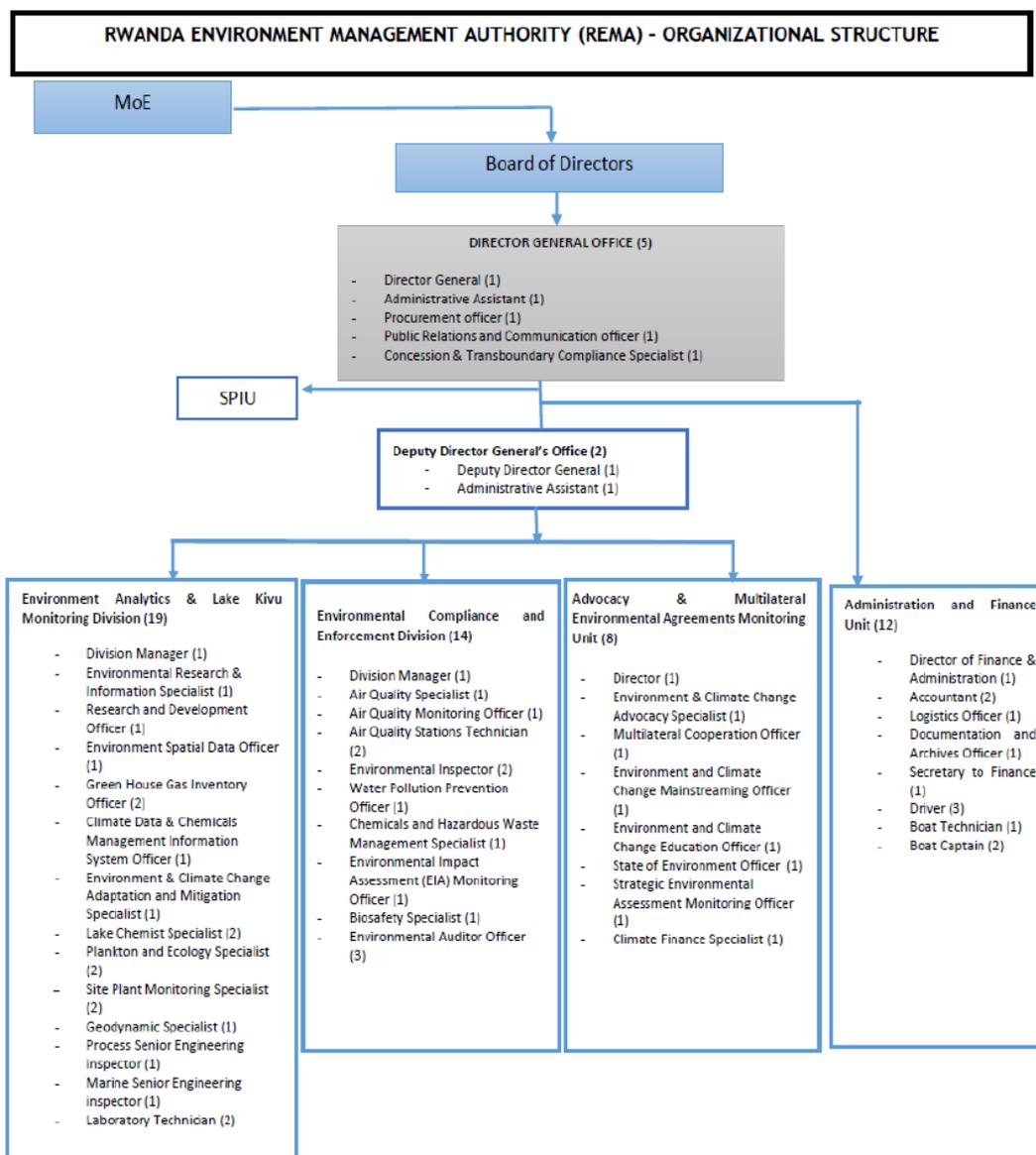
Organisational structure and job profiles for REMA were also published in the Official Gazette n° 32 bis of 19/10/2020 (**Figure 11.4**). It is one of five semiautonomous government agencies associated to the MoE. The organizational structure has an Advocacy & Multilateral Environmental Agreements Monitoring Unit, with key roles such as: Environment & Climate Change Advocacy Specialist; Environment and Climate Change Mainstreaming Officer and a Strategic Environmental Assessment Monitoring Officer. Further to these roles, at monitoring level there is an Environmental Compliance and Enforcement Divisions, tasked with carrying out environmental inspections, audit review/approvals, and all matter related to environmental pollution and control.

Whilst EIA review function have been passed over to the RDB, REMA retains the review of SEA; currently four of these SEA reports have been developed, whilst an additional two are under review.

The REMA staff (and other associated institutions) spearhead the SEA reviews and can involve other stakeholders (e.g. at inception level, expatriate staff can participate through specific workshops). Draft documentation is later reviewed by relevant staff and follow up workshops. Afterwards document is validated.

Unlike EIA reviews, the review of SEAs is not considered resource intensive for REMA, given the relatively low number of such SEA reports under review each year. Nonetheless, the challenge remains at implementation level monitoring (with regard to follow-up of safeguards/mitigations dictated in the EIA/SEA reports) due to significant staff workload (this directly related to current staff count) that do not always allow for close follow-up.

Most government institutions may have difficulties in recruiting the staff that undertake these activities; thus in the case of large scale Projects; developers may be asked to hire third party environmental specialists for monitoring.



Source: Official Gazette n° 32 bis of 19/10/2020

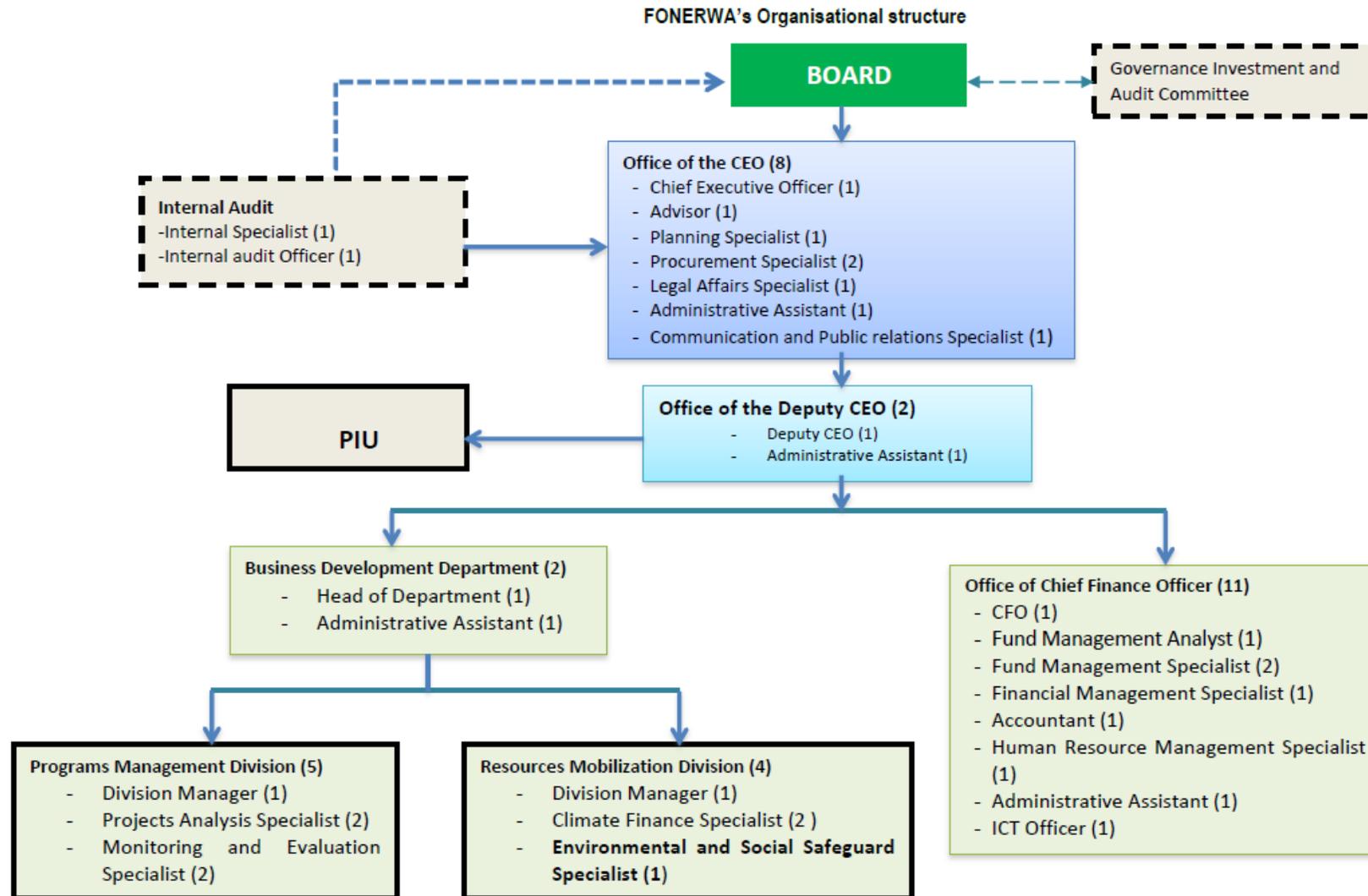
Figure 11.4 Organisational Structure of REMA

11.3.1.2 FONERWA

FONERWA has a modus operandi of a ‘hybrid team’ consisting of a core group of Rwandan national staff with management control of the FONERWA fund (the FONERWA Managing Committee (FMC)) and access to call-down international consultancy technical support (Figure 11.5). The hybrid structure has proved to be effective and remains relevant given the need to maintain a “lean” management structure. Operating a staff team with the full range of technical expertise across all climate related sectors is considered not feasible (CIDT, 2016¹⁰⁵).

Among the staff, there is an Environmental and Social Safeguard Specialist who oversee the development and implementation of all Safeguard documents at the fund.

¹⁰⁵ CIDT (2016), *Creation of the National Fund for Climate and Environment (FONERWA): Support to the Fund Management Team*, available at: <http://www.fonerwa.org/sites/default/files/2021-06/CIDT%20Final%20Report%20-%20Creation%20of%20the%20National%20Fund%20for%20Climate%20and%20Environment%20%28FONERWA%29-%20Support%20to%20the%20Fund%20Management%20Team.pdf>



Source: FONERWA, 2021

Figure 11.5 Organisational Structure of FONERWA

Green City Kigali Company (GCKC)

The GCKC is the Special Purpose Vehicle (SPV) designed by Sweco Group. Sweco is a European consulting firm hired to design, establish and provide support during early setup and develop a business plan for the GCKC on behalf of FONERWA. The SPV is owned by both FONERWA and the Rwanda Social Security Board (RSSB).

Organizational structure of the GCKC has been shown in **Figure 11.1**. Currently, the proposed organizational structure exists within the framework, though no specific staff has been allocated to it. It is expected that first hires shall be a CEO and a Project Manager, with specific budget for GCKC function likely to be determined once these two positions are filled, and the corresponding business plan is developed.

11.3.1.3 City of Kigali (CoK)

Upon validation, public comment period and integration process the enforcement of the City of Kigali Masterplan 2050 is to then become the responsibility of CoK through its Planning department and One Stop Centre (as described in Section 5.1.2.7).

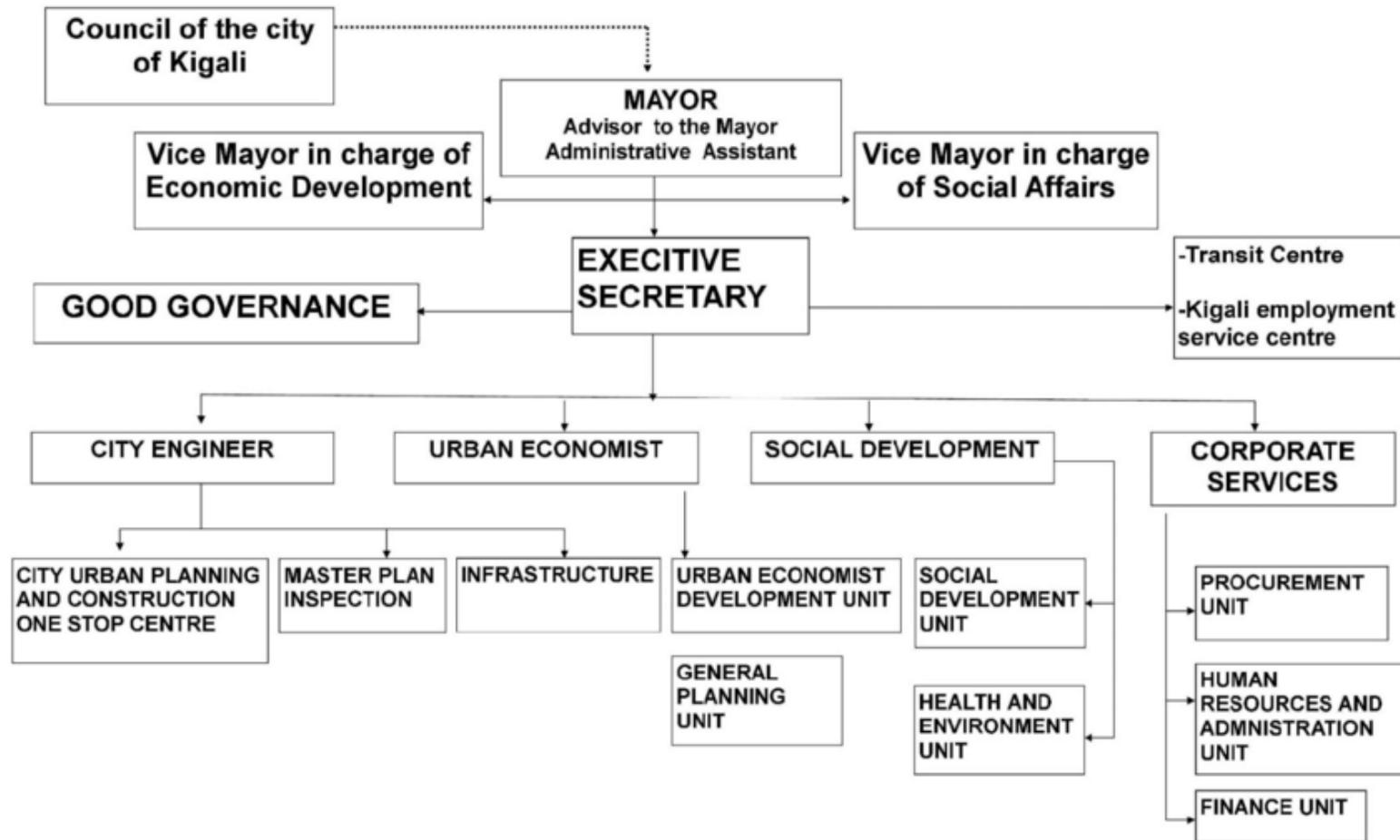
Permitting for construction at Kinyinya would thus proceed in the same fashion as elsewhere in Rwanda, with its corresponding building and zoning regulations.

The Kigali construction and urban planning One Stop Centre was created by a cabinet decision of 14th April 2010 and was assigned the following roles (City of Kigali, 2021¹⁰⁶):

- To ensure respect for safety standards in the construction sector
- To develop and review key area detailed physical plans
- To ensure quick service delivery mostly in building permit issuance
- To monitor and advise Districts' land bureau for efficient service delivery

The CoK administrative structure is presented in **Figure 11.6**.

¹⁰⁶ <https://kigalicity.gov.rw/index.php?id=91>



Source: Jaganyi et al, 2020¹⁰⁷

Figure 11.6 Organisational Structure of the CoK

¹⁰⁷ Jaganyi, Deogratius & Kato, Prof & Prof, Njunwa & Nzayirambaho, Manasse & Rutayisire, Pierre Claver & Manirakiza, Vincent & Nsabimana, Aimable & Malonza, Josephine & Mugabe, Mr & Gilbert, Nduwayezu. (2020). Rwanda: National Urban Policies and City Profiles for Type Research Report. 10.13140/RG.2.2.31842.56007.

11.3.2 Institutions with other involvement

Other Rwandan institutions with minor involvement in the GCK Model (from a planning standpoint); but with relatively higher involvement in regards to the implementation/monitoring of the GCK Project and future developments are described in **Table 11.1**.

Table 11.1 Other Rwandan institutions with involvement in the GCK Model.

Institution	Involvement in GCK Model/Project
Ministry of Infrastructure (MININFRA)	<p>The MININFRA sits on both the technical committee and steering committee of the GCK project; not having a formal or contractual role.</p> <p>It is involved at policy level. It also initiates programs, develops and ensures sustainability of the different infrastructures including transport, energy, water and sanitation infrastructures.</p>
Ministry of Local Government (MINALOC)	<p>Rwandan administrative structure such as cell, sector and district are involved as part of the design review process and ongoing stakeholder engagement process.</p> <p>Involvement of Gasabo District. Gasabo District as well as other institutions will be involved in the implementation of the Project at different levels and phases.</p>
Rwanda Development Board (RDB)	<p>Provide authorizations at Project level (e.g., GCK Project and subsequent developments) through their corresponding EIA permitting process (RDB has a one-stop centre). It is estimated that in 2020 approximately 562 EIA certification documents were issued by the RDB.</p>
Rwanda Housing Authority (RHA)	<p>Involved in its role governing affordable housing projects</p>
Utilities/transport sector - Rwanda Energy group (REG) - Water and Sanitation Corporation (WASAC). - Rwanda Transport Development Authority (RTDA)	<p>Provide feedback and input during the design process to ensure that development aligns with its capacity to supply services to the area.</p> <p>These institutions are key as sustainability of energy, water and sanitation, transport and housing infrastructure will depend on their involvement and the services provided for the implementation of GCK project.</p>

11.4 Institutional Capacity Analysis Matrix

Table 11.2 provides a brief outline of the organizational and capacities features that are within each of the key institutions involved in the GCK Project/Model E&S management, as described in the preceding sections; from planning (P) to implementation (I) and monitoring (M).

The assessment in the table is described for each item, whether the existing capacities are considered to be sufficient (marked in green), or if additional resources are needed (marked in yellow) to cope with the current and future needs.

Table 11.2 Planning (P), Implementation (I) and Monitoring (M) Responsibilities and Capabilities within the GCK Model

Institution	Organisational	Capacity/Skills	P	I	M
Ministry of Environment (MoE) / REMA	<ul style="list-style-type: none"> Through REMA, it provides periodical monitoring of the environmental/social performance. Steering committee oversees overall GCK project monitoring, 	<ul style="list-style-type: none"> To date the GCK technical committee has been more on an informal basis, it is expected to be formalized in the coming months. 			
FONERWA (EE for the GCF Funding)	<ul style="list-style-type: none"> FONERWA is the majority shareholder of the SPV (i.e. the GCKC) It is the Project Executing Agency (PEA) 	<ul style="list-style-type: none"> FONERWA itself does not manage the technical aspects of the GCK Project, but rather through consultants in a call-off basis. Although it does manage other Projects financed by the GCF. FONERWA will need to hire a variety of consultants and contractors as well as full time employees to manage and implement the GCF components. They may also enter into partnerships with other GoR or local government entities or utilities to undertake the work. 			
Green City Kigali Company (GCKC; SPV owner FONERWA)	<ul style="list-style-type: none"> GCKC is responsible for its business and financial models GCKC will be responsible for the implementation of the project (construction) so after the UADC contract is wrapped up all tasks will be handed over from FONERWA to GCKC (formally). 	<ul style="list-style-type: none"> GCKC currently has no assigned staff. They are in the process of hiring a project manager and CEO, and in the future will expand their staffing. GCKC may hire a management consultant to undertake certain tasks as regards development and operations of the company and in conjunction with its direct hire staff, but this is still to be determined in what scope. GCKC will likely take over stakeholder and community engagement following conclusion of Sweco's contract (for the pilot). 			
City of Kigali (CoK)	<ul style="list-style-type: none"> CoK has an upgrade team that works on various urban upgrade projects in Kigali. 	<ul style="list-style-type: none"> The CoK has set up the Kigali Urban Upgrading Team (KUUT), staffed with a project focal person with appropriate urban development competencies and E&S specialists. This team works on various urban upgrade projects in Kigali. 			

Organizational features and capacities

Sufficient capacities



May require additional resources



Key conclusions from the previous table are:

Planning capacities:

- FONERWA is considered the main body involved in the Planning stage for the current GCK Project/Model. It appears that sufficient resources and capacities have been made available to set forth the GCK Project/Model beyond the planning stage.

Implementation capacities:

- Here the full suite of institutions assessed have different implementation capacities within the GCK Project/Model, being assessed that all of them but the GCKC (a temporary situation, considering the stage of the current Project) have sufficient capacities for implementation.

Monitoring capacities

- Perhaps the most resource-intensive of all activities, considering the breadth of activities, and from a strategic perspective, as more sub-components start to be rolled out in the near future, additional workload is expected regarding mitigation/safeguards audit and follow-up. Key institutions being the REMA (at both EIA and SEA level) and CoK at Project construction level.

In overall terms, implementation the phase of SEA can represent a challenge for the different institutions involved due to a series of factors such as:

- Staffing numbers; whether due to staff counts, or the lack of staff, though in many cases this is an aspect that is being handled; and some institutions (e.g. REMA) can enter agreements with other related government bodies and/or third parties to make up for this shortcoming.
- The numbers of EIA's are expected to increase; although initial phases are handled by RDB, a higher number of approved EIA's in turn require additional work commitments from current staff in REMA and CoK towards monitoring of safeguards, which can put a strain on resources.

12. KEY STRATEGIC RECOMMENDATIONS AND CONCLUSION

This section describes the main findings and recommendations considered essential for defining a general normative and strategic framework that could effectively guide urban development activities in Rwanda based on the GCK Model. The key findings comprise aspects on policy, legal, and regulatory framework, institutional capacity, as well as urban development taking into account E&S safeguards.

12.1 Policy, Legal and Regulatory Framework

The sustainability principles of the GCK Model stem directly from the City of Kigali Masterplan 2050 with respect to all eight founding principles of the CoK City development. Both the City of Kigali Masterplan and GCK Model are fully aligned with the national strategy to prioritise green urban development (i.e. the NST-1). To ensure a national wide balanced urban growth, GCK is serving as a model for the six secondary cities and thus helping Rwandan strategic goals of sustainable urbanisation in the coming decades of the 21st century.

For more than a decade, Rwanda has taken a proactive approach to address environment and climate change issues in most of the country's policies, programmes and plans. But not only on PPP level, also laws and regulations have been changed to promote green growth. For instance in August 2018, Rwanda published a new Environment Law which regulates both EIA and SEA. In 2019, the Rwanda Building Code was revised and now contains a Rwanda Green Building Minimum Compliance System, which promotes sustainable implementation by efficient design, encouragement of local, green and affordable building materials and sustainable infrastructures. This system is being administered by District "One Stop Centres" (Building Permitting Centres) and RHA (Central Agency). However, when new regulations are introduced it takes time and capacity for implementation, enforcement and monitoring.

The GCK Model was established in 2021. Monitoring, follow-up, or regulation of the performance of the GCK Model and its sustainability principles is currently undertaken internally via review by technical committee stakeholders and/or external consultants. CoK will provide regulation of the GCK Model via the existing institutions as already outlined elsewhere (eg planning, building and relevant departments). In future the below is recommended:

Recommendation

Monitoring of GCK Model ESS documents will be a mandate of many institutions, including FONERWA and the respective sub-component developers. All of these parties will have ESS experts who will follow up the implementation of the Project's ESS documents.

It is recommended to establish a setup dedicated to monitor and follow-up on the success of the GCK Model beyond environmental approval. For instance, a dedicated E&S unit established within REMA could manage solely the EIA approval process specifically for urban development projects; or a focal person staff from REMA who would specifically support on the different sub-components by working closely with the above mentioned experts.

Therefore, the following is recommended:

- Establish a system dedicated to monitor and track the success of the GCK Model beyond environmental approval;
- Capacity building for regulation and compliance monitoring of the future implementation of the GCK Model.

12.2 Institutional Capacity

FONERWA is considered the GCK Project Execution Agency. Whereas a number of statutory organisations are linked at both Project (i.e. GCK Project) and strategic levels (i.e. the GCK Model).

For each project related to the GCK Model, specialised committees and respective sub-component developers will be responsible for planning functions, implementation functions, monitoring functions, and strategic/Project level decision-making.

It is expected that the GCK Model at the implementation and monitoring level may represent a meaningful synergy between similar initiatives, where capacity building and staffing may be shared among the relevant institutions such as FONERWA, CoK, MoE and REMA and their inter-institutional coordination with interdepartmental sectoral authorities for E&S management of the GCK Model within the committees; to serve a common purpose.

Recommendation

For the replication of the GCK Model, the institutional setup might be similar due to the involvement of national level ministries. This makes knowledge and resource sharing regarding strategic decision-making, planning and implementation of the GCK Model possible. The setup of adequate communication channels for the implementation of the GCK Model in other cities to share lessons learnt from GCK project and provide capacity building can improve the efficiency and success of all future projects.

There is the need to support the growth of in-country technical and professional skills e.g. through the establishment of training institutions for development of programs focused on technical skills development for the building, operating and maintaining of innovative green technology used in buildings and infrastructure.



Therefore, the following is recommended:

- Clearly define institutional arrangements and roles of each institution, including inter-institutional co-ordination to reduce institutional barriers and duplication of effort and ensure implementation of E&S safeguards consistently across Projects;
- An expansion of in-house skills at the relevant local levels (eg CoK and Rwandan city districts) to ensure that there is the knowledge and know how to effectively monitor and regulate.
- Ensure sub-component developers will include (full time) E&S specialists.
- Ensure adequate capacity building regarding E&S safeguards for the sub-component developer management staff, aimed at:
 - Providing consistency in implementing E&S safeguards across projects and contractors;
 - Reinforcing safety culture and implementing adequate safety processes for management and monitoring of multiple contractors with different safety management approaches and standards;
- Ensure capacity building to increase local knowledge and skills regarding use of innovative green technology;
- Procure external, specialised support to assist with project level E&S risks management for all implementation parties (e.g. FONERWA, GCKC, sub-component developers);
- Setup communication channels and knowledge transfer between the Projects.

12.3 E&S Safeguards in the Context of GCK Model

There are a number of potential impacts associated with the GCK Model based on the assumed activities and possible sub-components outlined in the GCK SPA Masterplan. Significant impacts on the following receptors would be expected:

- Air Quality;
- Water/Groundwater;
- Waste Management;

- Noise and Vibration;
- Landscape and Visual;
- Flora and Fauna;
- Ecosystem Services;
- Community and workers H&S; and
- Displacement (economic and physical) as result of Project land acquisition and land access including impacts on informal businesses and livelihoods triggered by upgrading of informal settlements.

Furthermore, cumulative impacts from sub-components being implemented at the same time and other developments are expected.

The above-indicated impacts are to be managed at the level of each sub-component. Sub-component ESIA and E&S management approach are defined in detailed in the [ESMF](#).

The respective sub-component developers will be ultimately responsible for ensuring that their Project activities comply with the Project E&S policies, regulations and standards. They will therefore establish an appropriate organizational structure, responsibilities and practices and will ensure the resources required for the E&S management during the Project execution. Suggested key E&S management staff roles to be employed by the sub-component developers including their envisaged main responsibilities are summarized in the [ESMF](#). The needs of the E&S management and supervision positions may greatly vary pending on number of ongoing sub-components and their stages of implementation at a given time. The sub-component developers will therefore have to adjust their organisation in response to staffing needs at a given Project development stage. As flexibility is required, in addition to own/employed staff this could be also supplemented based on external support (e.g. specialist staff and/or seconded specialised services providers for determined period as needed).

It is the responsibility of the sub-component Developer to ensure that E&S compliance is achieved at sub-component level according to the requirements and processes defined in the [ESMF](#). In attaining this objective, the sub-component Developers will establish and maintain through their own E&S Management System a documented process to identify risks and impacts, implements adequate management measures to mitigate these in line with the Project Requirements, Regulations and Standards. Sub-component Developers E&S monitoring of their own activities and of their contractors and subcontractors E&S performance.

Updates/revisions to the sub-components ESMPs and subordinated E&S management plans will be implemented as appropriate to reflect the ongoing findings of the monitoring and audits, corresponding staff training or in response to regulatory changes affecting the Project. This approach is aimed at providing a robust system with continuous improvement of Project E&S risks and impacts management.

All frameworks included in the E&S documentation for the Project (i.e. [ESMF](#), [SEF](#) and [RPF](#)) are living documents that will be periodically updated by the sub-component developers as the Project progresses. The development of the different overarching management plans at the outset of the design phase for the Project/sub-components is a fluid process with the management objectives and performance indicators tailored to the current design and objectives of the Project. The [ESMF](#) and these over-arching plans utilize to the extent possible existing Project knowledge to fully address the actual E&S impacts of the Project at the time and allow flexibility in environmental and social management decisions made on the Project. Management of Change relates to any temporary or permanent alteration (physical/procedural) that deviates from the original design, assets, systems, processes, operations, products, organization and personnel.

Recommendations

To ensure E&S safeguards compliance and adequate management of E&S risk, it is recommended to follow the guidance in the **High-Level ESIA** and other E&S framework documents.



Therefore, the following is recommended:

- Consider cumulative pressure on E&S aspects for any future project, incl. administrative efforts;
- Developer to establish an appropriate organisational structure, responsibilities and practices and ensure the resources required for the E&S management during the Project execution;
- Ensure timely preparation of Projects Resettlement and Livelihoods Restoration Action Plans, sufficiently early upfront to allow securing compensation budgets and avoid projects delays;
- Ensure E&S assessments are performed upfront of Projects' contractor/works tendering processes to ensure required mitigation, E&S safeguards and E&S management arrangements (including staffing and procedures) are counted for and delivered;
- Contracting clauses to include requirements for Contractors to repair damages to existing properties as result of construction execution (e.g. damages to public services, damages/cracks to houses due to vibration associated with excavations, roads compacting, construction equipment traffic, etc.);
- Projects contracting to include adequate employment terms and conditions for projects' workers regarding non-discrimination and equal opportunity, worker's organisations, child labour, forced labour, gender-based violence and grievance mechanism;
- Perform regular audits (e.g. at set intervals or at completion of key projects' milestones) of projects to review implementation of the E&S safeguards;
- Ensure adequate Management of Change in the relevant guiding documents.

12.4 Summary

Overall, the GCK Model is deemed to be sustainable and adequately designed to comply with both the country's E&S legislative and permitting requirements as well as the World Bank's ESS if the assessments, management and mitigation plans are implemented effectively to identify and address and manage the potential adverse impacts associated with the GCK Model components. Corresponding instructions are determined in the **High-Level ESIA** as well as in other E&S frameworks, which the sub-components but also the six secondary cities and other urban development projects can use when planning and implementing the GCK Model.

Recommendations of this SESA are linked to three main topics:

- Policy, Legal and Regulatory Framework gap closing and monitoring of the success in terms of sustainability of the GCK Model as well as defining clear roles between and within the involved institutions;
- Capacity development, knowledge sharing systems and building synergies between the various projects implementing the GCK Model; and
- E&S safeguards compliance and adequate management of E&S risk.

These recommendations have not been prioritised since they are mostly interlinked. All recommendations are important to define a strategic framework that enables the success of the GCK Model and its further implementation in other urban development activities in Rwanda. The success of these recommendations will depend now upon the commitment of the responsible parties to develop an action plan for immediate and effective implementation. The SESA should be considered as an ongoing long-term process, rather than a stand-alone report.