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Iteka rya Minisitiri/Ministerial Order/Arrêté Ministériel

Iteka rya Minisitiri n° 009/25/10/TC ryo ku wa 28/07/2025 rishyiraho igishushanyo mbonera cy'imikoreshereze n'imitunganyirize by'ubutaka cy'Akarere ka Rulindo2

Ministerial Order n° 009/25/10/TC of 28/07/2025 establishing land use and development master plan of Rulindo District2

Arrêté Ministériel n° 009/25/10/TC du 28/07/2025 établissant le schéma directeur d'utilisation et d'aménagement des terres du District de Rulindo2

ITEKA RYA MINISITIRI N° 009/25/10/TC RYO KU WA 28/07/2025 RISHYIRAHU IGISHUSHANYO MBONERA CY'IMIKORESHEREZE N'IMITUNGANYIRIZE BY'UBUTAKA CY'AKARERE KA RULINDO	MINISTERIAL ORDER N° 009/25/10/TC OF 28/07/2025 ESTABLISHING LAND USE AND DEVELOPMENT MASTER PLAN OF RULINDO DISTRICT	ARRÊTÉ MINISTÉRIEL N° 009/25/10/TC DU 28/07/2025 ÉTABLISSANT LE SCHEMA DIRECTEUR D'UTILISATION ET D'AMÉNAGEMENT DES TERRES DU DISTRICT DE RULINDO
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ITEKA RYA MINISITIRI N° 009/25/10/TC RYO KU WA 28/07/2025 RISHYIRAHU IGISHUSHANYO MBONERA CY'IMIKORESHEREZE N'IMITUNGANYIRIZE BY'UBUTAKA CY'AKARERE KA RULINDO Minisitiri w'Imari n'Igenamigambi; Ashingiye ku Itegeko Nshinga rya Repubulika y'u Rwanda; Ashingiye ku Itegeko n° 27/2021 ryo ku wa 10/06/2021 rigenga ubutaka, cyane cyane mu ngingo yaryo ya 59; Bimaze kemezwa n'Inama Njyanama y'Akarere ka Rulindo yateranye ku wa 28/06/2023; Inama y'Abaminisitiri yateranye ku wa 22/05/2024 imaze kubisuzuma no kubyemeza; ATEGETSE: <u>Ingingo ya mbere:</u> Ishyirwaho Hashyizweho igishushanyo mbonera cy'imikoreshereze n'imitunganyirize by'ubutaka cy'Akarere ka Rulindo.	MINISTERIAL ORDER N° 009/25/10/TC OF 28/07/2025 ESTABLISHING LAND USE AND DEVELOPMENT MASTER PLAN OF RULINDO DISTRICT The Minister of Finance and Economic Planning; Pursuant to the Constitution of the Republic of Rwanda; Pursuant to Law n° 27/2021 of 10/06/2021 governing land, especially in Article 59; After approval by the Council of Rulindo District, in its meeting of 28/06/2023; After consideration and approval by the Cabinet, in its meeting of 22/05/2024; ORDERS: <u>Article One:</u> Establishment The land use and development master plan of Rulindo District is established.	ARRÊTÉ MINISTÉRIEL N° 009/25/10/TC DU 28/07/2025 ÉTABLISSANT LE SCHEMA DIRECTEUR D'UTILISATION ET D'AMÉNAGEMENT DES TERRES DU DISTRICT DE RULINDO Le Ministre des Finances et de la Planification Économique ; Vu la Constitution de la République du Rwanda ; Vu la Loi n° 27/2021 du 10/06/2021 portant régime foncier, spécialement en son article 59 ; Après adoption par le Conseil du District de Rulindo, en sa réunion du 28/06/2023; Après examen et adoption par le Conseil des Ministres, en sa séance du 22/05/2024 ; ARRÊTE : <u>Article premier :</u> Établissement Il est établi le schéma directeur d'utilisation et d'aménagement des terres du District de Rulindo.
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<u>Ingingo ya 2: Ibigize igishushanyo mbonera</u> Igishushanyo mbonera cy'imikoreshereze n'imitunganyirize by'ubutaka cy'Akarere ka Rulindo, kigizwe n'ibi bikurikira: (a) raporo rusange y'igishushanyo mbonera cy'imikoreshereze n'imitunganyirize y'ubutaka cy'Akarere; (b) amakuru ndangahantu y'igishushanyo mbonera; (c) amabwiriza agenga ishyirwa mu bikorwa ryacyo.	<u>Article 2: Composition</u> The District land use and development master plan of Rulindo District is composed of the following: (a) the main report of the District land use and development master plan; (b) zoning plan; (c) zoning regulations.	<u>Article 2 : Composition</u> Le schéma directeur d'utilisation et d'aménagement des terres du District de Rulindo est composé de ce qui suit : (a) le rapport général du schéma directeur d'utilisation et d'aménagement des terres du District ; (b) le plan de zonage ; (c) le règlement de zonage.
<u>Ingingo ya 3: Itangazwa</u> (1) Raporo rusange y'igishushanyo mbonera cy'imikoreshereze n'imitunganyirize y'ubutaka cy'Akarere ka Rulindo iri ku mugereka w'iri teka. (2) Amakuru ndangahantu y'igishushanyo mbonera cy'Akarere ka Rulindo n'amabwiriza agenga ishyirwa mu bikorwa ryacyo bitangazwa ku rubuga rw'ikoranabuhanga rwagenwe n'urwego rufite imicungire	<u>Article 3: Publication</u> (1) The main report of the land use and development master plan of Rulindo District is annexed to this Order. (2) The zoning plan and zoning regulations of the land use and development master plan of Rulindo District are published on the website designated by the organ in charge of land use management.	<u>Article 3 : Publication</u> (1) Le rapport général du schéma directeur d'utilisation et d'aménagement des terres du District de Rulindo est annexé au présent arrêté. (2) Le plan de zonage et le règlement de zonage du schéma directeur d'utilisation et d'aménagement des terres du District de Rulindo sont publiés sur le site web désigné par l'organe ayant l'utilisation et la gestion des terres dans ses attributions.

n'imikoreshereze by'ubutaka mu nshingano. <u>Ingingo ya 4: Igihe igishushanyo mbonera kimara</u> Igishushanyo mbonera cy'imikoreshereze n'imitunganyirize by'ubutaka cy'Akarere ka Rulindo gikurikizwa kugeza mu 2050. <u>Ingingo ya 5: Ivugururwa</u> (1) Igishushanyo mbonera cy'imikoreshereze n'imitunganyirize by'ubutaka cy'Akarere ka Rulindo gishobora kuvugururwa cyose nyuma y'imyaka icumi cyangwa ikindi gihe bibaye ngombwa uhereye ku muni gishyiriweho. (2) Ivugururwa ry'igishushanyo mbonera cy'imikoreshereze n'imitunganyirize by'ubutaka cy'Akarere ka Rulindo rishobora kandi gukorwa rireba agace gato igihe bibaye ngombwa bitabangamiye iterambere ry'utundi duce kandi hakurikijwe amategeko abigenga. <u>Ingingo ya 6: Ingingo y'ururimi</u> Iri teka ryateguwe mu rurimi rw'Ikinyarwanda.	<u>Article 4: Period of validity</u> The land use and development master plan of Rulindo District is implemented until 2050. <u>Article 5: Revision</u> (1) The land use and development master plan of Rulindo District may be comprehensively reviewed after ten years or whenever considered necessary from the date of its establishment. (2) The revision of land use and development master plan of Rulindo District may also be done on a specific area, when considered necessary, without compromising the development of other areas in accordance with relevant laws. <u>Article 6: Language provision</u> This Order was drafted in Ikinyarwanda.	<u>Article 4 : Période de validité</u> Le schéma directeur d'utilisation et d'aménagement des terres du District de Rulindo est mis en œuvre jusqu'en 2050. <u>Article 5 : Révision</u> (1) Le schéma directeur d'utilisation et d'aménagement des terres du District de Rulindo peut être entièrement révisé après dix ans ou chaque fois que cela est jugé nécessaire à partir du jour de son établissement. (2) La révision du schéma directeur d'utilisation et d'aménagement des terres du District de Rulindo peut également être effectuée sur une zone spécifique, en cas de besoin, sans compromettre le développement des autres zones conformément à la législation en la matière. <u>Article 6 : Disposition linguistique</u> Le présent arrêté a été rédigé en Ikinyarwanda.
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<u>Ingingo ya 7: Gutangira gukurikizwa</u> Iri teka ritangira gukurikizwa ku munsu ritangarijweho mu Igazeti ya Leta ya Repubulika y'u Rwanda. Agaciro karyo gahera ku wa 28/06/2023.	<u>Article 7: Entry into force</u> This Order comes into force on the date of its publication in the Official Gazette of the Republic of Rwanda. It takes effect as of 28/06/2023.	<u>Article 7 : Entrée en vigueur</u> Le présent arrêté entre en vigueur le jour de sa publication au Journal Officiel de la République du Rwanda. Il prend ses effets à partir du 28/06/2023.
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Kigali, 28/07/2025

(sé)

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Minister of Finance and Economic Planning
Ministre des Finances et de la Planification Économique

Bibonywe kandi bishyizweho Ikirango cya Repubulika:
Seen and sealed with the Seal of the Republic:
Vu et scellé du Sceau de la République :

(sé)

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Minister of Justice and Attorney General
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UMUGEREKA W'ITEKA RYA MINISITIRI N° 009/25/10/TC RYO KU WA 28/07/2025 RISHYIRAHO IGISHUSHANYO MBONERA CY'IMIKORESHEREZE N'IMITUNGANYIRIZE BY'UBUTAKA CY'AKARERE KA RULINDO	ANNEX TO MINISTERIAL ORDER N° 009/25/10/TC OF 28/07/2025 ESTABLISHING LAND USE AND DEVELOPMENT MASTER PLAN OF RULINDO DISTRICT	ANNEXE À L'ARRÊTÉ MINISTÉRIEL N° 009/25/10/TC DU 28/07/2025 ÉTABLISSANT LE SCHÉMA DIRECTEUR D'UTILISATION ET D'AMÉNAGEMENT DES TERRES DU DISTRICT DE RULINDO
IGISHUSHANYO MBONERA CY'IMIKORESHEREZE N'IMITUNGANYIRIZE BY'UBUTAKA CY'AKARERE KA RULINDO	LAND USE AND DEVELOPMENT MASTER PLAN OF RULINDO DISTRICT	SCHÉMA DIRECTEUR D'UTILISATION ET D'AMÉNAGEMENT DES TERRES DU DISTRICT DE RULINDO



RULINDO

District Land Use Plan 2023-2050



“Agribusiness, Mining and Stopover Transit Hub”

Report Title	Rulindo District Land Use Plan 2023 – 2050
Project title	Rulindo District Land Use Plan Report
Owner	Rulindo District
Project Approach	In House Capacity (NLA & Rulindo District)
District Council Approval	28 th June, 2023
Cabinet Approval	22 nd May 2024

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LIST OF ABBREVIATIONS

CBD	Central of Business District
CPA	Complementary package of activities
DLUP	District Land Use Plan
DR	District Road
ECD	Early Childhood Development
EICV	Integrated Household Living Conditions Survey
EP	Ecole Primaire
7YGP	Seven years Government program
FBO	Faith Based Organization
GDP	Gross Domestic Product
GIS	Geographic Information System
GS	Groupe Scolaire
HC	Health Center
HP	Health Post
HQ	Headquarters
ICC	Ikirenge Cultural Center
IDP	Integrated Development Programme
IPRC	Integrated Polytechnic Regional College
KPI	Key Performance Indicators
MINALOC	Ministry of Local Government
MINECOFIN	Ministry of Finance and Economic Planning
MININFRA	Ministry of Infrastructure
NGO	Non-Government Organisation
NISR	National Institute of Statistics Rwanda
NLA	National Land Authority SUDS: Sustainable drainage systems
NMT	Non-Motorized Transportation
NR	National Road
NSDI	National Spatial Data Infrastructure
NST	National Strategy for Transformation
NLUDMP	National Land Use and Development Master Plan
PSF	Private Sector Federation
PUSH	Population Urbanization Settlement and Housing
RDB	Rwanda Development Board
RFA	Rwanda Forestry Authority
REG	Rwanda Energy Group
REMA	Rwanda Environment Management Authority
RHA	Rwanda Housing Authority
RTDA	Rwanda Transport Development Agency
RWB	Rwanda Water Board

SPSS	Statistical Package for the Social Sciences
SUDS	Sustainable drainage systems
SWOT	Strength Weakness Opportunity Threats
TVET	Technical and Vocational Education and Training
WASAC	Water and Sanitation Corporation
WATSAN	Water and Sanitation

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EXECUTIVE SUMMARY

Rulindo District is one of the five Districts that make up the Northern Province. Rulindo district is bordered by Nyarugenge and Gasabo Districts in the South, Gicumbi in the east, Gakenke in the west and Burera District in the North. Rulindo DLUP determines the allocation of land within the entire District, in both urban and rural areas, taking into account the accumulation of all thematic areas to manage the effective use of resources and guide future development in line with NLUDMP 2020-2050, thereby promoting social, economic and environmental benefits.

Rulindo DLUP includes land use plans for the urban areas covering Mugote District Town/core urban center and the Rurban centers of Kinihira, Bubangu, Kinini and Shyorongi, and the rural areas covering rural settlement sites, agricultural areas, forests, water bodies, wetlands and infrastructure. Rulindo District Town is one of sixteen District Towns, separated from Satellite and Secondary Cities, supporting the urbanisation hierarchy in Rwanda.

The NLUDMP 2020-2050 prescribed Shyorongi as the District Town of Rulindo District. However, due to its location and lack of District Head office, which is located outside the District Town boundary in Bushoki Sector, Shyorongi struggles to serve the whole District in terms of development. During consultation meetings with District, MINALOC, Northern Province and stakeholders, and following the adoption of the Ministerial Order n° 008/07.01 of 10/10/2023 establishing head offices of Districts, Rulindo District's Headquarter office was established in Ngoma Sector. This proposal led to the creation of a new District Town. Once Rulindo District headquarter office is relocated in Ngoma Sector/Mugote site, Shyorongi District Town will be transformed into a Rurban Center, whereby, Mugote, Kiboha, Busizi, Kanyoni, Kajevuba, Ntarabana, Gashinge, Kisigiro and Karengeri Rural settlement sites will be merged to form Rulindo District Town.

In addition, NLUDMP 2020-2050 recommended that Base Neighbourhood be among three Rurbans in Rulindo District. However, it was agreed that, together with the District, NLA team and other stakeholders, not to consider Base neighbourhood as Rurban due to its topographical condition, lack of future extension and size to accommodate population projections and facilities as recommended by NLUDMP 2020- 2050.

After consulting the District and other stakeholders including PSF, Rusiga, Mwogo and Base Sectors, Kinini (which was node to Shyorongi) was selected and confirmed as a Rurban Center replacing Base Neighbourhood. Base neighbourhood is then frozen to be a rural settlement site. Kinini was a node of the former District Town/Shyorongi and looks as a stand-alone town due to the long distance between Shyorongi Center and Kinini center.

The existence of agroforest in Cyungo and Mbogo Sectors, Rutongo and Nyakabingo mining corridors and stopover businesses along the National Road (Kigali-Musanze) especially in Shyorongi, Rusiga, Bushoki, and Base Sectors, positions Rulindo as a “Agribusiness, Mining and Stopover Transit Hub”.

Both soil type, topography, hydrography and the climate conditions of the District enable the effective implementation of hillside agroforest projects. The District consists of hills and valleys, permanent rivers, unprotected wetlands and favourable rainfall enabling the effective implementation of hillside agroforest projects. Existence of big mining corridors including Rutongo and Nyakabingo positions the District as a mining hub.

The development of the Rulindo DLUP was framed by several laws, strategies, policies, guidelines and directive documents to support the framework of this plan. Various stakeholders were consulted, including the concerned institutions at the national level, local authorities and communities, as well as non-governmental groups, to ensure that the plan is inclusive. In addition to these consultations, both spatial and statistical data were collected and analysed to produce the spatial map of the existing land use and development plan (proposals) of the District, and to assist in the report compilation. The entire process of elaborating this DLUP was conducted by technical teams from Rulindo District and the National Land Authority.

Rulindo DLUP was developed to cover eight thematic areas as indicated in the NLUDMP 2020-2050: (i) PUSH, which stands for Population, Urbanization, Settlement and Housing; (ii) Transportation; (iii) Public Facilities and Services; (iv) Public Utilities; (v) Agriculture and Livestock; (vi) Environment and Natural Resources; (vii) Tourism and Conservation; and (viii) Economic Development. All these thematic areas were analysed in the light of the current situation to formulate the planning perspectives.

The elaboration of Rulindo DLUP, along with those for other districts, was primarily initiated to accommodate Rwanda's rapid population growth and accelerate economic development, particularly through organized urbanization and commercial agriculture. In the case of Rubavu District, the population was recorded at 360,144, with 10.6 % residing in urban areas in 2022. Projections indicate that the population will reach 419,211 with an urbanization rate of 33.7 % by 2035 and 499,500 with an urbanization rate of 56.0 % by 2050.

Rulindo District covers 567 km² of which 55% is planned for agriculture, almost 20% for forests, 9% for residential use, 6% for transportation, and 8% for wetlands and water bodies including their buffer zones. The implementation of Rulindo DLUP will be done in four phases: Phase one (2023-2029), Phase two (2030-2035), Phase three (2036-2040) and Phase four (2041-2050). To implement the DLUP, various implementation tools will be elaborated including Detailed Physical Plans and the Participatory Land Readjustment approach used by the District with capacity building and technical support from NLA and RHA in the zones to be developed, such as residential zones. Land use plan zoning regulations and sectoral plans from different government entities will play a vital role in the implementation of the DLUP. The Mid-Term Review which will be undertaken in 2035 and regular monitoring and evaluation exercises will be conducted to assess whether implementation is complying with the NLUDMP 2020-2050

1. INTRODUCTION

1.1. Background of District Land Use Plan (DLUP)

The Government of Rwanda has been engaged in the revision and updating of the NLUDMP 2010-2020 since 2018, after identifying several obstacles linked to its implementation. The cabinet approved the revised and updated NLUDMP 2020-2050 in July 2020, with an overall objective of finding solutions to the identified problems and generating specific guidelines for implementation and designing of new and updated spatial structure for the nation.

The DLUP is a recommended split of the NLUDMP 2020-2050 at the District level. This concept ensures integrated compliance by developing a coordinated set of plans at district level simultaneously. It details, the District level zones by integrating urban land use zoning and rural zoning including the Imidugudu complex, agricultural zones, forests and infrastructure in the District.

As a national adopted strategy for all Districts, Rulindo DLUP is in the form of a set of local urban and rural plans brought together to form an integrated District plan. The product is a detailed zoning map of the District with zoning regulations, useful for cadastral surveying, building permit systems and for subsequent detailed local physical planning.

1.2. Objective and Scope

1.2.1 Objective

Rulindo DLUP aims at determining the allocation of land across urban and rural areas within the District, to effectively manage the use of resources and provide guidance for future developments. Rulindo DLUP takes into account the characteristics of various land uses defined in the NLUDMP 2020-2050 and gives details in terms of land allocation with specification, uniqueness and potentialities of the District to ensure the appropriate distribution of land for different purposes, hence promoting positive social, economic and environmental outcomes within Rulindo District.

NLA leads the planning process, working closely with Rulindo District and various stakeholders including communities, organisations, private sector and government agencies to ensure that their input and perspectives are considered.

1.2.2 Scope

The scope of the Rulindo DLUP focuses on the whole District, including both urban and rural components. Rulindo DLUP covers all thematic areas including (i) PUSH, which stands for population, urbanisation, settlements and housing; (ii) spatial economy, which stands for employment, manufacturing, mining and industry; (iii) agriculture; (iv) environment and natural resources; (v) tourism and conservation; (vi) transportation; (vii) public facilities and services.

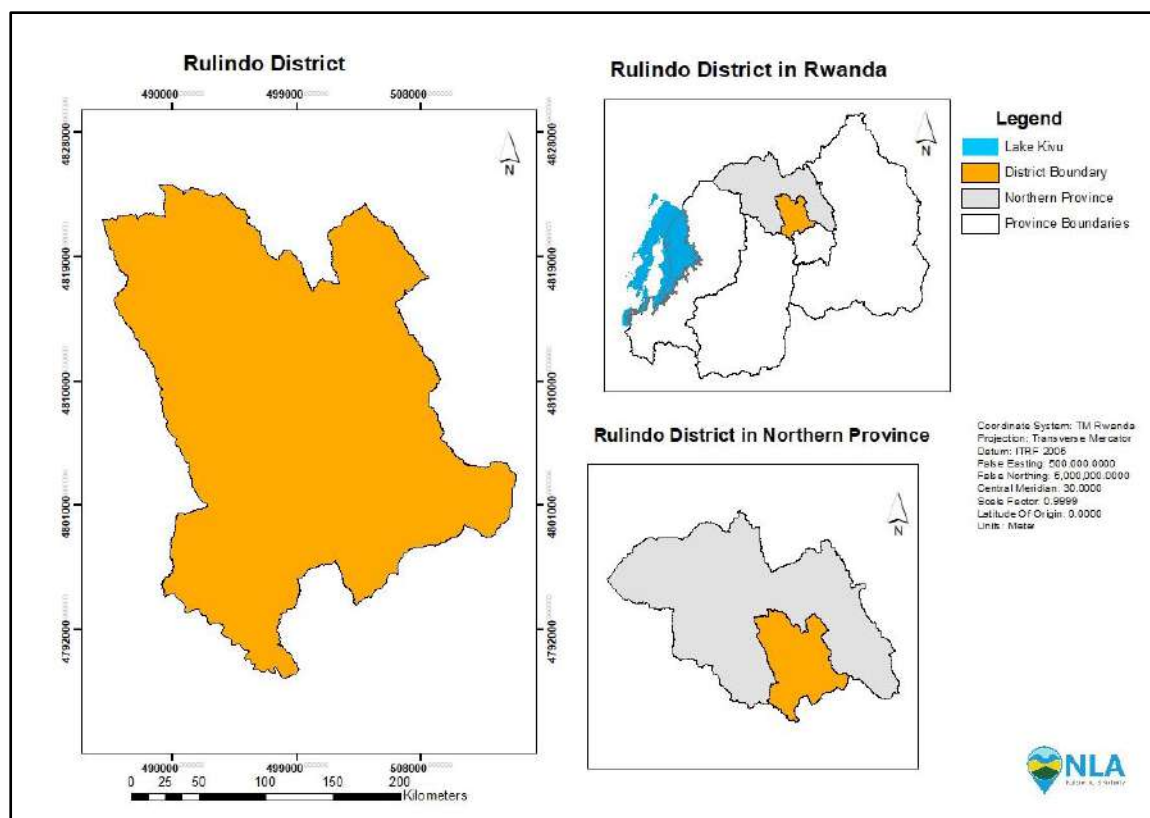
Taking all of these coverage areas together, land has been allocated to different uses while zoning to feed each sector depending on its land demands and developing an effective land use balance sheet to guide the way forward to the 2035 in line with the NLUDMP 2020-2050.

1.3. General overview of Rulindo District

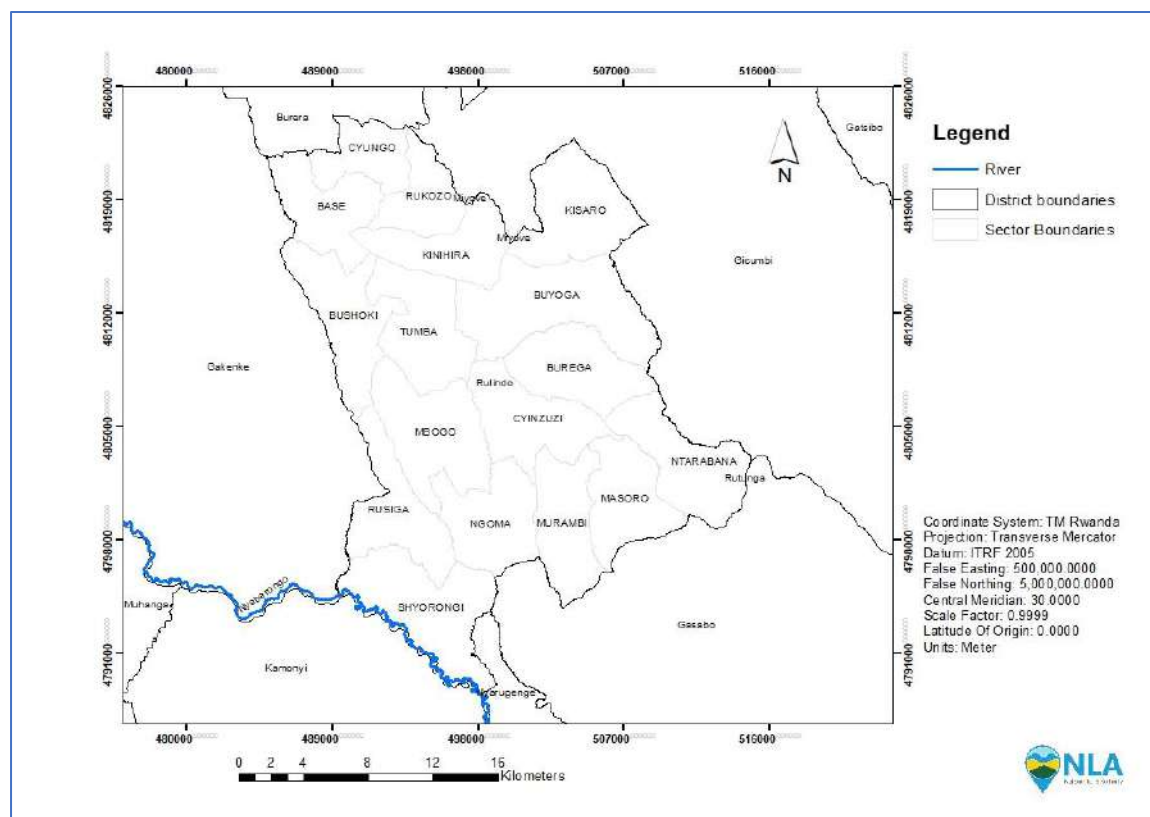
1.3.1 Geographical Location

Rulindo District is one of the five Districts that make up the Northern Province. It is bordered by Nyarugenge and Gasabo Districts in the south, Gicumbi District in the east, Gakenke District in the west and Burera District in the north. The District has 17 administrative Sectors and these are; Shyorongi, Rusiga, Bushoki, Base, Cyungo, Rukozo, Kinihira, Kisaro, Mbogo, Ngoma, Ntarabana, Cyinzuzi, Masoro, Burega, Buyoga and Murambi, with 71 Cells and 494 Villages (Imidugudu) and cover a surface area of approximately 567 km². The population of Rulindo District is 360,144, where 171,849 are males and 188,295 are females according RPHC5, 2022.

The map below shows the location of Rulindo District.



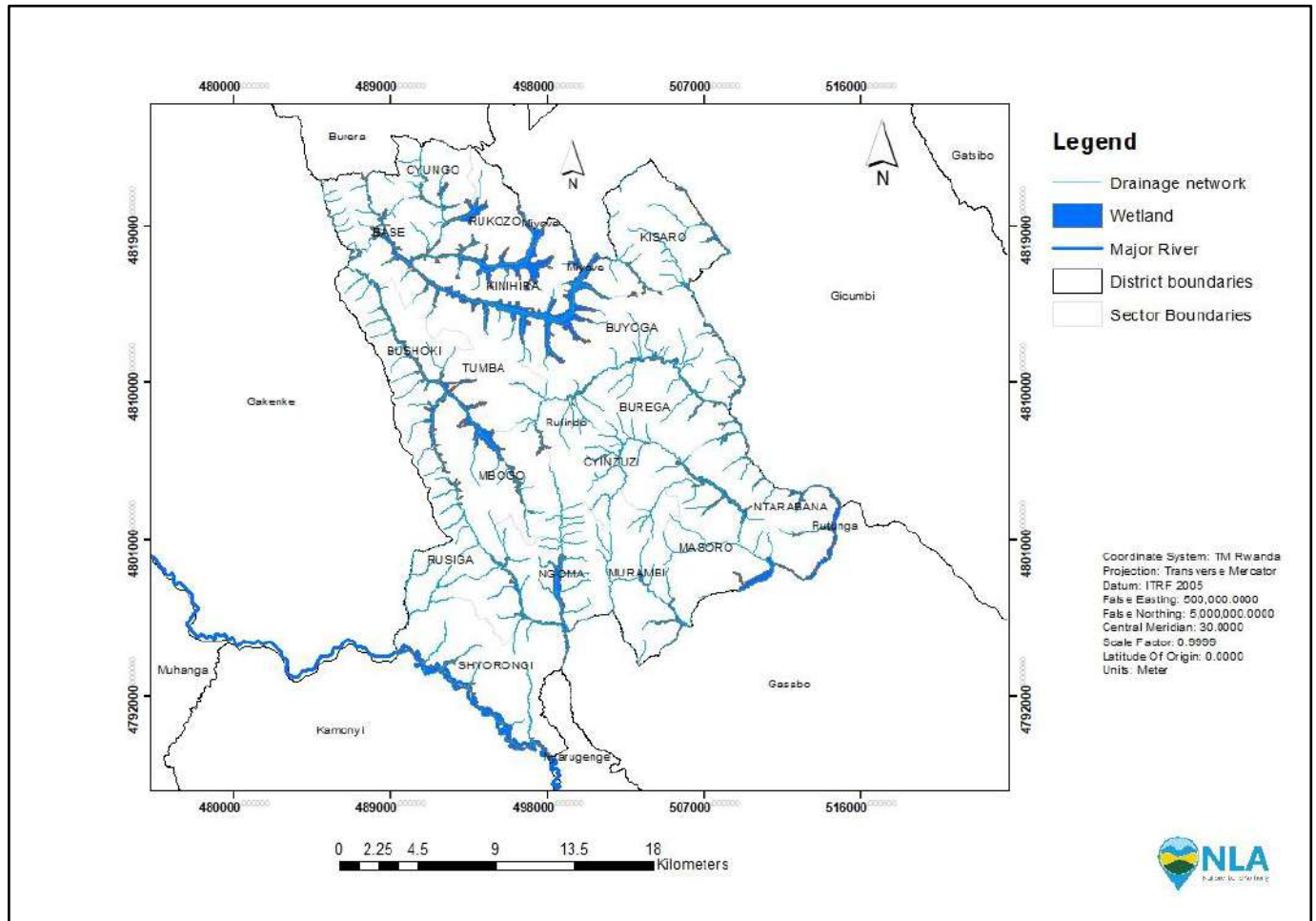
Map 1. Rulindo District Locational Map



Map 2: Rulindo District Administrative

1.3.2 Hydrography

Rulindo District has significant water reservoirs from local sources including rivers that have a steady flow into valleys that enables the District to have water even during the dry seasons. The main rivers that flow into the District are Base, Bahimba, Mulindi, Cyonyonyo, Cyohoha, and Rukeri Muyanza.



Map 3. Rulindo District Hydrology

1.3.3 Soil and Erosion

1.3.3.1 Soil

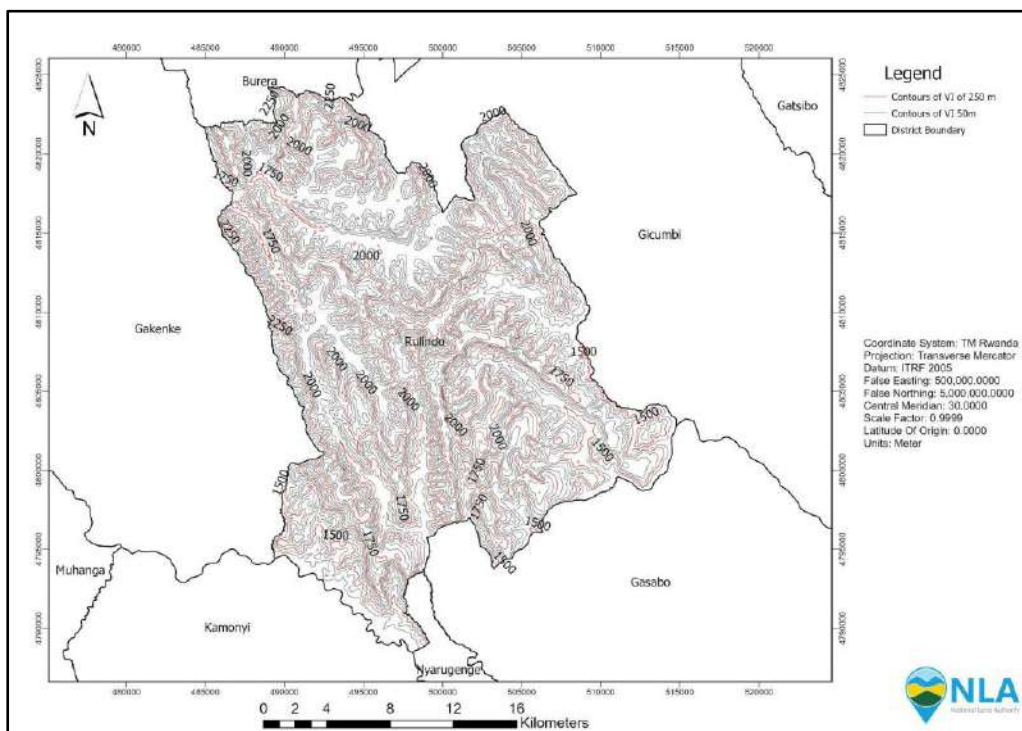
Rulindo District has fertile soil and rich deposits of natural resources. In the mining sector, cassiterite and wolfram are extracted in Masoro, Murambi, Shyorongi and Rusiga areas. Rulindo District soil is characterised as sandy clay soil.

1.3.3.2 Erosion

Soil erosion and soil nutrient loss are major problems in Rulindo District since a big part of the District is hilly. The erosion takes what would be the fertile soil to rivers and wetlands. Shyorongi Sector is the worst affected with an area estimated at 800 ha (22% of the land) at risk of erosion, followed by Rukozo Sector with 235 ha (17%), and Rusiga Sector with 466 hectares (16% of sector land at risk). The presence of gullies in Shyorongi, Rukozo, Rusiga, Cyinzuzi and Tumba Sectors confirms the findings of the Catchment Restoration Opportunity Mapping (CROM) model. Erosion control measures were taken and therefore runoffs were drastically reduced through agroforestry, and radical and progressive terraces (IUCN, 2022).

1.3.4 Topography

Rulindo District is characterised by hills among which include Tare, Tumba and Cyungo hills with their altitude rising to 2,438 m. These hills are interspersed by valleys and swamps that also border rivers such as Nyabarongo, Muyanza and Nyabugogo. The valleys and 8 swamps, such as Rugezi, feeds lake Burera and in turn supplies the fall of Ntaruka in Burera District which is a source of hydro energy to the country. This interweaving of hills and valleys with rivers provides a beautiful and eye-catching scenery to both citizens and visitors.



Map 4. Rulindo Topographic Map

1.3.5 Climate and Rainfall

Rulindo District has a tropical climate, characterised by a succession of rainy seasons and droughts. The dry season usually extends from January to February, and June to August. The rainy season normally stretches from March to May and from September to December. The average annual temperature is 19°C. High temperatures are observed in August where they reach 28°C in the middle of the day. During the rainy seasons, the District encounters concentrations of mists in the valleys in the mornings and on the hilltops in the late morning. Rainfall normally reaches 1,243 mm per year on average (Meteo-Rwanda).

1.3.6 Flora and Fauna

Natural forests in the District have taken a decreasing toll due to many factors, key among them, being human settlement and its related impact such as use of wood for cooking. The vegetation is largely composed of food crops with woodland eucalyptus, grevillea and cyprus. It also harbours ferns and the eragrostis (ishinge), the latter being the sign of soil degradation. The District is home to the ordinary domestic animal species although wildlife is on a lower scale. The District is nevertheless blessed with numerous and diverse breeds of birds ranging from crowned crane, ravens, waders, wagtails, doves, hawks, hummingbirds, sparrows, and many others. Reptiles like snakes, vipers, hares, jackals are also existent within the District.

1.3.7 Spatial SWOT Analysis

Spatial SWOT analysis is a methodology to understand the strengths and weaknesses, and for identifying opportunities and threats linked to land use planning and development strategies. The methodology aims to identify synergies between land uses, and helps mitigate any negative impact a certain land use can pose on neighbouring activities.

The table below presents the spatial SWOT analysis of Rulindo District as per the NST1 sectors. Based on the findings of the SWOT analysis, the District has crafted spatial priorities to maximise identified opportunities and strengths, as well as strategies and mitigation measures to address existing weaknesses and threats.

Strengths	Weaknesses
● Fertile soil which is good for vegetables and fruits. ● Existing extensive consolidated land for agriculture. ● Favourable climate with sufficient rainfall and moderate temperatures. ● Enabled irrigation system in hilly areas of Buyoga, Cyinzuzi and Burega (Muyanza dam). ● Food processing systems (coffee washing station, NYIRANGARAMA Ese URWIBUTSO, SORWATHE) ● Presence of schools for agriculture including Kisaro TSS ● Agriculture business security	● Insufficient selling points and lack of modern markets ● Illegal mining extraction encroaches on agricultural land (Murambi, Masoro, Ntarabana, Cyinzuzi) ● Relatively large amount of traditional farming methods, large amount of subsistence farming, and lack of (physical) suitability to increase agricultural productivity. ● Scattered settlement consuming agriculture land ● Topographic conditions are difficult for agriculture, steep slopes in combination with high rainfall poses a risk for erosion leading to poor soil conditions.

• Availability of agronomist at District and sector levels • Livestock as source of organic fertiliser. • Unprotected wetlands used for farming	• High distribution of scattered settlements that consume fertile agricultural land. • Unskilled farmers in modern farming • No adequate research on adaptive crops or seeds to specific areas of agriculture zones.
Opportunities	Threats
• Possibility to expand land for cash crops (coffee, tea, stevia and cereals) • Proximity to Kigali, and upgrading of roads (unsealed to sealed) leads to better access (reduced transport time) to markets to sell products. • Opportunity to upgrade to modern farming techniques to increase agricultural productivity (existing school and labour force)	• Continuation of construction of residential buildings on rural land without permits. Lack of enforcement will lead to further land fragmentation. • The expansion of villages (to cater for a growing population) is at the expense of fertile agricultural land spurring land use conflicts (agriculture and settlements). • High migration rate from Kigali to Rulindo for residential purposes. From Rulindo to Kigali to access employment markets. • Climate change may lead to different rainfall patterns having an impact on the growing seasons (uncertainties) • Crop diseases and soil erosion due to slope and heavy rain.

Table 1. Spatial SWOT: Agriculture and Livestock Theme

Strengths	Weaknesses
- Existing light industries. - Access to National Roads, District and feeder roads. - Availability of natural resources/minerals (tin, wolfram, gold). - Agriculture and mining are economic drivers, e.g. availability of RUTONGO MINING, coffee washing stations, Entreprise Urwibutso, SORWATHE tea factory	- Poor maintenance of feeder roads. - Informal settlements - Absence of bus parking. - Insufficient number of modern markets. - Steep terrain comes with higher risk for economic loss due to landslides, flooding etc. - Lack of high-end accommodations
Opportunities	Threats
- Improve road network (upgrading and extending) leads to better accessibility, reducing travel times and optimise possibilities for transportation of people and goods - Location close to Kigali is a opportunity to increase economic activities - Opportunity to further development of added value products in the agricultural chain along the main infrastructural axes / routes.	- The steep terrain poses a challenge for investments and developments in infrastructure or other economic purposes (leading to higher costs compared to flatter regions). - Steep terrain comes with higher risk for economic loss due to landslides, flooding etc. This might be increased due to climate change. - Lack of investment to maintain and develop the economic sector.

● Opportunity to open up facilities for tourism together with other developments (improvement of infrastructure)	
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Table 2. Spatial SWOT: Economic Theme

Strengths	Weaknesses
● Increase of population in the District, especially young people (labour capacity). ● Presence of healthcare facilities especially at Provincial, District, HC and HP level. Kinihira and Rutongo Hospital. ● Availability of education facilities, IPRC, TVET, GS, EP, etc. ● Presence of religious facilities which help the government to implement some programs, e.g. constructing schools.	● Poor implementation of family planning programs. ● Majority of the population lives in rural areas in scattered settlements. ● Poor accessibility to the healthcare facilities
Opportunities	Threats
● High level of migration from Kigali to Nyabyondo, Masoro, Shyorongi and Rusine; ● Planned education and healthcare facility with high connectivity to road network;	● Agricultural land affected by migrants and displacement of the locals due to selling land to migrants.

• Great social exchange between Kigali and Rulindo population as a source of income.	
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Table 3. Spatial SWOT: Social Theme

Strengths	Weaknesses
• Projects for afforestation, re-afforestation and agroforestry are in place; • Existing forest, wetland and rivers for environmental protection; • Protected hillside with terraces.	• Deforestation and non-native species (eucalyptus) • Scattered settlement in environmentally sensitive areas. • Erosion and landslides • Unsustainable agriculture (traditional agriculture) • Highly dependent on non-renewable energy.
Opportunities	Threats
• Re-afforestation and agroforestry.	• Improved agricultural production will lead to more pollution and other negative impacts for the environment (e.g. fertilisers, pesticides). • Development of economic activities (construction, industry, mining) lead to degradation, pollution, emissions)

Table 4. Spatial SWOT: Environment Theme

2. REGULATORY AND POLICY FRAMEWORK

The Regulatory and Policy Framework was developed in response to ongoing changes in development priorities, providing a structured approach to facilitate sustainable growth, compliance, and guidance on land use regulations in Rwanda. This framework aims to ensure responsible land management that aligns with Rwanda's national goals and global sustainability standards. Thus:

2.1 Policies

- National Land Policy, June 2019, MoE

The revised land policy focuses on the efficient utilization and management of land to support the national transformation goals without compromising the benefits of future generations. To achieve this objective, the policy outlines actions organized into three core pillars: land use planning, surveying, and mapping; land use management; and land administration. These pillars encompass eight thematic areas:

- Land use planning, surveying, and mapping;
 - Integration of land utilization across various Sectors;
 - Effective land use management;
 - Facilitation of private sector investment in land;
 - Land registration procedures;
 - Administration of land lease fees, real property taxes, and land markets;
 - Ensuring land rights security and managing land disputes;
 - Institutional framework and coordination mechanisms within the land sub-sector.
- National Urbanization Policy, December 2015, MININFRA;
 - National Human Settlement Policy in Rwanda, May 2009, MININFRA;
 - National Housing Policy, March 2015, RHA.

2.2 Laws and Regulations

Law n° 27/2021 of 10/06/2021 governing land contains detailed provisions concerning land use management and development, as well as the institutional framework and procedures governing the initiation, development, adoption, and establishment of land use and development plans at the district level. The legislation specifically governs land occupancy and construction activities on areas designated for human habitation. Moreover, it encompasses the planning of plots and site development to facilitate the realization of national, City of Kigali, and district land use master plans.

Presidential Order n° 038/01 of 20/05/2022 establishing NLUDMP delineates a planning horizon spanning the next three decades. The Order outlines the revision process, ensuring alignment with other plans, and assigns responsible institutions for implementation, emphasizing the pivotal role of all sectors. With the NLUDMP gazetted, the focus now shifts to effectively implementing it through DLUPs and other tools, ensuring strict adherence to alignment principles between NLUDMP and DLUPs. It is against this backdrop that Rulindo District revised its Land Use Plan, ensuring compliance with the directives set forth in NLUDMP 2020-2050.

Rulindo fDLUP was revised taking into consideration additional laws related to land management and utilization such as:

- Law n°10/2012 of 02/05/2012 governing urban planning and building in Rwanda. Urban planning should strive for the gradual and adaptable advancement of urban centers within the context of economic and social development policies, incorporating rural planning and environmental preservation objectives;
- Law n°20/2011 of 21/06/2011 governing human habitation in Rwanda. This law governs land occupation and construction on lands reserved for human habitation;
- Ministerial Order n° 04/Cab.M/015 of 18/05/2015 determining urban planning and building in Rwanda;
- Ministerial Order No 005/MoE/22 of 15/02/2022 determining modalities of change of land use;
- Land use plans zoning regulations, edition 1, November 2022.

2.3 Sectoral plans

- Strategic Plan for agriculture transformation (2018-24)
- National Transportation Policy and Strategy for Rwanda (April,2021)
- National Swamplands Management Framework for Rwanda (December,2020)
- The state of soil erosion in Control in Rwanda (May,2022)
- Rwanda Irrigation Master Plan (2020)
- Rwanda Transmission master plan (2022-2030)
- Rwanda Electricity Distribution Master Plan (June 2022)
- National Feeder Roads Master Plan (2023)
- Rwanda Forest Cover Mapping Report (November,2019)
- Revised Green Growth and Climate Resilient Strategy (September 2022)

- National Determined Contribution (May 2020)
- National Water and Sanitation Policy (October 2023)

2.4 Guidelines

Numerous land use planning guidelines established in previous years remain pertinent and continue to inform current practices, e.g.:

- Ministerial Instructions relating to the implementation of the National Grouped Settlement Program in Rural Areas (27 May 2009);
- Urban Planning and Building Codes (June 2019, MININFRA);
- Rwanda Land Use Planning Guidelines (December 2017, RNRA);
- Participatory Land Readjustment Guidelines (October 2021, NLA);
- Ministerial Instructions no.001 of 23/04/2018 determining the management and use of the lands allocated for agriculture and livestock.

3. METHODOLOGY

The preparation of Rulindo DLUP was a collaborative work between the Rulindo District and National Land Authority (NLA). This chapter outlines the planning processes, data methods to be applied, including public consultation meetings, literature review, field work, spatial and non-spatial collection and data analysis and report development.

3.1 DLUP planning Process

The elaboration of the DLUP follows the following planning process:

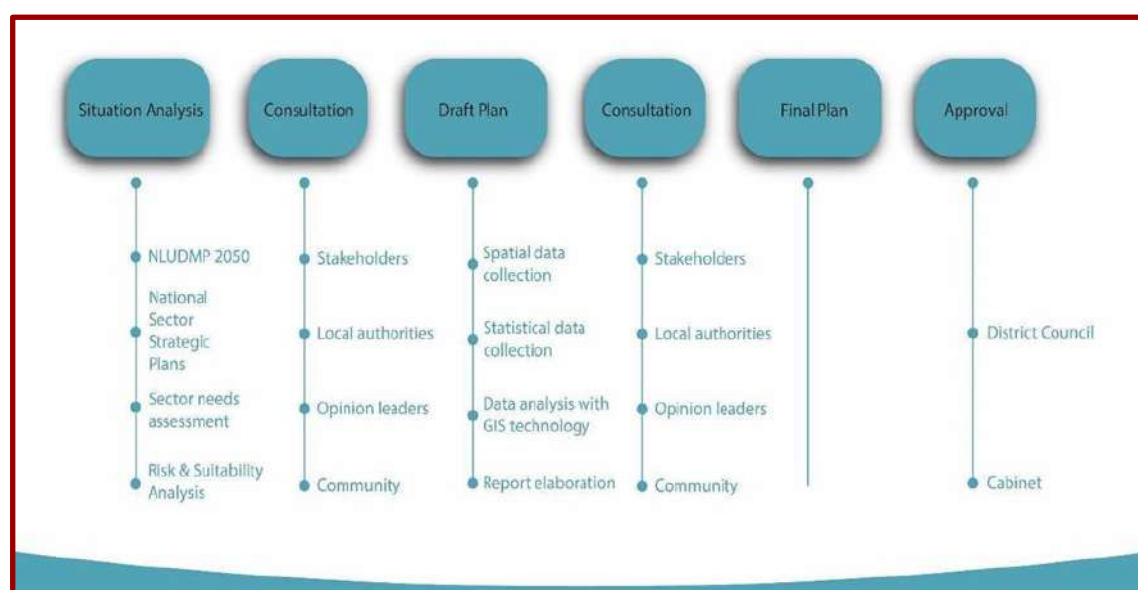


Figure 1. District Land Use Planning Process

3.2 Public Consultation

Consultation emerged as one of the methodologies used in the development of the DLUP in Rulindo District. This method was intended to build awareness of the project among different stakeholders, including partner institutions, local authorities and the community concerned. The consultation provided a clear understanding of Rulindo DLUP, its targets for the community and the country, the scope of the project, its time frame, the activities to be covered and how they should be carried out to ensure a reliable result. During the development of Rulindo DLUP, consultation meetings were held among the different institutions, local authorities and the community.



Figure 2. Participatory planning and consultation meetings with Local authorities, stakeholders and communities in Rulindo District



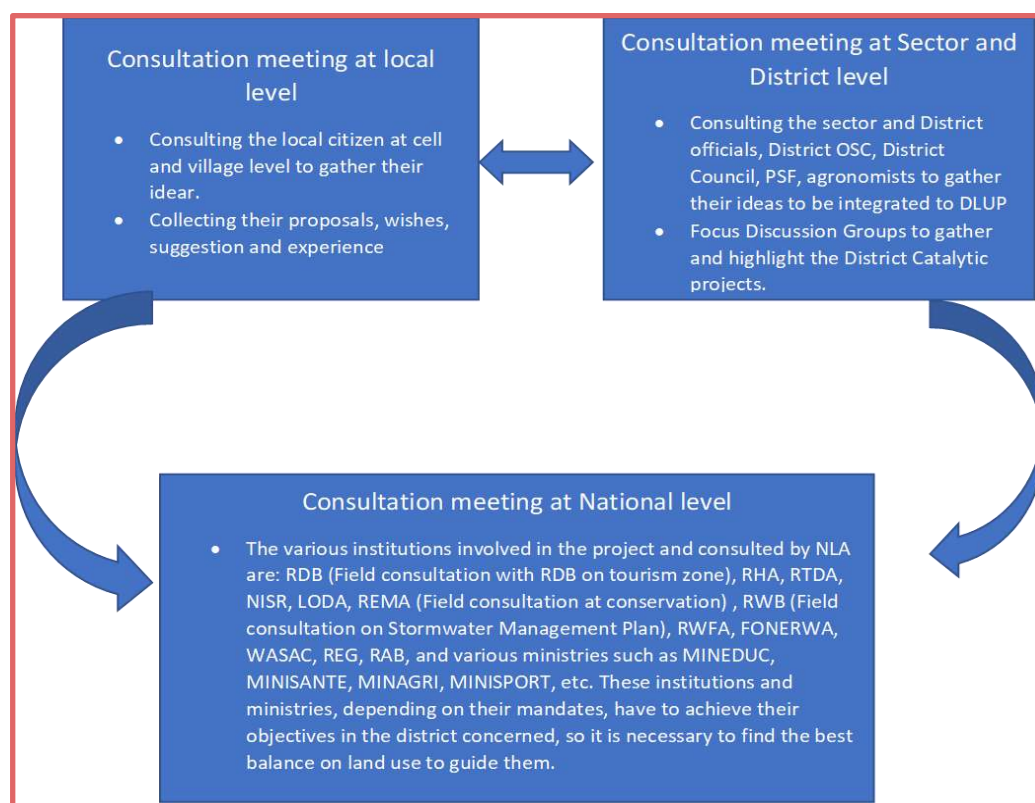


Figure 3: Levels of consultation meetings held during the elaboration of Rulindo DLUP

3.3. Data collection methods

Collecting data is an important part of planning as it helps planners understand the current situation, identify future potential challenges and opportunities, and make predictions and projections by choosing the best proposals and scenarios. During the development of Rulindo DLUP, primary and secondary data sources were used to collect both spatial and non-spatial data.

3.3.1. Literature review

Different documents were reviewed with the purpose of getting comprehensive secondary data, including statutory plans/earlier Master Plans in the District, Census Reports for different periods, specific studies conducted by various agencies, ongoing and proposed projects, existing status (Sector specific) with the aim of aligning the DLUP with relevant laws, policies, regulations and guidelines applicable. The full list of documents reviewed is hereby annexed.

3.3.2. Spatial Data Collection

The development of the Rulindo DLUP requires the collection of existing and proposed spatial or geographical data from the field and various agencies for all areas considered in the land use zoning.

Existing and proposed spatial data collected included existing infrastructure such as roads, electricity, water supply, educational and healthcare facilities, markets, administrative offices, mining sites, approved physical plans and concessions, etc. In addition, data on the location of potential urban areas and settlements were mapped and their boundaries delineated. Spatial data collection was also necessary to mark areas that were likely to be protected and conserved, such as tourism sites, as well as disaster-prone areas, such as steep slopes or wetlands.

During the elaboration of Rulindo DLUP, data collected includes forestry from RFA, the water supply system and associated future projects from WASAC, electricity data from REG, tourism data from RDB, transport data from RTDA, rural settlement boundaries and urban master plans from RHA, wetlands and their buffer zones from REMA, rivers, lakes and other water bodies from RWB and many others. The accumulation of these spatial data and projects provides a basis for data collection on the ground, and provides detailed information for zoning and subsequent implementation support.

The focus of spatial data collection has been to support the development of Rulindo DLUP with accurate data and to provide a clear understanding of the terrain, to allocate future land uses. Spatial data collection was carried out using tools such as Google Earth, SW Maps, and Consulting NSDI Hub portal.

3.3.3. Field Work and Study

Based on the analysis made from the desktop review on existing condition features and selected priority areas, the NLA team together with the Rulindo District One-Stop Center team conducted a field land survey and physical analysis within the priority sites for urban, Rurban and rural settlements sites. In this regard, existing infrastructure and potential tourism and mining sites were visited and analysed, Urban and rural settlement site boundaries were adjusted with respect to the ground reality, and new infrastructures were proposed aligning with NLUDMP 2020-2050. As for the District Town, Rurbans and rural settlement sites, the aim was to clearly identify the boundary consistencies and zoning.



Figure 4: Pictures showing field work done in Rulindo District

3.3.4. Non-Spatial Data Collection

Non-spatial data (such as attribute or characteristic data) consists of information that is independent of any geometric considerations. It includes data that is not demonstrated with location-based and geographic location. Basically, non-spatial data accumulate statistical and quantitative data that provide information about features or phenomena in the form of definitions, explanations and can be displayed in graphs and tables but not maps

While elaborating the DLUP, non-spatial data is required to support the analysis and inform the planning of the district. Statistical data, such as neighbourhood level regarding economy, environment and livelihoods, is needed to guide the preparation of the Rulindo DLUP. The non-spatial data collected includes demographic statistics that account for the current and projected status, and allocation of economic activities across the District. The non-spatial data was collected during fieldwork and site visits, by consulting different institutions, local authorities, and non-governmental groups. Besides providing essential information for decision-making, the data has also contributed to raise awareness of the need for efforts in specific Sectors.

3.4. Data Analysis and Report compilation

3.4.1. Data Analysis

Data analysis encompasses the process of reviewing, cleaning, transforming, and modelling data with the goal of discovering useful information, drawing conclusions, and supporting decision making. Land use plan data analysis involves applying spatial and non-spatial data on infrastructure, zoning, and other features to describe, illustrate, summarise, and interpret the data. Spatial and non-spatial data are analysed to generate the land use zoning layers, and for the compilation of tabulations and graphs in the DLUP report. The analysis of spatial and non-spatial data assists in effective land use allocation,

effective planning and balancing of different thematic areas. The analysis helped to identify suitable areas for different land uses, such as zoning the settlements into convenient locations and allocating other land uses in different areas. Through data analysis, the urban and rural settlement areas were mapped out and the associated land use zones were planned. Steep slopes zones were identified to be allocated for forest plantations, and disaster-prone areas were identified as well.

For the data analysis, geospatial technology, especially GIS software, were used to acquire data from the field and manipulate it in the office to get a clear representation. With regard to GIS software, the technical team used ArcGIS 10.8 version, as well as ArcGIS pro, to create shape files and associated maps for zoning. GIS further helped in creating tabular data by referring to the attribute tables of the geospatial data. These tabulated data were later analysed using Excel and SPSS to ensure a good and accurate representation in the report.

3.4.2. Report Compilation

The DLUP report presents all land use planning related concepts, data and other information that illustrates how land is allocated to support the effective use of resources and guide future development at the district level. The report serves to document the current status and projected situation with respect to land use in the district. The DLUP report compiles the data collected into a single document that represents the district master plan. The document consists of text, maps, tables, diagrams, and other outlines that describe the district in concern given the background of all the issues.

The DLUP report describes the District characteristics, the planning situation of the District considering PUSH (population, urbanisation, settlement and housing), spatial economy (mining, trade and industrialization, etc.), tourism and conservation, infrastructure and services, and environment.

4. DISTRICT LAND USE AND DEVELOPMENT PLANNING

4.3. Visioning and economic specialisation of the District

4.3.1. Vision of the District

Based on the Spatial SWOT analysis findings, the vision for Rulindo District is to become a "Agribusiness, Mining, and Stopover Transit Hub." This vision is aligned with the District's strengths in agriculture, mining, and stopover businesses, as well as the opportunities for sustainable and eco-friendly practices. The vision also recognizes the potential for the District to serve as a transit hub for travellers, given its central location and growing tourism industry.

4.3.2. District Spatial Planning Strategies

a) To keep and develop sustainable agriculture and livestock and to improve agro-processing industries.

Rulindo District is a hilly District with prime agricultural land (LUCA B) where crops are integrated with trees and shrubs, especially seen in Cyungo, Rukozo, Mbogo, Rusiga, Bushoki and Base Sectors. Therefore, agroforestry should be kept to support agricultural productivity and control hillside soil erosion. Apart from agroforestry, terracing systems and irrigation in Kisaro Sector, the Muyanza irrigation scheme, and unprotected wetlands in Ngoma associated with both vegetables and flowers should be kept and developed to support the District economy.

b) To develop stop over business transits along National Roads

The presence of stop over business along the National Road Kigali-Musanze in Rusiga and Bushoki Sectors contribute to the economy of the District where agricultural products are processed and sold to travellers. The main stopover nodes are located at Nyirangarama Cell, Bushoki Sector. Others are Rusiga, Base and Rusine markets to be developed. Even if stopover businesses are developed in other Districts, Rulindo District has the largest stopover within the country. During the Rulindo DLUP elaboration process, businesses along the roads have been taken as a priority whereby Shyorongi, Rusiga, Nyirangarama have been developed along NR4 (Kigali-Musanze), Base and Kisaro along Base-Butaro Road, Rusine and Kajevuba nodes along NR3 (Kigali-Gatuna border) and Remera as centre stopover nodes in Ngoma Sector along Nyacyonga-Mukoto Road. All planned stopovers will position Rulindo District as a stopover business hub.

c) To explore Rulindo District mining corridors and improve its sustainability

Rulindo is a District where mining plays a major role in the development. This sector, which strengthens the District's economy, was expanded during the development of the DLUP. Rulindo District has a large mining site which acts as a stock of the country's mineral resources where cassiterite and wolfram are extracted in Rutongo and Nyakabingo. Rutongo extracts cassiterite in four Sectors (Masoro, Cyinzuzi, Murambi and Burega) while wolfram is extracted from Nyakabingo site in Shyorongi Sector. Exploring mineral resources as the main generator of the economy through providing job opportunities has been prioritised during the elaboration of Rulindo DLUP.

d) To develop sustainable road network connectivity

Development of a sustainable road network connecting agricultural zones, commercial centres and residential zones is key to standardizing the economy of Rulindo District. Rulindo District has asphalt roads including National Roads (NR4, NR3), Base - Butaro - Mukoto-IPRC Tumba District roads. Other roads such as District Road Class One, District Road Class Two, servicing roads and access roads are not paved and of low standard. During the rainy season, it is not easy to cross from one Sector to another, especially in Ngoma, Buyoga, Kisaro Sectors, and most bridges do not support proper transportation. In the DLUP, road reserves have been established and missing roads have been planned including an access road from National Road (NR4) to Kinini Rurban and the Ring Road in the District Town to be used by heavy trucks.

e) To keep and preserve the natural environment

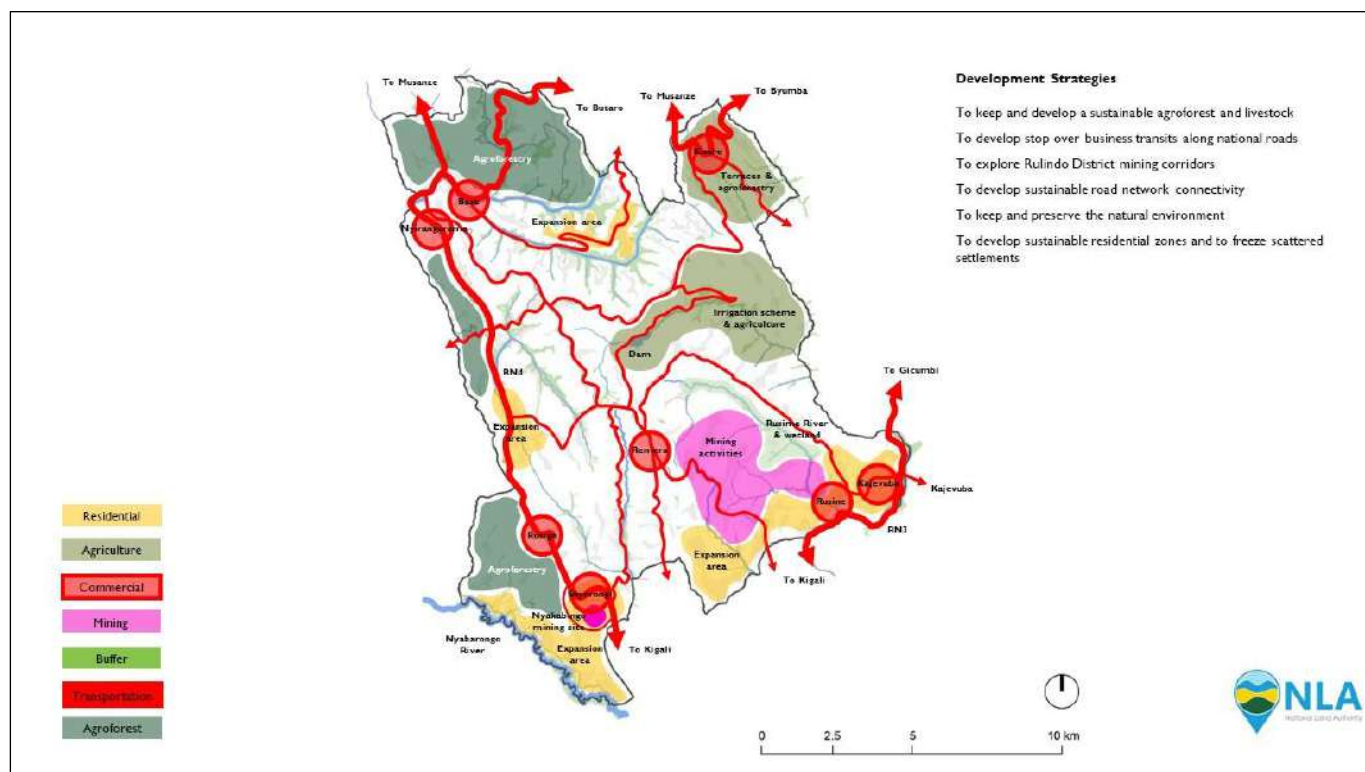
Even if agriculture, mining, businesses and development of infrastructure strengthen the economy, areas of environmental concern including wetlands, rivers and biodiversity should be kept and preserved. Nyabarongo and Rusine river and its wetlands are polluted by Nyakabingo and Rutongo mining sites through deposits of tailings (liquid waste and sedimentations), and should be sustainably managed and controlled to sustain the environment. The DLUP promotes environmental protection by applying buffer zones to the wetlands, dams, and rivers.

f) To develop sustainable residential zones and freeze scattered settlements

Rulindo District is characterised by scattered settlement in agricultural land due to high migration. The prime agricultural land in the Shyorongi Sector corridor of Rutonde/Nyabyondo, Ntarabana, Masoro

and Murambi Sectors are affected by urban sprawl as it is the areas located closest to the City of Kigali. Scattered settlements can also be observed in the northern part of the District.

The Rulindo DLUP proposes one District Town, 4 Rural Centers and 100 rural settlement sites. During the elaboration of the DLUP, urban and rural settlement sites have been restructured and reshaped through delimiting and marking the boundaries of residential zones. This will reduce the conflicts between agricultural land and residential zones.



Map 5: Rulindo District Spatial Strategies Planning and Mapping

4.3.3. District Economic Specialization

4.3.3.1. The Current economic specialisation in the District

Based on the data collection and analysis during land use planning of Rulindo District, which helped to develop the Spatial SWOT analysis, it was observed that the agriculture Sector continues to be the mainstay of the District economy, accounting for a significant portion of the gross domestic product (GDP). However, the sector is in need of modernization and productivity remains low due to various factors, such as limited access to financing, inadequate infrastructure, and a lack of technology adoption. These factors have led to low crop yields, limited value addition, and high post-harvest losses.

In addition to the challenges faced by the agriculture sector, other sectors in Rulindo are also struggling. The tourism industry, for example, has significant potential for growth, but is hindered by a lack of investment in infrastructure and limited marketing efforts. The Mining sector, which has historically been a key contributor to the District's economy, is also facing challenges due to declining global demand for some of the minerals found in the area.

Poverty Levels: Despite its potential, Rulindo remains one of the poorest Districts in Rwanda. According to the Rwanda Integrated Household Living Conditions Survey (EICV5) conducted in 2019/20, the national poverty rate stands at 39% and the poverty rate in Rulindo stands at 43%.

4.3.3.2. Planned Economic Specialization in the District

As part of the District's economic development planning process, a Spatial SWOT analysis was conducted to identify potential growth sectors for Rulindo District. Three key sectors were identified as having the potential to serve as drivers of the economy in the coming years: agribusiness, mining, and stopover transits.

Agribusiness: Good climate conditions, land suitability, and physical situation make the District well-suited for the development of agroforestry. This sector has the potential to protect the land against erosion and improve the productivity of the area's steep terrain. Improved technology and sustainable land management practices should be adopted to maximise the productivity of this sector. This could include the implementation of agroforestry systems that combine the planting of trees with the cultivation of crops, the use of conservation agriculture practices, and the promotion of soil and water conservation methods.

Mining: The District has existing mining sites that could contribute significantly to the local economy. However, it is crucial that these resources are exploited in a sustainable and responsible way to minimise negative environmental impacts and promote long-term economic growth. Best practices in mining, such as responsible mining methods, proper waste management, and community engagement, should be adopted to ensure that the sector contributes to the District's economic growth while also protecting the environment.

Stopover Transits: Rulindo District's strategic location along a busy national road makes it well-suited for the development of stopover transits. The existing road-side businesses have the potential to serve as a significant driver of the local economy by providing important services to travellers. To fully

exploit this potential, the District should invest in the development of these businesses through the provision of infrastructure such as rest stops, fuel stations, and convenience stores. The District should also work to attract more visitors to the area through marketing and promotional activities.

NLUDMP 2020-2050 also provided guidelines on economic specialisation of Rulindo District similar to what has been identified in the DLUP: Forestry, Commercial Agricultural Processing and Mining sector led.

4.4. Population, urbanisation, settlement and housing (PUSH)

4.4.1. Population

4.4.1.1. Existing Population

According to the Fourth and Fifth Rwanda Population and Housing Census, the population of Rulindo District increased from 287,681 in 2012 to 360,144 in 2022. The population is predominantly rural, with 97% of the total population living in rural areas in 2012 and 89% in 2022. The female population is slightly higher than the male population, with females representing 52% of the total population in 2022. People aged 0-17 years accounted for 156,254 people in 2022, representing 43% of the total population.

The number of private households was estimated at 91,909 in 2022. The population density in Rulindo District increased from 527 inhabitants/km² 2012 to 635 inhabitants/km² in 2022. This indicates that the District has become more densely populated over the ten-year period.

Sector Name	Type of Sector: Urban; Rural	2012 Census			Households per Sector year 2022	2022 Census			Households per Sector year 2022
		Counts				Counts			
		Male	Female	Total	Number	Male	Female	Total	Numbers
Base	Rural & Urban	7,978	9,363	17,341	4,049	9,574	10,954	20,528	5,236
Burega	Rural	5,992	6,738	12,730	3,045	6,571	7,322	13,893	3,722
Bushoki	Rural	9,310	10,660	19,970	4,702	11,102	12,468	23,570	5,932
Buyoga	Rural	10,408	11,763	22,171	5,070	11,743	12,978	24,721	6,340
Cyinzuzi	Rural	6,392	7,270	13,662	3,261	7,543	8,225	15,768	3,999
Cyungo	Rural	6,301	7,188	13,489	3,017	7,212	8,138	15,350	3,793
Kinihira	Rural & Urban	7,200	8,144	15,344	3,473	8,082	9,063	17,145	4,360
Kisaro	Rural	9,351	10,517	19,868	4,452	11,054	12,059	23,113	5,846
Masoro	Rural	9,939	10,794	20,733	5,068	13,261	14,050	27,311	6,922
Mbogo	Rural	8,026	8,769	16,795	3,834	9,070	10,031	19,101	4,868
Murambi	Rural & Urban	8,408	9,484	17,892	4,312	13,293	13,990	27,283	6,831

Ngoma	Rural	5,072	5,809	10,881	2,605	6,061	6,642	12,703	3,246
Ntarabana	Rural	8,697	9,368	18,065	4,383	11,930	12,818	24,748	6,366
Rukozo	Rural	7,167	7,856	15,023	3,421	8,045	8,976	17,021	4,268
Rusiga	Rural	5,116	5,772	10,888	2,596	6,416	7,036	13,452	3,460
Shyorongi	Rural & Urban	11,114	12,431	23,545	5,774	21,182	22,562	43,744	11,445
Tumba	Rural	9,154	10,130	19,284	4,391	9,710	10,983	20,693	5,275
Total		135,625	152,056	287,681	67,453	171,849	188,295	360,144	91,909

Table 5. Population of Rulindo District for the years 2012 and 2022.

Source: RPHC4,2012 & RPHC5,2022

Shyorongi Sector has increased its population from **23,545** in 2012 to **43,744** in 2022. The high increase is caused by a high migration rate from Kigali City. The Ngoma Sector is the least populated Sector with **10,881** inhabitants in 2012 and **12,703** inhabitants in 2022.

The population pyramids for both the years 2012 and 2022 show large bases and narrow tops, indicating that the population of the District was predominantly young. This suggests that there was a high birth rate and a lower mortality rate in the District during these periods.

4.4.1.2. Projected Population in Rulindo District

According to the NLUDMP 2020-2050 projection, the total population of Rulindo District is estimated to reach 499,500 inhabitants by the year 2050. Out of this, 279,500 and 220,000 inhabitants are expected to live in urban and rural areas respectively, representing 56% in urban

areas and 44% in rural areas of the total population. The population projection assumes that the population will be distributed proportionally to the future agricultural land in the “LUCA B ” (Land Use Categories) characterising Rulindo District.

To project the population growth in each Sector, the growth percentage was calculated at 1.28%. This equals an average growth rate of 1.28% per year over the projection period as per below:

Table 6: Rulindo District population projections according to NLUDMP 2020-2050.

Sector	Type of the Sector	Population on 2022	Number of HHs 2022	Population 2035	Number of HHs 2035	Population 2050	Number of HHs 2050
Base	Rural	20,528	5,236	17,716	4,429	14,024	3,506
Burega	Rural	13,893	3,722	11,990	2,997	9,491	2,373
Bushoki	Rural	23,570	5,932	20,341	5,085	16,102	4,026
Buyoga	Rural	24,721	6,340	21,335	5,334	16,888	4,222
Cyinzuzi	Rural & urban	15,768	3,999	43,219	10,805	65,565	16,391
Cyungo	Rural	15,350	3,793	13,247	3,312	10,486	2,622
Kinihira	Rural & urban	17,145	4,360	39,034	9,759	64,314	16,079
Kisaro	Rural	23,113	5,846	19,947	4,987	15,790	3,947
Masoro	Rural	27,311	6,922	23,570	5,893	18,658	4,664

Mbogo	Rural & urban	19,101	4,868	21,259	5,315	23,945	5,986
Murambi	Rural & urban	27,283	6,831	37,650	9,413	58,269	14,567
Ngoma	Rural & urban	12,703	3,246	37,343	9,336	57,492	14,373
Ntarabana	Rural	24,748	6,366	21,358	5,340	16,907	4,227
Rukozo	Rural	17,021	4,268	14,690	3,672	11,628	2,907
Rusiga	Rural & urban	13,452	3,460	18,204	4,551	24,239	6,060
Shyorongi	Rural & urban	43,744	11,445	40,448	10,112	61,564	15,391
Tumba	Rural	20,693	5,275	17,859	4,465	14,137	3,534
Total		360,144	91,909	419,211	104,803	499,500	124,875

Source: RPHC4, 2012 & RPHC5, 2022

Table 7: Population projection in Rulindo District per residence according to NLUDMP 2020-2050.

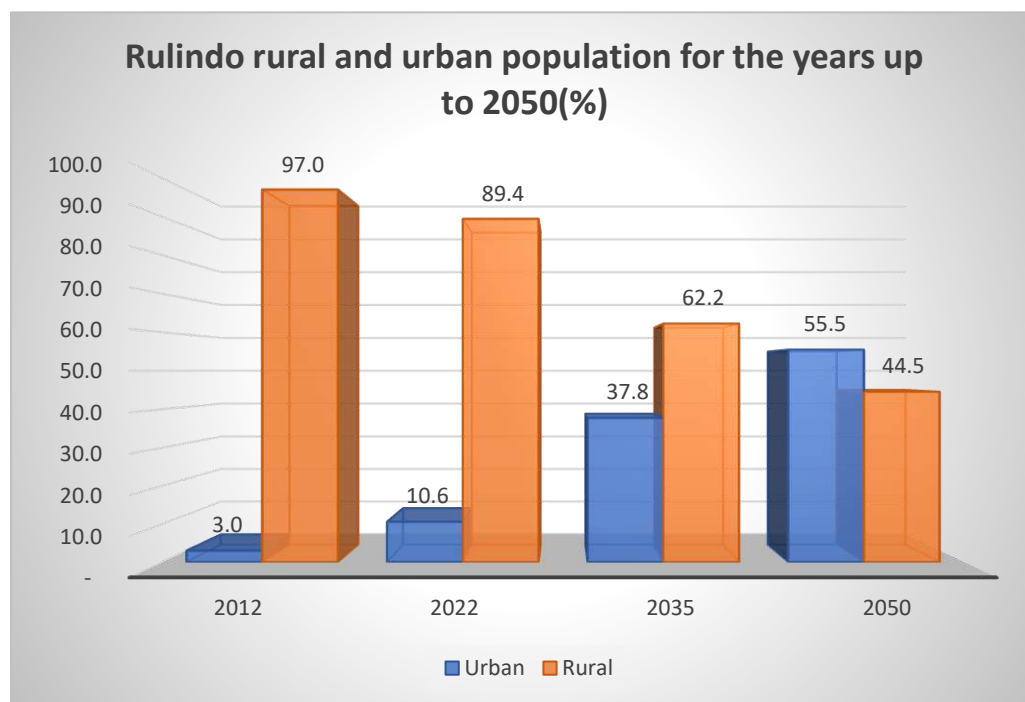
Population/ Year	2012		2022		2035		2050	
	Population	Number of HHs	Population	Number of HHs	Population	Number of HHs	Population	Number of HHs
Total Population	287,681	77,879	360,144	91,909	419,211	104,803	499,500	124,875
Rulindo District Town	8,630	2,274	2,039	519	57,750	14,438	105,000	26,250
Shyorongi Rurban Center	-	-	23,266	6,087	22,775	5,694	47,575	11,894
Kinini Rurban Center	-	-	1,961	502	13,062	3,265	27,285	6,821
Bubangu Rurban Center	-	-	9,082	2,274	21,943	5,486	45,835	11,459
Kinihira Rurban Center	-	-	1,762	448	25,758	6,440	53,805	13,451
Sub-total(rurban)	-	-	36,071	9,312	83,538	20,885	174,500	43,625

Sub-total(urban)	8,630	2,274	38,110	9,831	141,288	35,322	279,500	69,875
Rural population	279,051	75,605	322,034	82,078	277,923	69,481	220,000	55,000
Distict town(%)	-	-	0.6%	0.6%	13.8%		21.0%	
Rurban (%)	-	-	10.0%	10.1%	19.9%		34.9%	
Urban (%)	3.0%	2.9%	10.6%	10.7%	33.7%		56.0%	
Rural (%)	97.0%	97.1%	89.4%	89.3%	66.3%		44.0%	
Urban + Rural (%)	100%		100%		100%		100%	

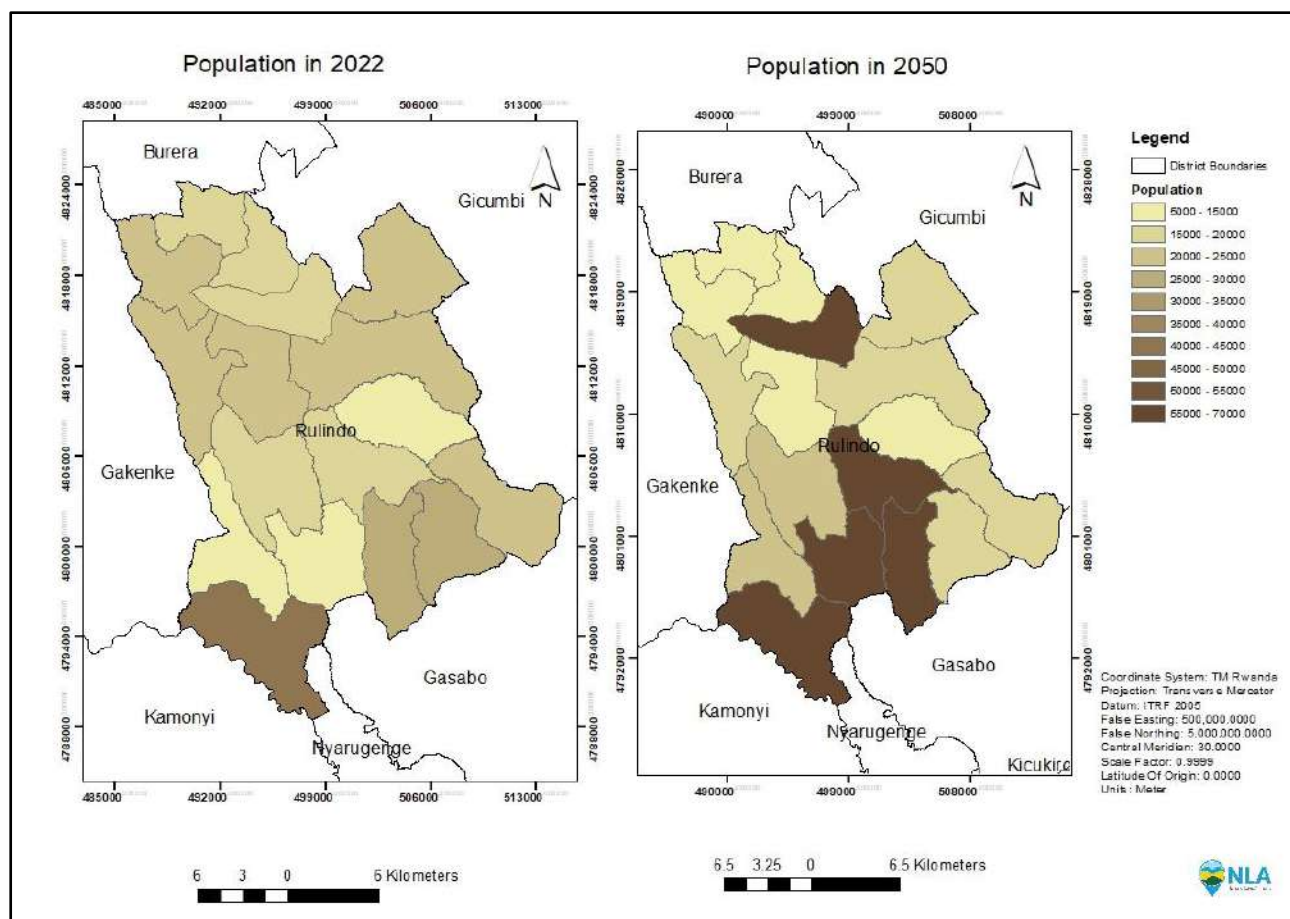
Source: RPHC4,2012 & RPHC5,2022 and NLUDMP 2020-2050

Considering the distribution of the projected population of Rulindo District, as per the NLUDMP 2020-2050 guidelines, the rural population stood at 97% of the total population in 2012 and declined to 89% in 2022, and it is estimated to further decline to 62% by the year 2035, and to 44% by 2050.

Figure 5. Illustration of Rulindo District population per residence from 2012 up to 2050



Source: RPHC4,2012 &RPHC5, 2022 and NLUDMP 2020- 2050 and edited by NLA staff ,2023



Map 6: Rulindo District population projection from 2022-2050

4.4.2. Urbanization and Rural Settlement

In 2022, Rwanda had a population of about 13.2 million and a population growth rate of 2.3%, making it one of Africa's fastest-growing populations. This has severe implications in terms of demand on natural resources including land, water, forest, housing, healthcare, education, jobs etc. Rwanda's urbanisation rate remains significantly low despite increasing at a high rate. In 2022, 9.5 million people (72%), were living in rural areas and 3.6 million people (28%), were living in urban areas (RHPC5, 2022).

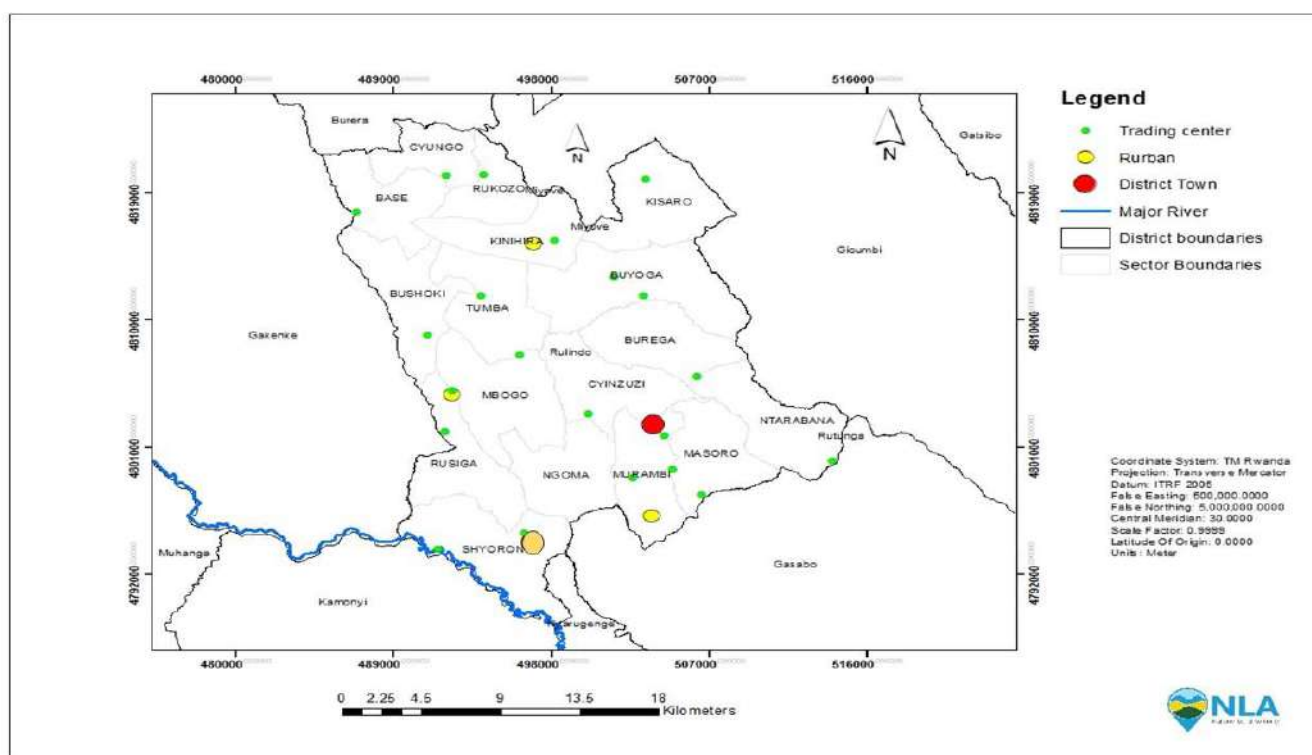
To address the predicted population growth and density, and to achieve a balanced and sustainable development, the NLUDMP 2020-2050 introduces a national settlement hierarchy and a spatial structure of all urban settlements in Rwanda. The hierarchy has five ranks: from the capital City of Kigali to three Satellite Cities, eight Secondary Cities, 16 District Towns, 73 Rural Centres and 3,000 rural settlement sites, including agglomerations of small emerging towns in the rural areas.

Rulindo District is among 16 Districts with District Towns. The distribution of the population is based on the settlement hierarchy and economic potentials of each city or town. NLUDMP 2020-2050 indicates that 70% of the estimated 22.1 million population in 2050 will be living in urban areas, while 30% will reside in planned rural areas.

4.4.2.1. Urbanisation and trading centers

Urbanisation in Rulindo District has been driven by a variety of factors, including economic development, population growth, migration, and improved infrastructure. The District has several major economic activities, including agriculture, mining, and trade, which have contributed to the growth of trading centers.

Currently, trading centres are determined by their size in terms of population and land area, level of existing infrastructure and services, and the amount of trade and commercial activities prevailing. Rulindo District has 118 trading centres including Shyorongi, Kinini, Base, Taba-Kinihira, Taba-Bubangu, Remera, Muyaniza, Kisaro, Kiyanza and others which are mostly associated with stopover businesses. During the development of Rulindo DLUP, some trading centers had been planned to be developed as rural settlement sites with mixed-use commercial zones. Others, outside the rural settlement sites, will be frozen and are zoned as agricultural areas.



Map 7. The distribution of trading centres in Rulindo District

According to NLUDMP 2020-2050, Rulindo is positioned as one of 16 Districts with a District Town, Shyorongi, and three Rurban Centers (Base, Kinihira and Bubangu). However, Shyorongi does not seem to serve the entire district well in terms of development, as it is not located in the center of the

district and lacks a district head office, which is situated outside the district town boundary in Bushoki Sector.

During consultation meetings with the district, MINALOC, the Northern Province, and stakeholders, and following Ministerial Order No. 008/07.01 of 10/10/2023 establishing head offices of districts, the Rulindo District headquarters will be established in Ngoma Sector. This proposal led to the creation of a new district town, Mugote. Once the relocation of the Rulindo District headquarters to Ngoma Sector is approved, Shyorongi District Town will be transformed into a rural area, and the Mugote rural settlement site will be developed into Rulindo District Town. This is due to potential projects within Mugote including the approved new site for Rulindo District Headquarter Offices, Rutongo District Hospital and Remera Center, as one of emerging trading centres in Rulindo District.

Furthermore, the NLUDMP 2020-2050 recommended that Base be one of the three rural areas in Rulindo District. However, in agreement with the district, the NLA team, and other stakeholders, it was decided to exclude Base due to its topographical conditions, lack of available land for future expansion, and insufficient size to accommodate a projected population of up to 100,000 inhabitants, along with the necessary facilities by 2050, as recommended by the NLUDMP 2020-2050.

After consulting with the district and other stakeholders, including PSF, Rusiga, Mwogo, and Base Sectors, Kinini has been selected and confirmed as a rural area. Base will be designated as a special rural settlement site. Kinini was a node of the former Shyorongi District Town and now appears as a stand-alone town due to the significant distance between Shyorongi Center and Kinini Center. Therefore, the new urbanization and settlement hierarchy of Rulindo District is as follows:

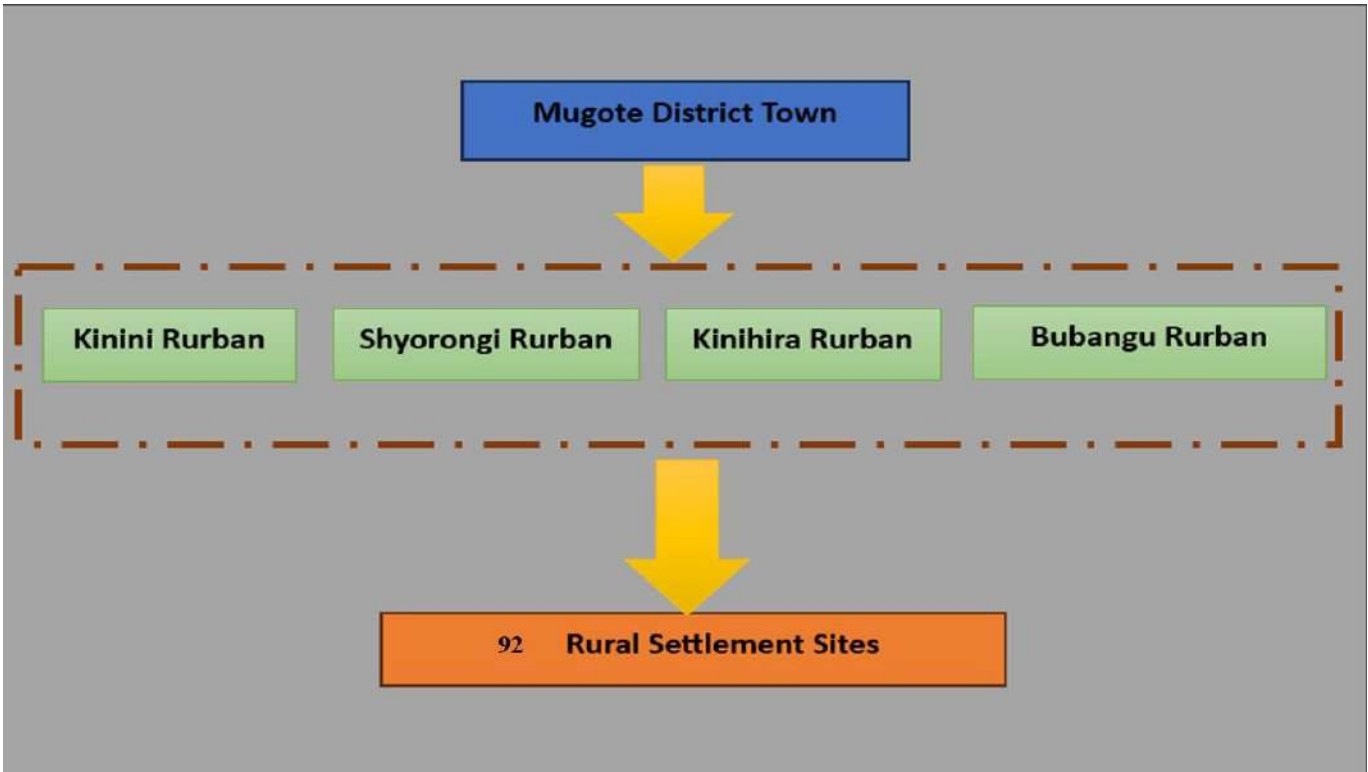
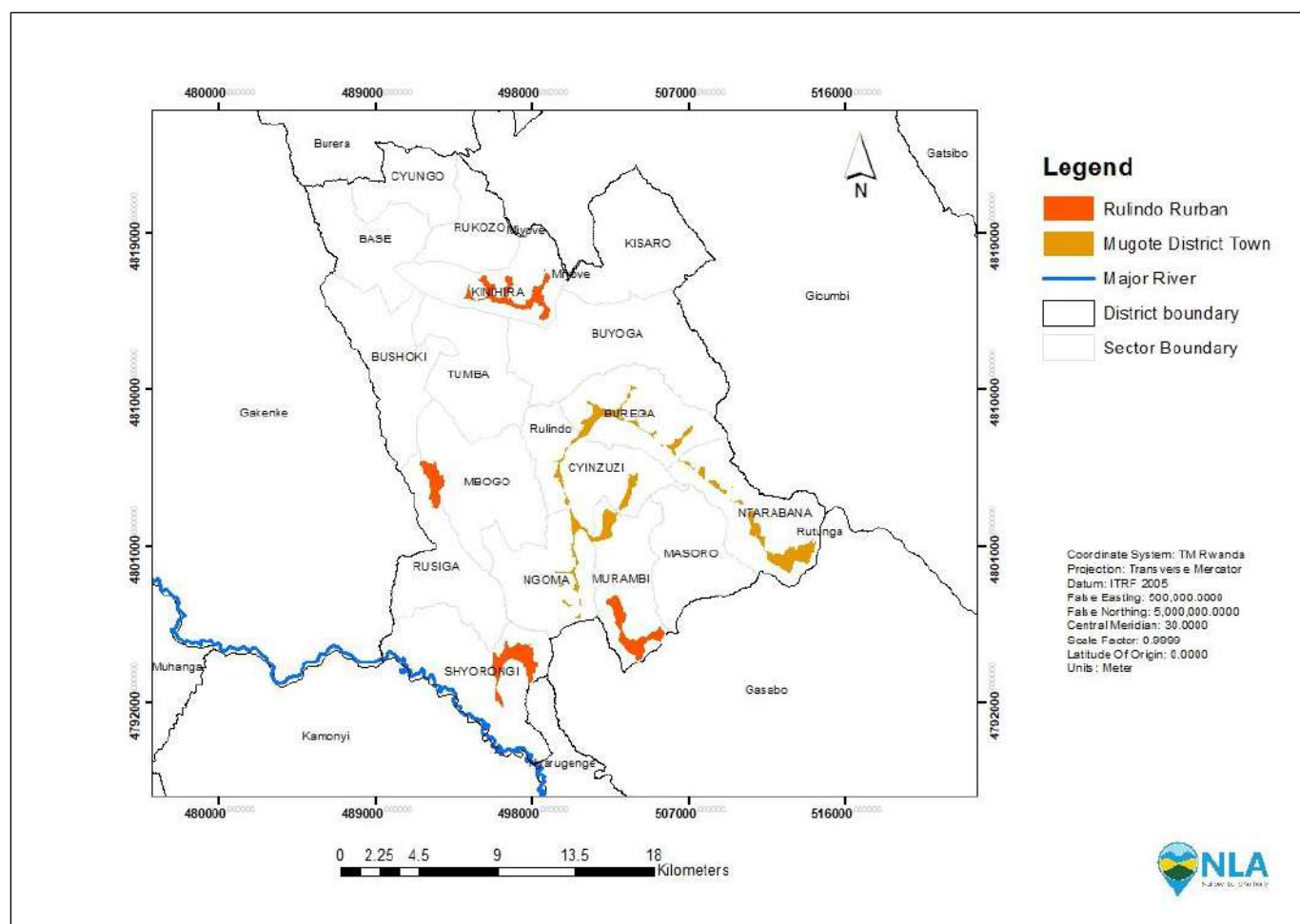


Figure 6. Showing urban and settlements hierarchy in Rulindo District



Map 8. Spatial location of Rulindo District urban areas

4.4.2.2. Rulindo District Town

Rulindo District Town is one of the sixteen district towns, supporting the national urbanization hierarchy in Rwanda. Mugote is a newly planned district town located in Ngoma and Cyinzuzi Sectors. It has been selected as the district town because it is one of the emerging centers in the district with various potential projects. Mugote will replace Shyorongi as the district town due to its central location, the presence of strategic infrastructure—including Rutongo District Hospital and the Nyacyonga-Mukoto road project, which is being upgraded—along with the existing Remera center and the approved relocation of the Rulindo District headquarters to Ngoma Sector.

As per 2022, Built-up area is the main land cover class in Mugote District Town, covering 64.4% of the total Mugote urban boundary, forests account for 5.4%, and Agriculture land covers 30.2%. The table below shows the existing land cover in Mugote District Town.

Land cover/Use	Area in Ha	Percentage
Agriculture	428.7	30.2
Built-up	916.2	64.4
Forest	76.7	5.4
Total	1421.6	100.0

Table 8. Existing Land Use Balance sheet of Mugote District Town in 2023

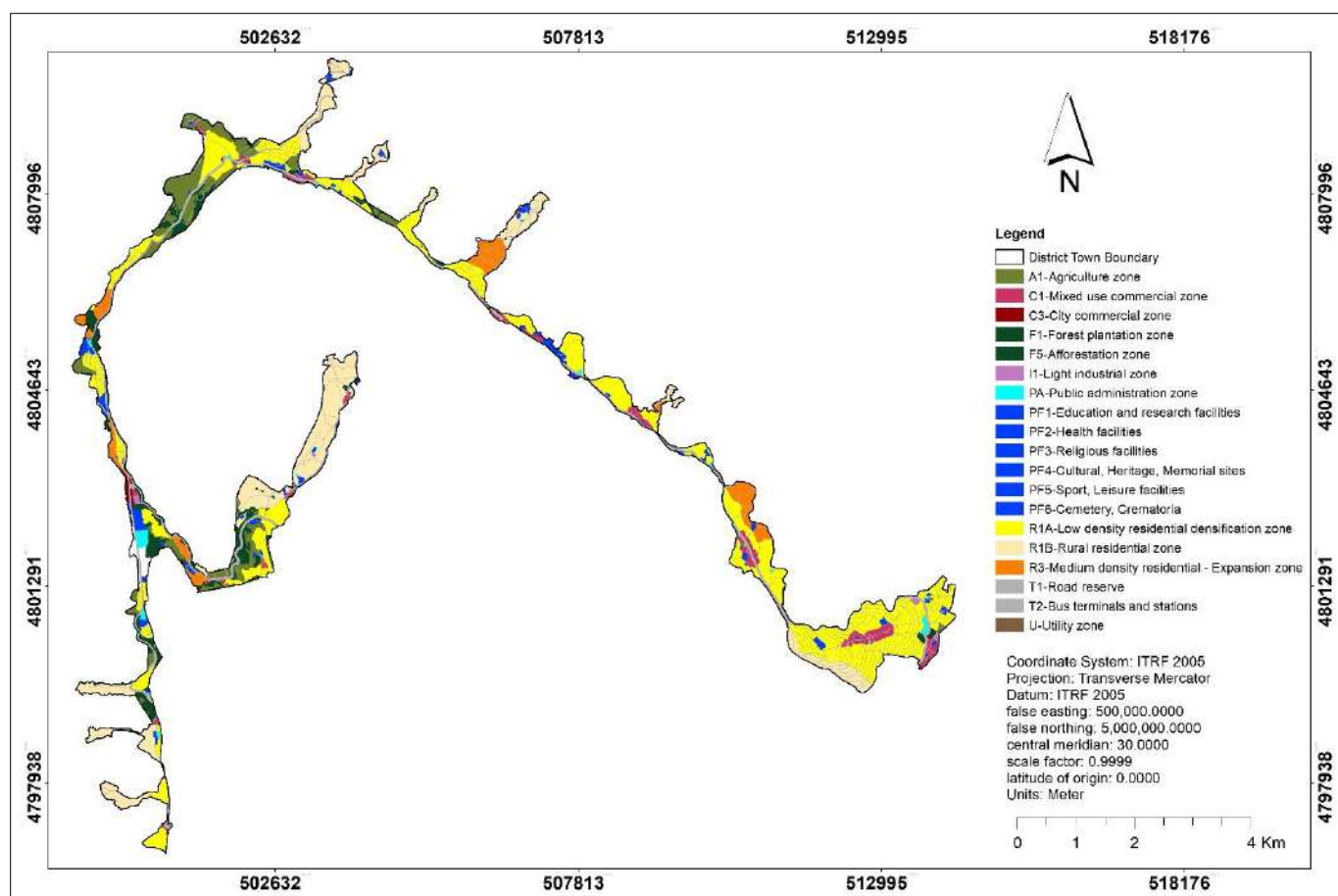
The development of Rulindo District town is centered around the growth and services of Remera business center. Rulindo District Town is growing alongside the main road, expanding towards the Cyinzuzi, Burega, and Ntarabana sectors, where there is available land for development. To introduce higher densities, the town has been designated with medium-density residential zones (R3), mixed commercial zones, and other supporting facilities. In addition to these facilities, green spaces have been planned mainly around the newly planned District headquarters office.

The main proposed land use in Mugote District Town is residential (57.1%), followed by transportation (16.2%) and agriculture (9.8%) and 16% of other land uses. To maximize beauty and green space, and to boost tourism in Mugote, 1% of land are allocated for open space and eco-tourism.

Mugote has a detailed site plan developed by the RHA, which will facilitate the implementation of Mugote District Town. Since Remera market has been affected by the road reserve, it has shifted to a new location opposite the existing market, along with proposed bus parking and light industries (Agakiriro).

Land Use	Area in Ha	Percentage
Agriculture	139.0	9.8
Commercial	57.8	4.1
Ecotourism	12.4	0.9
Forest	98.0	6.9
Industry	3.8	0.3
Public Administration	14.1	1.0
Public Facility	54.2	3.8
Public Utility	0.2	0.0
Residential	811.5	57.1
Transportation	231.0	16.2
Total	1422.0	100.0

Table 9. Proposed Land Use Balance sheet of Mugote District Town



Map 9. Showing Mugote District Town proposed land use.

4.4.2.3. Rulindo Rurban Centers

The rurban centers are emerging linkages between the rural and urban areas of Rulindo District. However, rurban centers are classified as urban land, subject to appropriate zoning regulations and planning guidelines for urban areas.

The following factors were considered in selecting rurban centers, taking into account the guidance from the District Council: (i) emerging existing potential trading centers; (ii) high pressure from growing residential settlements; (iii) geographic location; and (iv) existing and developing infrastructure, such as roads, water supply, electricity, health facilities, employment opportunities, and educational facilities. In Rulindo District, Kinihira, Kinini, Bubangu, and Shyorongi have been selected as rurban centers.

4.4.2.3. Shyorongi Rurban Center

Shyorongi Rurban covers an area of about 373.6 hectares (3.7 km²) and is located in Shyorongi Sector. The development of this rurban area has been driven by migration and the availability of infrastructure, such as roads and public facilities. Previously, Shyorongi was the District Town of Rulindo District, as recommended by the NLUDMP 2020-2050. However, after the approval to relocate the Rulindo District Headquarters to Ngoma Sector, Mugote site, and following consultations with NLA, MINALOC, RHA, the district, and other stakeholders, Shyorongi has been transformed into a rurban center.

Shyorongi Rurban is situated between Kigali City and Musanze Secondary City, 20 km from Kigali along NR4. This location offers opportunities for developing trade in agricultural products, such as fruits and vegetables. In 2023, 76.1% of the land was used for agriculture, 12.1% for built up areas, 8.5% for forests, and 3.3% for transportation.



Figure 7. Pictures taken during a field visit in Shyorongi Rurban centre.

Land use	Area (ha)	Percentage
Agriculture	284.3	76.1
Built Up area	45	12.1
Forest	31.8	8.5
Transportation	12.5	3.3
Total	373.6	100

Table 10. showing existing Shyorongi Rurban land use balance sheet in 2023

Apart from existing facilities, various infrastructures and amenities have been planned, including bus parking to ease public transport. A ring road for heavy trucks is proposed to run near the stadium, connecting to the Shyorongi light industrial zone, to minimize traffic congestion in the rurban center.

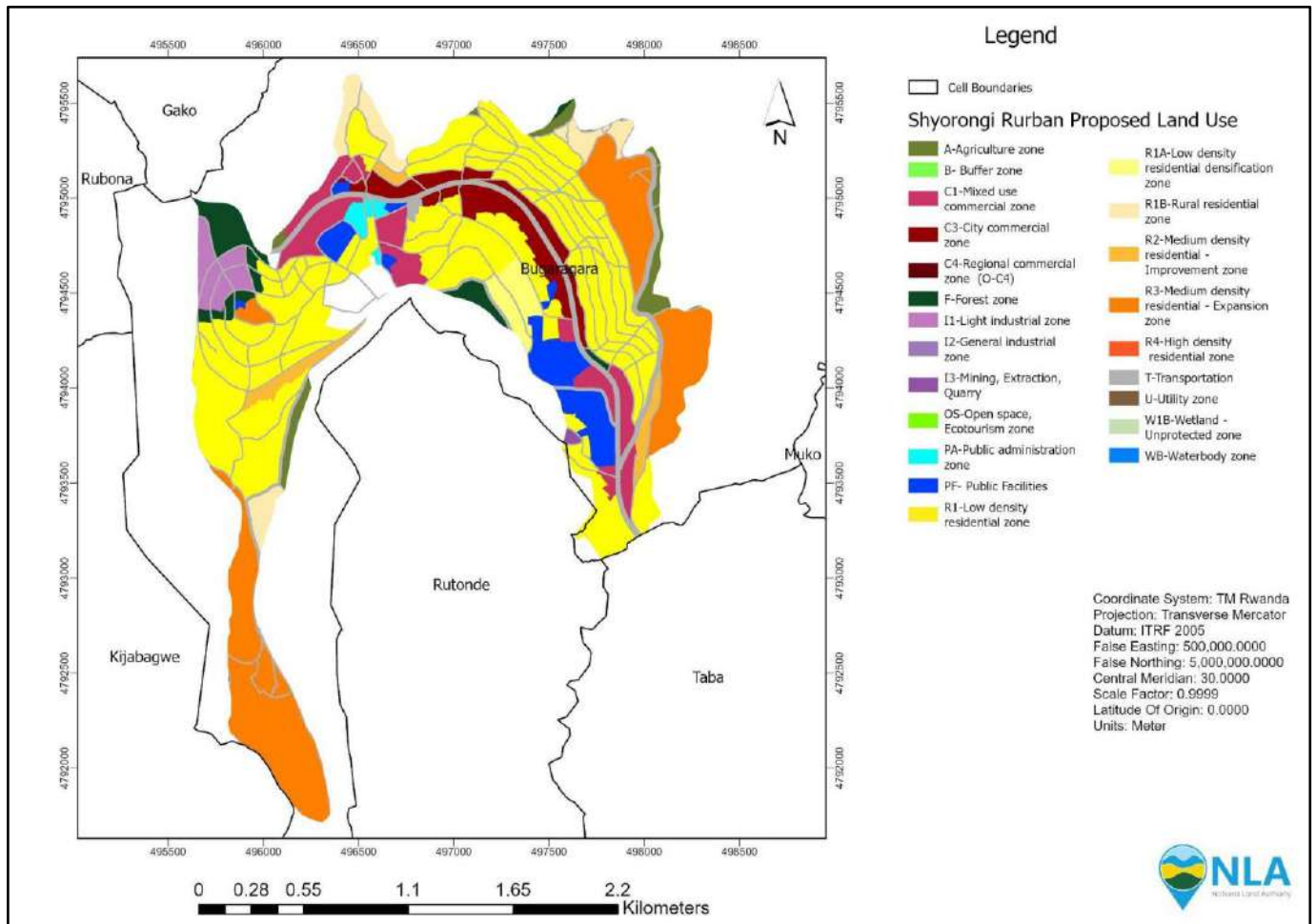
Agakiro has been proposed to support the economy, and land for open space and eco-tourism has been allocated. The Shyorongi light industrial zone has been proposed to accommodate agro-processing industries. A solid waste transfer station has been planned to sustainably manage solid and liquid waste.

A City Commercial Zone (C3) is proposed as a central business district (CBD), with mixed-use commercial zones (C1) to enable commerce and trade. Various residential zones (R1, R1A, R1B, R2, and R3) have been allocated for different residential typologies and densities to accommodate a projected population of between 20,000 and 100,000 people by 2050, as recommended by the NLUDMP 2020-2050.

Based on the proposed land use balance sheet for Shyorongi Rurban center, residential use is the main land use, accounting for 60.6% of the total area, followed by transportation (13.9%), commercial (11%), public facilities (4.6%), forests (3%), agriculture (1.9%), and industries (1.9%)

Land Use	Area (ha)	Percentage (%)
Agriculture	7.3	2
Commercial	41.4	11
Ecotourism	7.6	2
Forest	11.4	3
Industry	7.1	1.9
Public Administration	2.4	0.6
Public Facility	17.4	4.6
Residential	226.7	60.6
Transportation	52.02	13.9
Total	373.6	100

Table 11. Proposed Shyorongi Rurban land use balance sheet



Map 10. Shyorongi Rurban proposed land use 2050

4.4.2.4. Kinihira Rurban center

Kinihira Rurban is located in Kinihira Sector and covers 426.3 hectares (4.2 km²). The predominant land use is agriculture, particularly tea plantations, with a significant industry known as Sorwathe, positioning Kinihira as a **‘Tea Plantation Rurban Hub’**. Public facilities include Kinihira Provincial Hospital, and there are emerging centers such as Taba. Currently, built-up areas (including residential, commercial, and public facilities) accounts for 66.3% of the land, forests for 25.4%, agriculture for 5.3%, and transportation for 2.6% and wetland for 0.3%.



Figure 8. Pictures taken during field visit in Kinihira Rural center

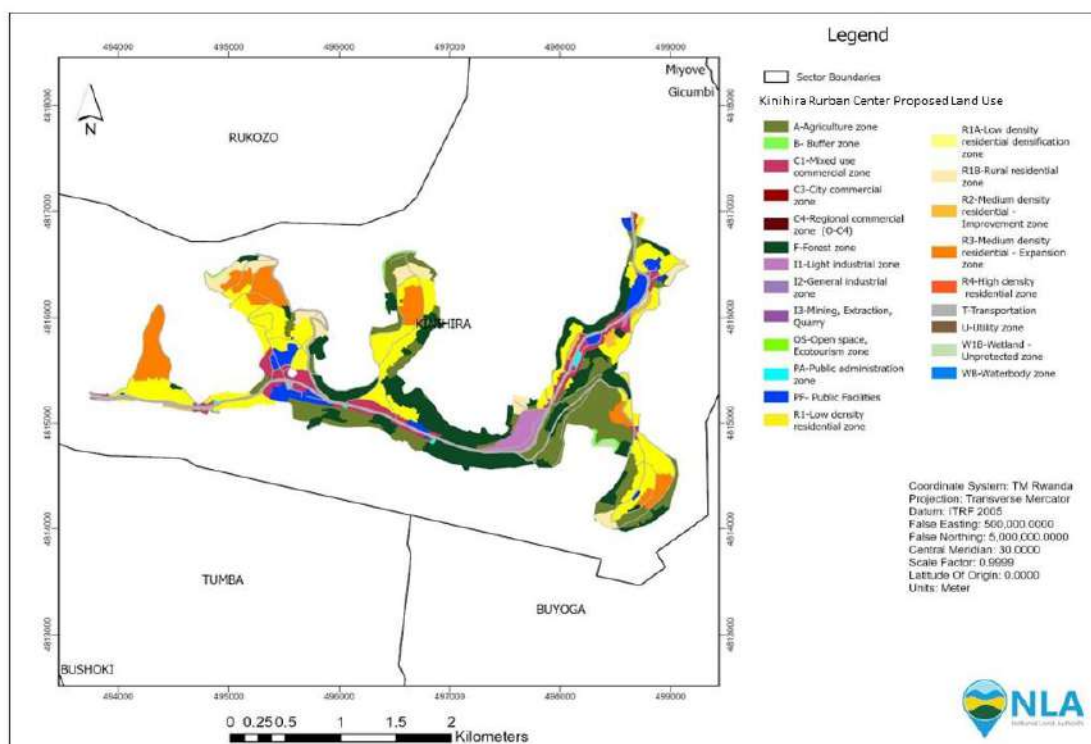
Land Use	Area (ha)	Percentage
Agriculture	282.9	66.3
Built Up area	22.6	5.3
Forest	108.4	25.4
Transportation	11	2.6
Wetland/Swampland	1.3	0.3
Total	426.3	100

Table 12. Existing Land Use Balance sheet of Kinihira Rural Center in 2023

In Kinihira Rural center, different inclusive residential zones have been proposed, including R2, R1A, R1B, and R3. A mixed-use commercial zone (C1) has been encouraged, especially in trading centers. Key infrastructures, including Agakiro, bus parking for public transport, and market extensions, have been planned to facilitate sustainable development. In the proposed land use for 2050, urban agriculture covers 18.4%, forests cover 19.7%, and residential areas account for 36.4%. The table and map below represent the proposed land use in Kinihira Rural.

Land Use	Area (ha)	Percentage (%)
Agriculture	78.5	18.4
Buffer	2.0	0.4
Commercial	22.4	5.2
Ecotourism	0.7	0.1
Forest	84.3	19.7
Industry	9.4	2.2
Public Administration	0.8	0.1
Public Facility	16.7	3.9
Public Utility	0.04	0.009
Residential	155.2	36.4
Transportation	54.6	12.8
Wetland	1.2	0.2
Total	426.25	100

Table 13. Proposed Land Use Balance sheet of Kinihira Rurban



Map 11. Showing Kinihira proposed land use

4.4.2.5. Kinini Rurban Center

Kinini Rurban center is a new rurban area located in the two sectors of Rusiga and Mbogo. It is one of the emerging centers where development is evident. Kinini appears as a stand-alone town due to the significant distance between Shyorongi Center and Kinini Center, although it was initially a node of Shyorongi District Town. After consulting with the district and other stakeholders, including PSF, Rusiga, Mwogo, and Base Sector, Kinini was selected to replace Base as a new rurban. The development of Kinini is characterized by its focus on poultry farming. The rurban also has various educational facilities, including Nyange Girls' School of Sciences. Located along the main road from Kigali to Ruhengeri, Kinini is a vibrant center with a surface area of 232.2 hectares (2.3 km²).

The road connecting to the main road that passes through the school has been closed, limiting quick access. Topographically, the area is situated at a low level, with swamps and natural water streams. Regarding existing land use, agriculture covers 63.8% of the land, built-up areas account for 12.8%, and forests comprise 12.4%."



Figure 9. Pictures taken during field visit in Kinini Rurban

Land use	Area (ha)	Percentage (%)
Agriculture	148.2	63.8
Built Up area	30	12.8
Forest	28.9	12.4
Transportation	5.1	2.2
Wetland/Swampland	20.1	8.7
Total	232.2	100

Table 14. Existing Land Use Balance sheet of Kinini Rurban Center in 2023

As with other urban areas, the proposed land uses for Kinini Rurban Center were analyzed based on intensive field surveys, findings from socio-economic analyses, and inputs from consultations with the local community and their authorities, Sector Land Managers, District One Stop Center staff, and other stakeholders from Kinini Sector.

As a result, Kinini Rurban has been provided with various supporting facilities, including bus parking to enhance public transport, a market, and a light industry known as Agakiro, which has been planned to boost the economy. Additionally, a multipurpose hall has been proposed to support youth activities. Apart from the main infrastructures, different residential zones, including R3, R2, R1A, and R1B, have been designated to accommodate a population of 20,000 to 100,000 people. Commercial zones, such as C3 and C1, have also been planned within the center.

To address the issue of scattered poultry farming activities within the rurban, a livestock zone (A2) covering 8.8 hectares has been planned to support poultry and other livestock activities in Kinini Rurban. An access road connecting Kinini Rurban to the main road has also been proposed. According to the proposed land use, urban agriculture covers 18.3%, including 3.8% for livestock; swamp

land/wetland covers 7.94%; residential areas account for 40.3%; and forests cover 8.8%. The table and map below represent the existing situation and proposed land use in Kinini Rurban.

Land Use	Area (ha)	Percentage (%)
Agriculture	33.7	14.5
Buffer	10.0	4.3
Commercial	9.8	4.2
Ecotourism	0.2	0.1
Forest	20.5	8.8
Industry	0.9	0.3
Livestock	8.8	3.8
Public Administration	0.3	0.1
Public Facility	4.5	1.9
Public Utility	0.01	0.007
Residential	93.6	40.3
Transportation	29.9	12.8
Waterbody	1.1	0.4
Wetland	18.4	7.94
Total	232.16	100

Table 15. Proposed Land Use Balance sheet of Kinini Rurban center

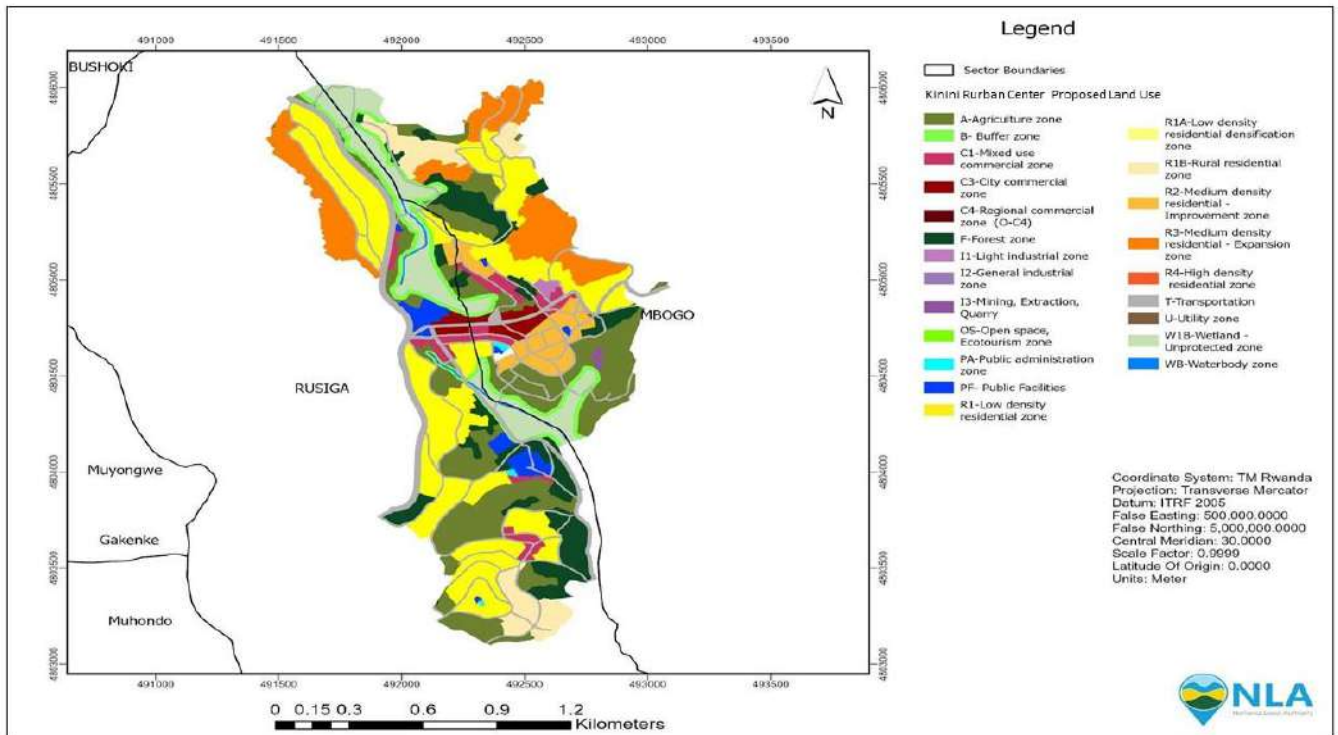


Figure 10. Kinini Rurban proposed land use.

4.4.2.6. Bubangu Rurban center

Bubangu Rurban center is located in Murambi Sector and covers 360 hectares (3.6 km²). It is one of the emerging centers in Rulindo District, bordering Gasabo District. Bubangu is one of the Rurbans with a planned area that includes two sites with a physical plan. Based on existing land use, 69.6% of the land is used for agriculture, 14.5% for forests, 13.4% for built-up areas (including public facilities, utilities, and residential areas), 1.6% for transportation and 0.9% for wetland.



Figure 11. Pictures taken during field visit

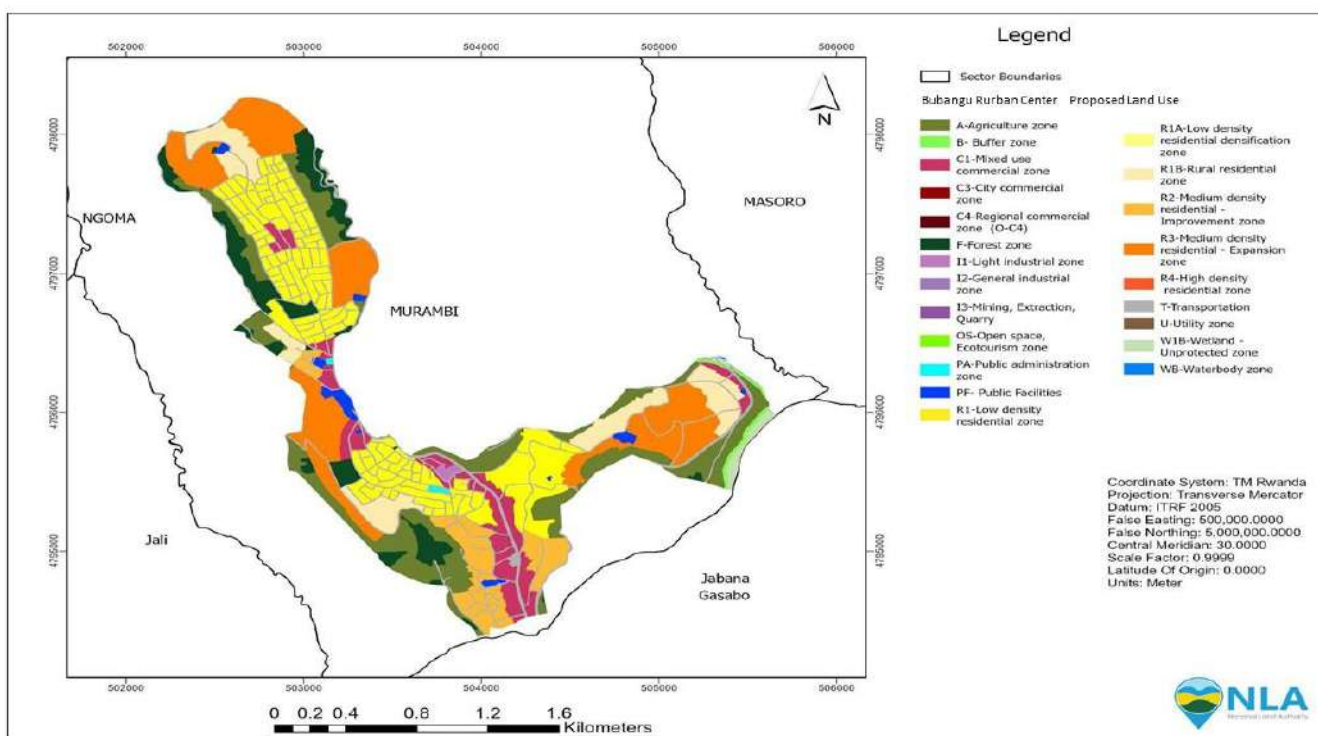
Land use	Area (ha)	Percentage (%)
Agriculture	250.5	69.6
Built Up area	48.3	13.4
Forest	52	14.5
Transportation	5.7	1.6
Wetland/Swampland	3.4	0.9
Total	360	100

Table 16. Existing Land Use Balance sheet of Bubangu Rurban in 2023

During the development of the proposed land use for Bubangu, approved physical plans and other catalytic projects have been taken into consideration, including education and healthcare facilities. Bubangu Rurban Center serves as a link between Rulindo and Gasabo Districts, as it shares a boundary with the City of Kigali. Therefore, various zones for commercial activities, public facilities, light industries, and well-connected transportation networks—including bus parking—have been planned, along with a market and Agakiriro to promote the economy of the rurban. Residential densification zones (R2, R3, R1B, and R1A) have been designated to accommodate a population of 20,000 to 100,000 people by 2050, as recommended by the NLUDMP 2020-2050. Of the proposed land use, 52% is allocated for residential use, 18% for urban agriculture, 12% for transportation, 8% for forests, 7% for commercial use, and just over 1% for public facilities.

Land Use	Area (ha)	Percentage (%)
Agriculture	64.5	17.9
Buffer	2	0.5
Commercial	24.1	6.6
Forest	27.8	7.7
Industry	0.9	0.2
Public Administration	0.6	0.1
Public Facility	4.8	1.3
Public Utility	0.1	0.04
Residential	187.5	52.08
Transportation	44.2	12.2
Waterbody	0.02	0.007
Wetland	3.1	0.8
Total	360	100

Table 17: Proposed land use balance sheet of Bubangu Rurban Center



Map 12: Bubangu proposed land use

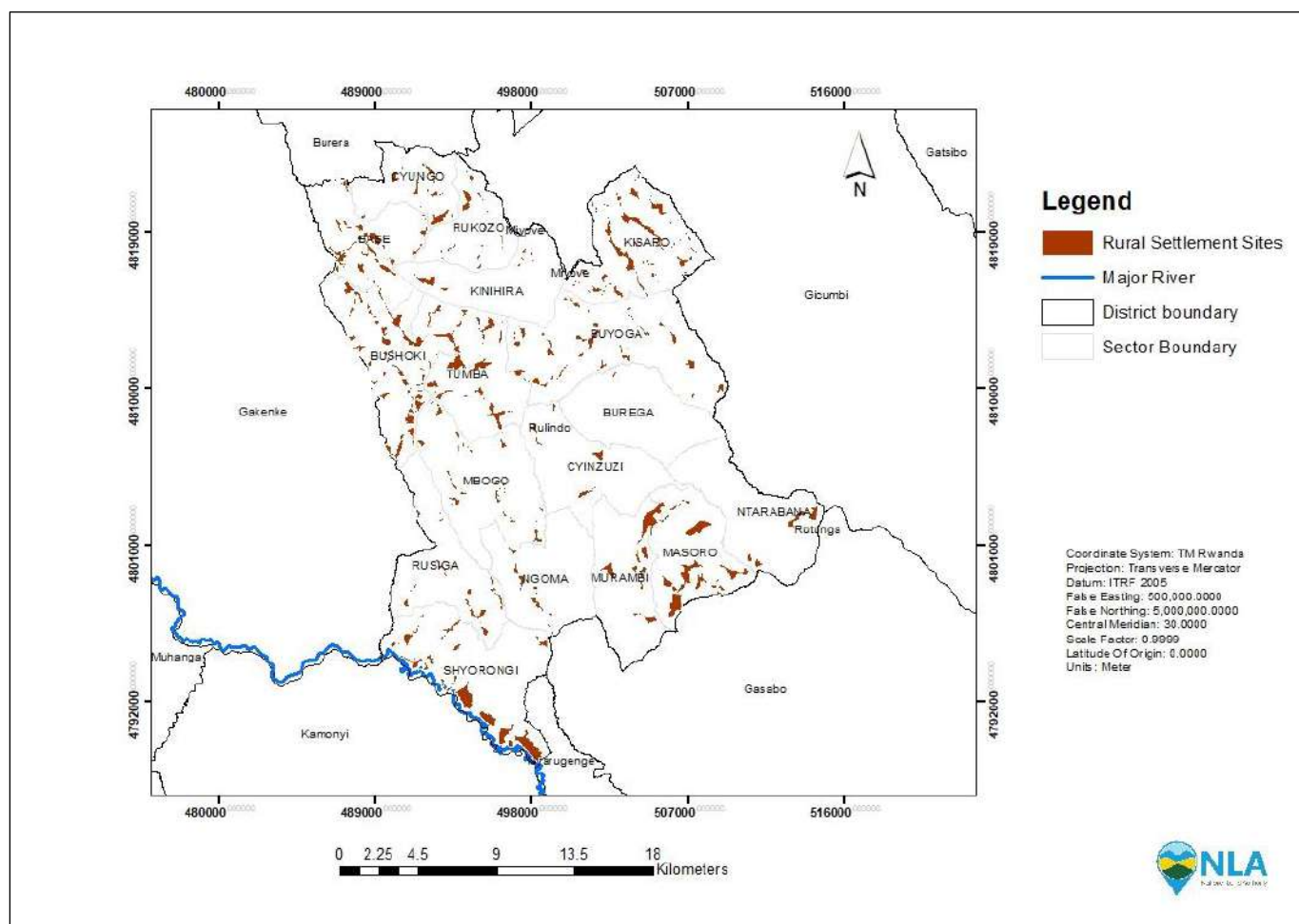
4.4.2.7. Rural settlements sites

In 2019, Rwanda had 13,661 scattered settlement sites (homesteads) in rural areas, which hinders economies of scale. Therefore, urgent actions are needed to consolidate and contain the sprawl of rural settlements. According to the NLUDMP 2020-2050, rural settlement sites have been reduced to 3,000 to accommodate a projected rural population of 6.6 million (30%) by 2050. An average of one or two settlement sites per cell is required, depending on the area's topography. Where the topography is unfavorable, proposed sites can be shifted to nearby cells that meet the necessary conditions.

In Rulindo District, the rural settlement system is characterized by scattered homesteads, resulting in conflicts between residential and agricultural land uses, as people tend to settle near their agricultural land instead of within designated rural settlement sites. This sprawl phenomenon prevents improvements in agricultural yield and leads to inefficient supply of services and infrastructure.

The NLUDMP 2020-2050 recommended about 100 rural settlement sites with a total area of 41 km² as a basis for developing the Rulindo District Land Use Plan (DLUP). During the development of the DLUP, 92 sites were identified and reassessed in collaboration with Sector Land Managers and other local authorities at the cell and village levels to evaluate the physical conditions of various sites.

Combined, these sites cover almost 47 km², of which 41 km² is allocated for residential use in rural areas, among which 6 km² are allocated to other land uses, including commercial, public facilities, administration, transportation, forest, utility zones, and open spaces within the rural settlement site boundaries. Based on these considerations, minor adjustments have been made to the rural settlement sites as part of a participatory planning approach. Thus, the 92 designated settlement sites have an accumulated area of 47 km².



Map 13: Planned rural settlement sites

Due to the steep slopes of Rulindo District, not all Sectors have the same number of rural settlement sites, and some Cells have more than two sites. The chart below presents the number of sites in each Sector

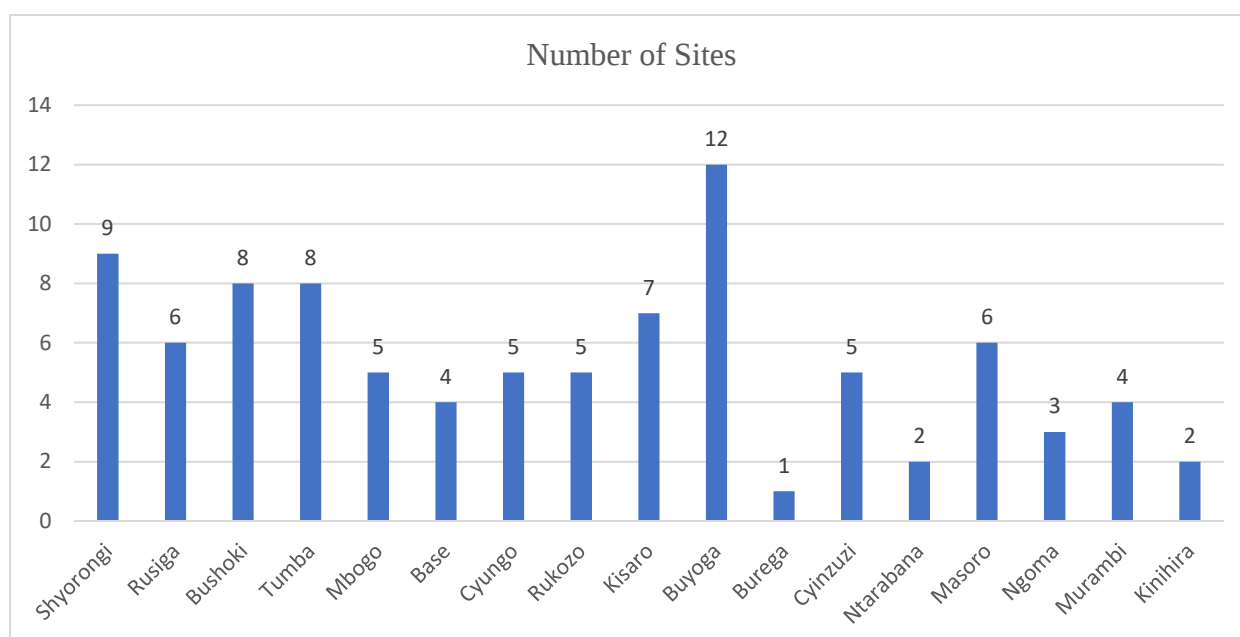


Figure 12: Number of sites per Sector

During the elaboration of the DLUP, various sites were visited and analyzed in relation to the ground reality. Three sites, including Kabare in Rusiga Sector, were removed due to the predominance of agricultural land over residential use and challenging topography. This site was replaced by Rebero, as requested by local citizens during consultation meetings in Rusiga Sector. Mwishya and Karambo sites in Ngoma Sector were also removed due to flood risks, along with the Kagarama site, which locals requested to be excluded due to its steep slope. To compensate for the removed rural settlement sites, Kabuga and Busizi sites have been extended. Additionally, three new rural settlement sites have been added: Bwimo in Shyorongi Sector, Rurambo in Tumba, and Rebero in Rusiga Sector.

As recommended by the NLUDMP 2020-2050, each rural settlement site at the Cell level will include public and social amenities such as sports, recreational, and leisure spaces; schools and early childhood development centers; community health posts; roads; markets; cowsheds; and more. While some facilities have been spatially proposed in collaboration with District, Sector, Cell, and Village leaders, the specific locations for any missing social facilities will be determined by detailed site plans.

Aside from Rutonde and Base rural settlement sites, which were recommended by District officials due to existing issues, other rural settlement sites have been designated as Rural Residential Zones (R1B). However, the Planning Team recommends that the rural settlement sites of Kabeza, Rusine, Kabuga, Murambi, and Ruli in the Masoro and Murambi sectors, along with Rutonde and Kabuga in

the Shyorongi sector, be re-assessed during the midterm review to evaluate their potential inclusion in the urban area.

4.4.2.8. Rutonde and Base Rural settlement sites

4.4.2.8.1. Rutonde rural settlement site

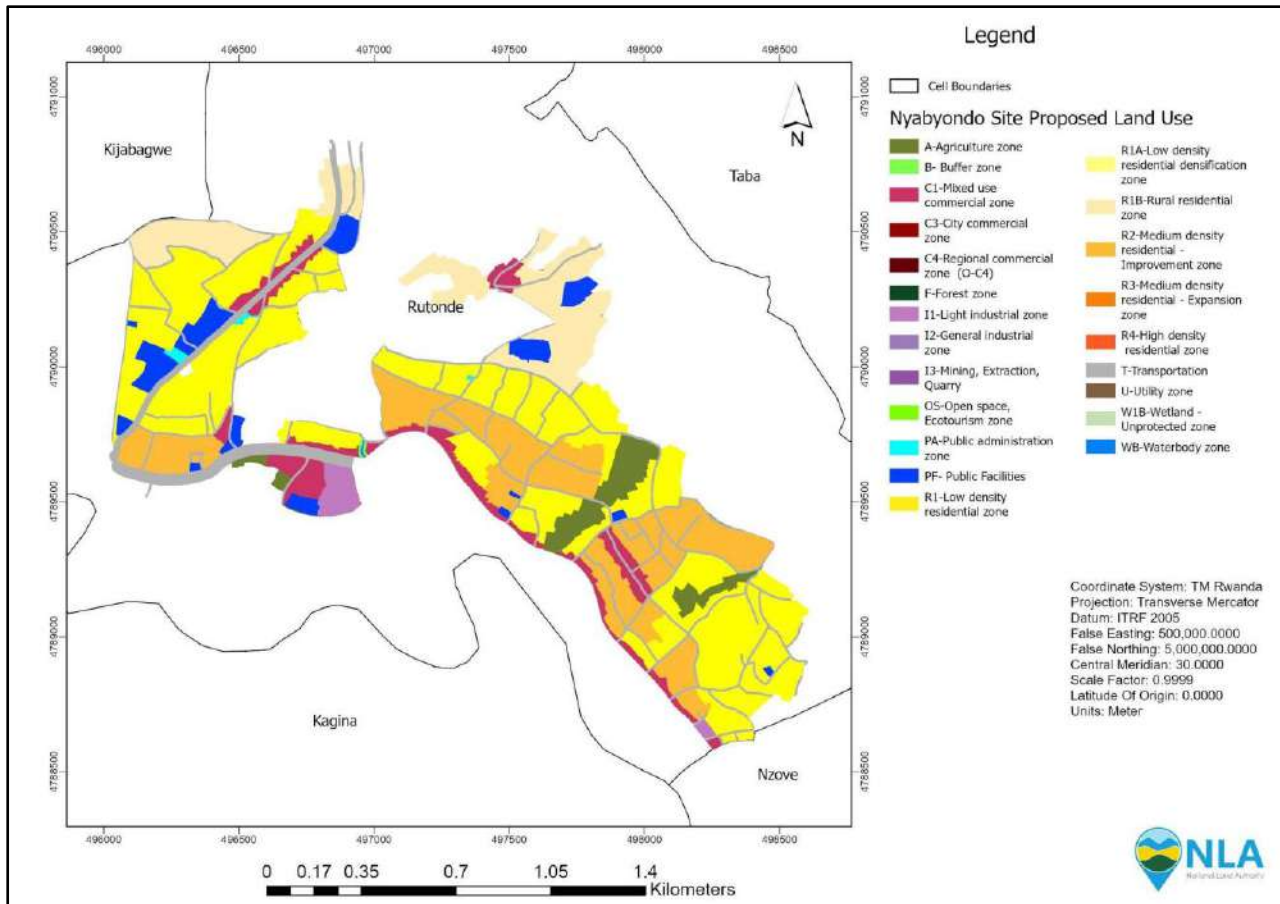
Rutonde is a rural settlement site located in the Shyorongi Sector, developed by migrants due to the urban sprawl of Kigali City. Also known as Nyabyondo, Rutonde is characterized by unplanned and compact housing, which has led to environmental issues such as flooding, as it is situated along the Nyabarongo River and its wetland. Additionally, the area is affected by liquid waste from the Nyakabingo mining site located uphill, which contaminates the region through runoff following the natural drainage network.



Figure 13: Existing situation of Rutonde site

Rutonde, also known as Nyabyondo, is predominantly occupied by buildings and other infrastructures. As a result, built-up areas are the dominant land use in Rutonde, followed by agriculture in between these built-up zones. The figure below demonstrates the existing land uses in Rutonde rural settlement site.

As recommended by the District and based on the current situation, land in Rutonde has been zoned as residential densification improvement zones (R2) and low-density residential densification zones (R1A) due to lack of vacant land for new developments. In addition to residential zones, economic facilities such as markets and light industry (Agakiriro) have been planned in mixed-use commercial zones along the Giticyinyoni-Kijabagwe road. The rural settlement site measures 1.9 km².



Map 14: Rutonde proposed land use

4.4.2.8.2. Base Rural Settlement Site

According to the NLUDMP 2020-2050, Base was proposed as one of three Rurban Centers in Rulindo District. However, it has been removed from the category of Rurban centers due to its topographical conditions, lack of land for future expansion, and insufficient size to accommodate the projected population by 2050.

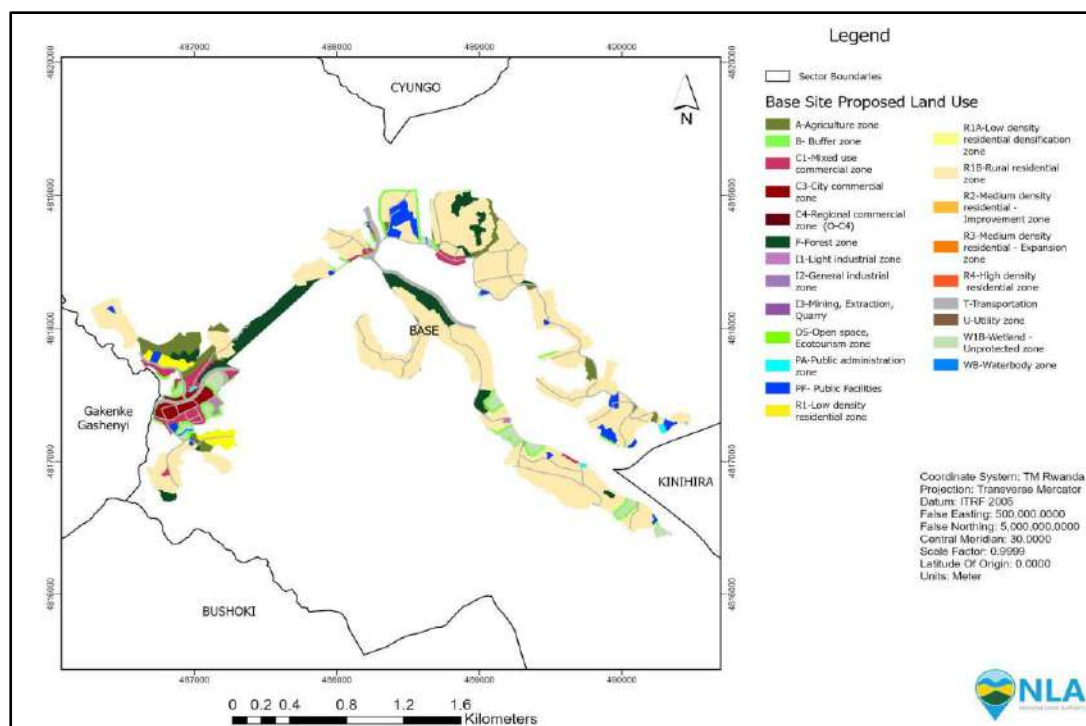


Figure 14. Showing Base rural settlement site taken during field visits.

During the DLUP elaboration in 2023, Base rural settlement site is predominantly occupied by buildings and other infrastructures. As a result, built-up areas are the dominant land use in Base, alongside agricultural and forested land situated between these built-up zones. The figure below demonstrates the existing land uses in the Base rural settlement site.

During the elaboration of the Rulindo DLUP, Base was designated as a special zone, as agreed during stakeholder consultation meetings, due to various ongoing catalytic projects, including Agakiro, a public slaughterhouse, a landfill, and a large market. Since Base is located on the border with Gakenke District, the land use plans of both Rulindo and Gakenke Districts consider development opportunities on both sides of the administrative border. In the areas of Base that fall within Gakenke District, R1A and R3 zones have been planned to align with the Rulindo DLUP. Base covers an area of 2.6 km².

During consultation meetings at the Base Sector office, local authorities and stakeholders suggested establishing a City Commercial zone (C3) along the main road, as well as other zones, including mixed-use commercial and light industrial areas, to accommodate industries and warehouses, with residential zones surrounding the commercial center. In this regard, all suggested sites have been visited, confirmed, and integrated into the Rulindo DLUP.



Map 15: Base Rural settlement site proposed land use

4.4.2.9. NLUDMP 2020-2050 National Directives vs Rulindo DLUP 2023-2050 alignment

Changes have been observed in the settlement boundaries initially proposed by the NLUDMP 2020-2050. This is due to the incorporation of participatory planning principles during the development of the DLUP. This participatory approach led to adjustments that support Rulindo's vision. The following table provides remarks on the observed changes in relation to the DLUP proposal versus the NLUDMP 2020-2050 proposals.

Table 18: NLUDMP 2020-2050 directives vs Rulindo DLUP 2023-2050 alignment

Settlement Type	NLUDMP 2020-2050 directives					DLUP 2023-2050 proposals				
	Nbr	Area (2035) (km ²)	Area (2050) (km ²)	Pop in 2035	Pop in 2050	Nbr	Area 2035 (km ²)	Pop 2035	Area 2050 (km ²)	Pop 2050
Rulindo District Town	1	16	29	110,000	200,000	1	14.2	57,750	TBD	105, 000
	Remarks: Following Ministerial Order No. 008/07.01 of 10/10/2023 establishing head offices of districts, Rulindo District headquarters was relocated to the Mugote rural settlement site in Ngoma Sector. This legal relocation aims to establish a district town in Ngoma Sector. In 2035, there will be an opportunity during a midterm review to reassess the situation and identify suitable land for further expansion to meet the target of 29 km ² by 2050. The presence of strong facilities, including Rutongo District Hospital, the ongoing Nyacyonga-Mukoto road project, and the emerging Center of Remera, along with the site's geographical location in the center of									

	the district, contributed to the creation of the new District Town of Mugote. In this regard, the former District Town of Shyorongi has been proposed to become a Rurban center.									
Rurbans	3	N/A	12.6	79,500		4	12.4	83,538	TBD	174,000
	Remarks: Due to environmental constraints, the NLUDMP 2020-2050 population projection for rurban areas excluded Base rurban due to its topography and lack of land for future expansion to accommodate a population of 20,000 to 100,000 by 2050. In this regard, the Base rurban center was replaced by Kinini, which was a former node of Rulindo District Town/Shyorongi									
Total Urban areas	4	N/A	41.6	180,500		5	26.6	141,288	TBD	279,000
Rural settlement sites	100	N/A	41	220,000		92	47	277,922	TBD	220,000
	Remarks:									

All sites cover a total of 47 km². However, the boundaries of rural settlement sites also accommodate other land uses, such as commercial areas, public facilities, administration, transportation, forest zones, utility zones, and open spaces. Eight rural settlement sites (including Kiboha, Busizi, Kanyoni, Kajejuba, Ntarabana, Gashinge, Kisigiro, and Karengeri) have been merged to form a newly created district town, resulting in a reduction of rural settlement sites from 100 to 92. In 2035, a revision of the DLUP is recommended to reassess settlements, which may lead to adjustments in their size or number—either increasing or decreasing them as necessary—while considering the NLUDMP 2020-2050’s allowance for a 10% change in settlement boundaries.

4.4.3. Housing

4.4.3.1. Existing Housing Typologies

In Rulindo District, houses are predominantly built in rectangular and square shapes, serving various purposes, including residential, commercial, religious, industrial, storage, administrative, and educational uses. The residential housing stock includes single houses, detached houses, and semi-detached houses. Construction materials primarily consist of stones for foundations, bricks (rukarakara), wood and mud for walls, and iron sheets or tiles for roofing. Most houses are built on plots of 600 m², with some specifically designed for rental purposes, especially in commercial centers.

Housing typologies vary according to the hierarchy of settlements, sources of income, and location. Modern houses of higher standards are mainly found in the Shyorongi, Masoro, Ntarabana, and Murambi Sectors, while medium-standard houses are prevalent in other sectors. In Cells located far from the road network, particularly in hilly areas, houses tend to be of lower quality and in poor condition.



Figure 15. Existing condition of Rulindo houses.

4.4.3.2. Planned perspective for Housing Stock

The goal in the housing sector is to achieve a steady annual increase in construction on one hand, and improved access to housing mortgages on the other. A second goal is to develop new local construction materials and housing typologies. Achieving these targets will serve as the backbone for the rollout of affordable and decent housing nationwide. The NLUDMP 2020-2050 recommends considering mixed-use urban development, where real estate in a city or suburb can integrate various functions—such as residential, commercial, cultural, and institutional—into a single block. Five housing categories have been proposed for consideration in local-level planning to achieve the desired consolidation and agglomeration, as illustrated in the figure below.

a) Proposed Housing stock in Rulindo District

The NLUDMP proposes that, given future demographic trends and the high housing demand requiring a substantial housing stock and space, it is strongly recommended to develop vertical housing infrastructure in urban and rural areas, specifically in the form of multi-family apartments and socio-economic infrastructure.

DLUP implements the NLUDMP's proposed densification by grouping its typologies into different residential categories: Low Density (R1, R1A), Medium Density (R1B, R2, and R3), and High Density (R4).

Related Zone/DLUP	R1	R1A	R1B	R2	R3	R4
Densities	10-15	20-30	40-70	60-100	60-90	90+n
Lot size -M2	500 (G+2+P max)	300 (G+2+P max)	150 (G+2 max)	200 (G+3 max)	100 (G+3 max)	750 G+n

Table 19: Residential zone categories with respective densification

According to NLUDMP 2020-2050, by 2050, Rulindo District will host 124,875 dwelling units whereby 26,250 dwelling units will be hosted in Rulindo District town, 43,625 dwelling units in Rurban Centers, and 55,000 dwelling units in rural settlement sites.

To comply with NLUDMP 2020-2050 directives of dwelling units to be hosted in 2050, proposed dwelling units were calculated based on land allocated for residential zones in urban, rural and rural settlements areas. As highlighted in the table below, dwelling units are presented as per residential category to clearly indicate the areas that will be reserved for residential zones.

In urban areas, based on projections of Households as per NLUDM 2020-2050, Rulindo District will have 69,875 dwelling units by 2050 and as there will be a movement of people from rural areas to urban areas, DLUP planned to host 37,005 dwelling units in (High density) which will be assessed in 2035 for further urban area extension

In rural settlement sites particularly, DLUP plans to host 55,000 dwelling units by 2050. However, as proposed by the NLUDMP 2020-2050, the process of restructuring the Imidugudu system into organised clusters will need to be undertaken continuously throughout the next 30 years. Thus, people will move progressively from rural areas to urban areas looking for employment opportunities in urban areas, the total of 153,938 dwelling units (Minimum density) are reserved and will be decreased progressively up to 55,000 dwelling units by 2050 recommended by NLUDMP 2020-2050 for Rulindo District, as a result of the migration of people from rural areas to urban areas, which will be assessed during the revision of DLUP in 2035 to determine whether residential areas previously occupied by those who will move to urban areas can be dedicated to agriculture zones.

Table 20. Housing Stock/Proposed Residential zones and Number of Dwelling units

Settlement category	Number of DU by 2050 (NLUDMP 2020-2050)	Residential categories	Area (Ha)	Number of DU (min. density)	Number of DU (Max. density)	Number of DU (Medium density)	% of Areas
District Town	26,250	R1		-	-	-	-
		R1A	47.7	955	1,432	1,193	35.5
		R1B	1.4	54	95	75	2.2
		R2		-	-	-	-
		R3	26.2	1,572	2,358	2,096	62.3
Sub-Total			75	2,581	3,885	3,364	100.00
Rurban Centers	43,625	R1	6.6	66	99	83	0.3
		R1A	352.9	7,059	10,588	8,823	29
		R1B	71.8	2,871	5,024	3,947	13
		R2	38.8	2,330	3,884	3,107	10.2
		R3	194.6	11,673	17,510	14,592	47.9
Sub-Total			665	23,999	37,005	30,469	100.00

Sub-Total (Town+Ru rban)	69,875						
Rural settlements	55,000	R1A	668.20	13,364	20,046	16,705	8
		R1B	3,308	132,332	231,580	181,956	87
		R2	33.7	2,024.5	3,374.2	2,699.3	1.3
		R3	103.6	6,217.7	9,326.5	7,772.1	3.7
Sub-Total			4,114	153,938	264,327	209,132	100
Total	124,875		4,854	180,518	305,217	242,965	

Source: Data analysis,NLA, June, 2023

4.4.3.3. Proposed housing typologies

The NLUDMP 2020-2050 recommends mixed-use housing developments in which real estate in a city or suburb can blend different functions—such as residential, commercial, cultural, and institutional—into a single block. These functions should be well integrated both physically and functionally. A mixed-income approach is also strongly advised, ensuring that low, medium, and high-income earners are integrated to mitigate social segregation.

Flexibility regarding housing types should be recognized (for example, single units, semi-detached homes, single-story houses, and apartment blocks). Proposed typologies are classified into two categories based on the occupancy of families or units within a single building: single-family and multi-family

a) Rural Residential Zone (R1B)

The R1B residential zone enables compact developments in rural areas. This zoning is intended to offer low-rise housing as part of the farming community, along with complementary public facilities as needed. It is primarily proposed in rural settlement areas to create sustainable and compact residential neighbourhoods, limiting encroachment into agricultural land and other uses. Within the R1B zone, all types of single-family houses are allowed, including standalone homes, semi-detached houses, townhouses, and row houses, as well as multi-family housing in accordance with the IDP Model Villages. In line with the NLUDMP 2020-2050 guidelines and zoning regulations, the maximum plot size is 300 m² for single-family housing and 500 m² for multi-family housing.

The maximum number of stories allowed is three (3) plus a penthouse, corresponding to ground, first, and second floors (G+2+P). For single-family use, a maximum density of 30 dwelling units per hectare (DU/Ha) is permitted, while for mixed-use developments, a maximum density of 20 DU/Ha is allowed.

Figure 16. Example of housing typology in R1B

Source: NLA, 2023

b) Low-Density Residential Densification Zone (R1A)

The R1A zone is intended for low-density residential areas and low-density densification zones. Its purpose is to promote more efficient use of land in prime urban locations by allowing for intensification and a mix of uses within the existing low-density housing development. Within the R1A zone, all types of single-family houses are permitted, including standalone homes, semi-detached houses, townhouses, and row houses, as well as multi-family housing. Additionally, complementary commercial and public facilities are allowed as needed.

The prescribed maximum plot size of 300 m² is smaller than in the Low-Density Residential Zone (R1), distinguishing the R1A zone as a higher-density, low-rise residential area. The maximum number of stories allowed is three (3), corresponding to ground, first, and second floors (G+2). For single-family use, a maximum density of 30 dwelling units per hectare (DU/Ha) is permitted, while for mixed-use developments, a maximum density of 20 DU/Ha is allowed.

Figure 17. Examples of various housing typologies in R1A.



Source: Drawings by NLA Team, 2023

c) Low Density Residential Zone (R1)

The R1 zone is intended for single family housing, e.g. stand-alone villa or bungalow, and complementary commercial and public facilities as needed. The zoning is limited to existing consolidated areas with the objective of limiting low-density urban development and encouraging compact and dense developments. In all R1 zones, R1A regulations are permitted (see R1A).

The maximum plot size is 500m². For plots bigger than 500m², existing developments can retain their use. For plots less than 300m², R1A regulations shall apply. The maximum number of stories allowed are three (3) plus penthouse, equalling ground, first, second floor and penthouse (G+2+P). For single family use a density of maximum 15 DU/Ha is allowed. For mixed-use developments a density of maximum 10 DU/Ha is allowed.

Figure 18. Examples of housing typologies in R1



Source: Drawings by NLA Team, 2023

Medium Density Residential - Improvement Zone (R2)

The R2 residential zone encompasses 72.6 hectares within the district. This zone is intended for upgrading informal settlements or redeveloping urban renewal areas, where feasible, on brownfield sites. A variety of housing typologies and developments are encouraged to stimulate the upgrading, redevelopment, and densification of these areas; however, standalone single-family housing is not permitted.

The objective is to enhance the overall physical appearance of the area and improve living conditions for residents. By enabling upgrades in the short term and redevelopment through land assembly in the medium to long term, developable land in prime areas of the town can be better utilized to create integrated and affordable neighbourhoods while providing adequate infrastructure and public facilities. In Rulindo District, R2 zoning is primarily concentrated within the Shyorongi Rurban Center. Within the R2 zone, multi-family housing and single-family row houses are allowed. Additionally, complementary commercial and public facilities are permitted as needed.

The maximum plot size for single-family row houses is 200 m², while no maximum plot size is prescribed for apartment buildings. The maximum number of stories allowed is four (4), corresponding to ground, first, second, and third floors (G+3). An additional floor may be permitted if topographical conditions allow. For single-family use, a maximum density of 100 dwelling units per hectare (DU/Ha) is permitted, while for mixed-use developments, a maximum density of 70 DU/Ha is allowed.

Figure 19. Example of housing typology in R2



Source: Drawings by NLA, 2023

d) Medium Density Residential - Expansion Zone (R3)

The R3 residential zone encompasses 324,3 ha within the District. This zone allows for densification and redevelopment of peri-urban and green field areas and a variety of housing typologies. The zoning is intended to stimulate development of low-cost incremental housing, facilitate the provision of affordable housing dedicated to the low-income segment of the population.

To ensure a mix of uses and income levels, several housing typologies are permitted, including self-build options to cater for the lowest income segment. The R3 zones are situated in peri-urban areas. Within the R3 zone, both multi-family housing and single-family row houses are allowed. Additionally, complementary commercial and public facilities are permitted as needed.

The maximum plot size for single-family incremental housing is 100 m², and 150 m² for row houses. No maximum plot size is prescribed for apartment buildings. The maximum number of stories allowed is four (4), corresponding to ground, first, second, and third floors (G+3). An additional floor may be permitted if topographical conditions allow. For single-family use, a maximum density of 90 dwelling units per hectare (DU/Ha) is permitted, while for mixed-use developments, a maximum density of 70 DU/Ha is allowed. In all R3 zones, R2 regulations are also permitted.

Figure 20. Example of housing typology in R3



Source: Designed by NLA, 2023

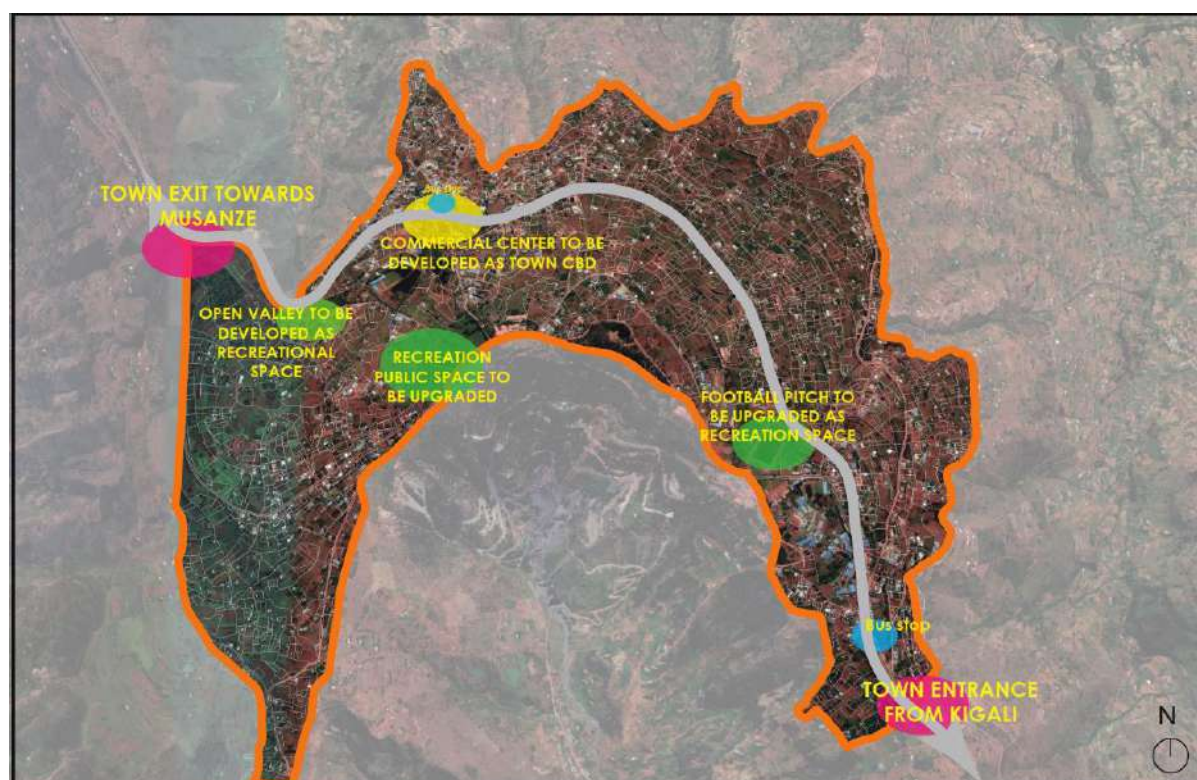
4.4.3.4. Urban Design for Rulindo District

An urban design concept was developed based on the general land use plan of the former Shyorongi District Town. The design aims to promote public spaces for various gatherings, recreational open areas, public plazas, commercial building frontages, walkways, and cycling and non-motorized transportation

4.4.3.5. Identification of Key Nodes

The key nodes identified as urban design elements are based on existing vibrant locations, such as the bypass bus stop, the Shyorongi commercial center, Shyorongi market, playgrounds, and recreational spaces

Figure 21. Identified Key Nodes in Shyorongi Rurban Center



Source: NLA Team, May 2023

4.4.3.6. Environmental Management Plan

The Environmental Management Plan (EMP) is a site-specific plan developed to ensure that the project is implemented in an environmentally sustainable manner. It aims to identify potential environmental

risks and take appropriate actions to minimize them. The benefit of preparing an EMP for a district is to identify and predict impacts and mitigation measures

Rulindo District needs a formal waste collection system and a designated dumping site to prevent improper waste disposal, which negatively impacts the environment. An extension will be made to the existing dumping site located in Base Sector, Gitare Cell, Nyamugari Village.

4.4.3.7. Proposed Recreation Plan

The proposed recreation plan for Shyorongi Rurban consists of two different public spaces. There is a proposed public recreation and gathering space for events such as wedding ceremonies, public gatherings, etc. There is also the proposed walking and cycling trail along the road (Kigali-Ruhengeri) to enhance greening of the city, with and sitting benches in gardens in front of shopping malls to enable visitors to relax.

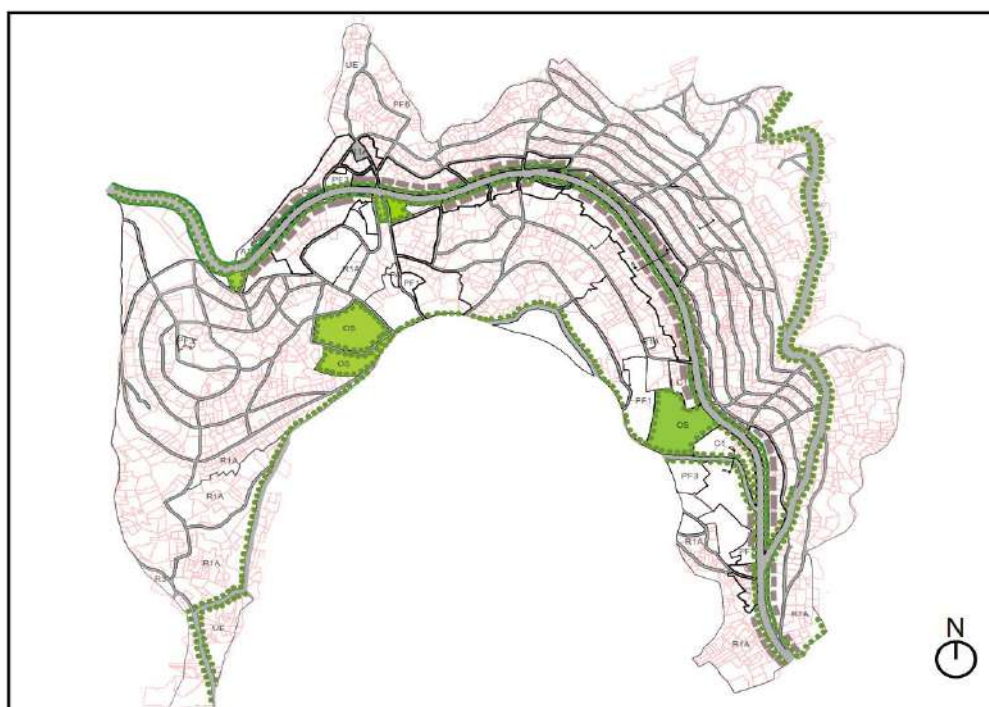


Figure 22. Proposed recreation areas in Shyorongi Rurban

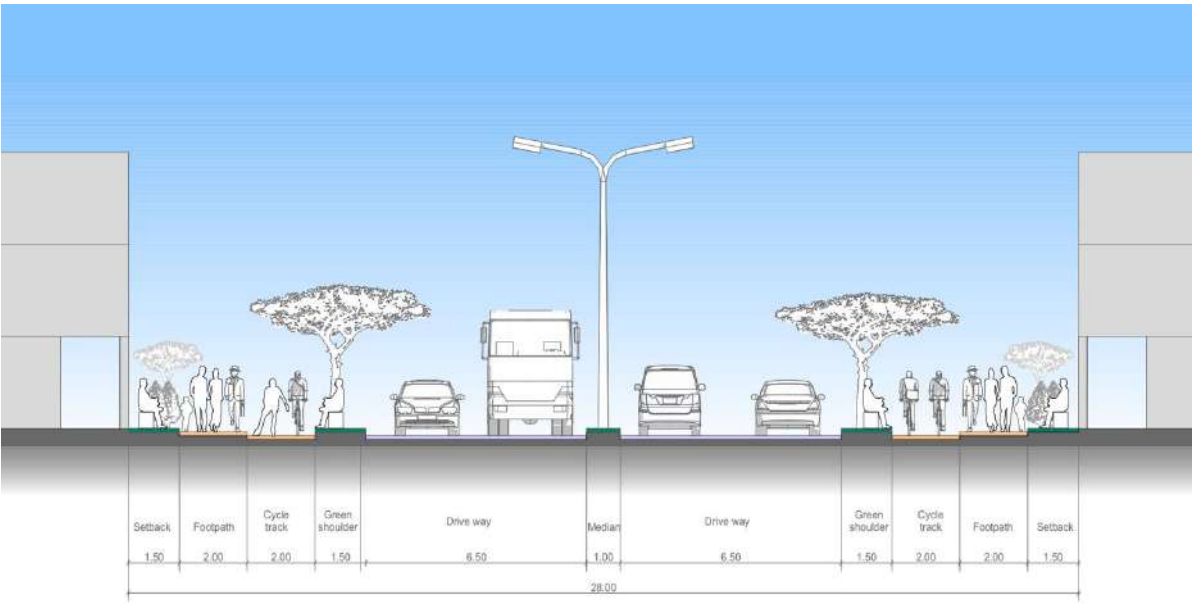


Figure 23. Road proposals as urban design components in Rulindo District Town (Section A-A)

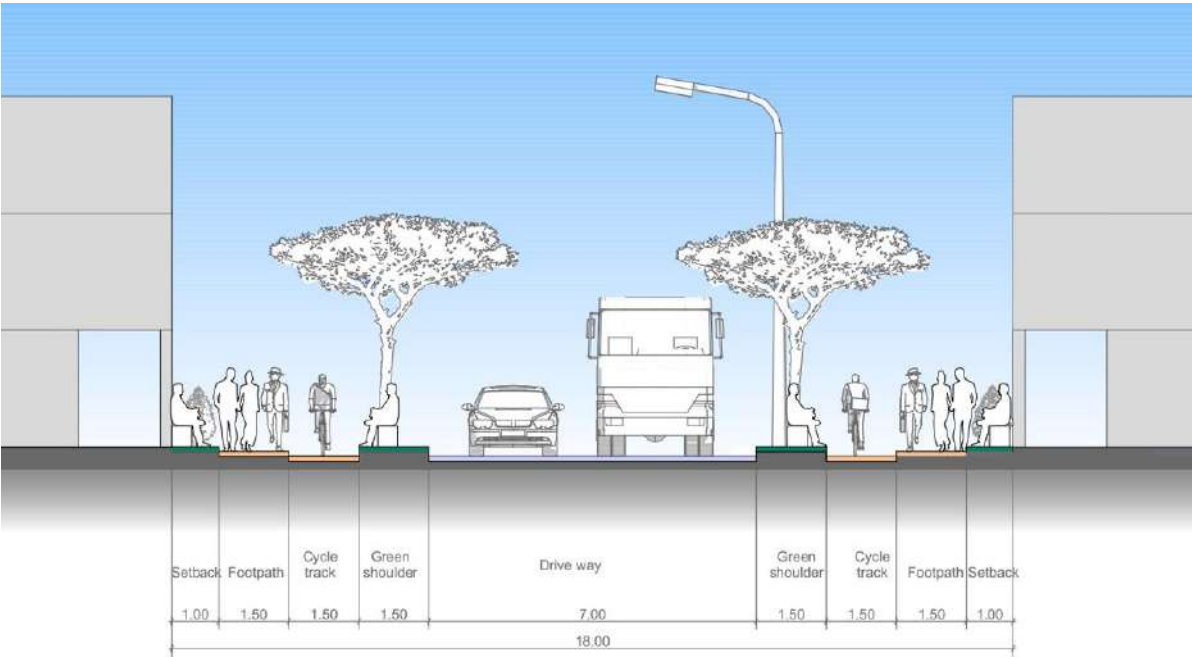


Figure 24. Road proposals as urban design components in Rulindo District Town (Section B-B)

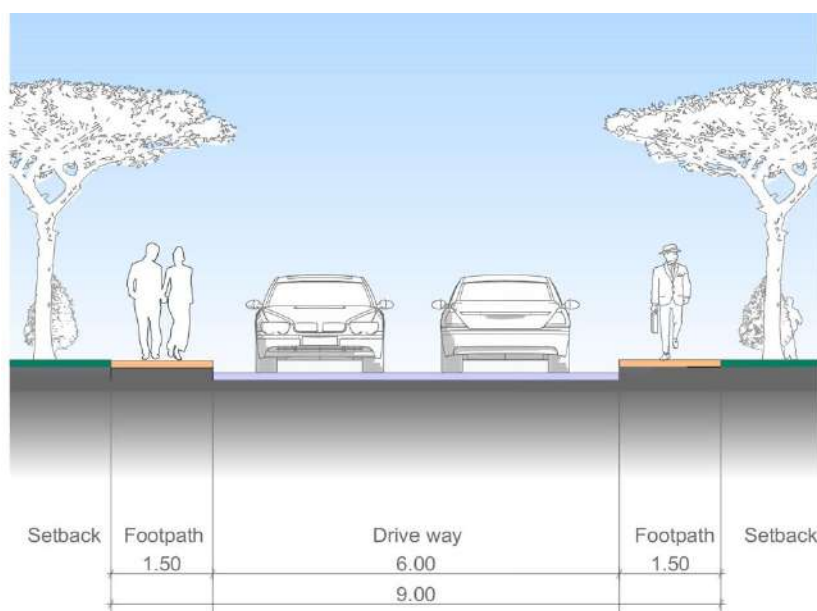


Figure 25. Road proposals as urban design components in Rulindo District Town (Section C-C)

4.4.4. Green Urbanisation

In order to implement the NLUDMP 2020-2050, green principles must be integrated in the planning. Green urbanisation puts stress on creating balance between urbanisation and ecology, which is beneficial to both humans and to the environment. It is an attempt to shape more sustainable places, communities and lifestyles, and consume less of the world's resources. The SDG Goal 11, “*Make cities and human settlements inclusive, safe, resilient and sustainable*”, highlights the rapidly growing urban populations and the need for effective planning and management of urban land. Planning for synergies between land uses in Rulindo District goes with the spatial characteristics of the District, National guidelines and strategies, geographical location etc.

4.4.4.1. Existing Situation

Rulindo District, located near Kigali, is characterised by hilly terrain and a significant degree of urban sprawl. The population becomes dispersed over an increasingly large geographical area. As the population spreads over a larger geographical area, the rising cost of land in Kigali drives migration to the sectors of Murambi, Shyorongi, Masoro, and Ntarabana. This movement from the urban core of Kigali to the lower-density suburbs of Rulindo contributes to the expansion of towns and Rurban Centers, often encroaching on land previously used for agriculture. The urban sprawl also increases the need for travel, both for work and to access services and facilities. This increases the need for public infrastructure, such as roads.

Multiple areas and neighbourhoods in Rulindo District are already experiencing limited connectivity and accessibility.

The growing residential areas also require basic services, such as waste management, water and energy, and stormwater management as well as public and open spaces. The high migration, combined with the fact that the majority of people in Rulindo District Walk and cycle and there are no existing plans for green urbanisation, the District is facing the challenge of growing slums. Hence, there is need for proper land management and planning that promotes non-motorized transportation (NMT).

4.4.4.2. Planning Perspectives

A number of interventions must be implemented to guarantee that the NLUDMP 2020-2050 is environmentally sustainable in its execution. Numerous policies and legal frameworks will be reviewed and updated in parallel with the NLUDMP 2020-2050.

Due to the hilly terrain, some residential areas are sprawling, requiring large infrastructure investments to facilitate accessibility and connectivity. To ensure sustainability, Rulindo DLUP developed direct interventions and long-term plans for green urbanisation. The DLUP plans for the road widths within the towns and rural areas, including pedestrian pathways, bicycle lanes, and road islands. The road lengths apply on the ring road in Shyorongi Rurban Centre (4 km), Rurban Centres of Kinini (1.1 km), Bubangu (5,06 km), Kinihira (6.97 km) and District Town Mugote (8.24 km).

4.4.4.3. NLUDMP 2020-2050 towards Green Urbanisation

Green transportation systems are promoted by upgrading bike lanes and sidewalks on roads across all proposed Rurbans and District Towns roads, thus contributing towards reducing emission of greenhouse gases and dependency on fossil fuels. The PUSH program aligns with green city concepts by incorporating sustainable housing designs, implementing green infrastructure, promoting the use of public transport and others.

Grey infrastructure systems should be converted to nature-based water management solutions, such as storm water gardens and wetland restoration. Greenbelts and green spaces should be identified to preserve and promote areas of open space within Rurban centres and District Towns. Principles of green planning and green technologies, such as green businesses, and water treatment technologies within industrial parks to minimise the environmental impact of industries, should be integrated.

a) DLUP proposed Short Term Interventions (direct intervention)

- Provide street lighting and greening in the areas of Kinini, Kinihira and Bubangu Rurbans to encourage pedestrian mobility.
- Create easy mobility in the urban areas of Rulindo District to facilitate transportation of agricultural produce and access to markets.
- Facilitate internet accessibility into the District, primarily in high-need areas such as schools, hospitals and open spaces.
- Prioritise walking and cycling in flat areas of the Rurbans and the District Town to promote non-motorized transport.
- Establish hanging bridges to connect neighbourhoods in hilly areas (NMT only).
- Trees along the roads in the centres of Ntarabana and Murambi should be preserved and tree planting in other centres should be encouraged for green neighbourhoods.

b) DLUP proposed Long Term Interventions

- Incorporate parks and green open spaces by public buildings for greening purposes and natural benefits to those visiting and working within the premises.
- Promote incremental housing in the District Town that comply with sustainable and green concepts such as natural ventilation, sustainable building materials, water harvesting, daylight intake, and energy saving.
- Reinforce public transport in densified areas by making it more attractive through improvement of frequency and reliability of transport means as well as enhancing comfort and convenience.
- Discourage private motor vehicle transportation through improvement in public transport, development of attractive and safe cycling and pedestrian infrastructure, introducing parking restrictions, higher parking fees as well as introduction of road tolls.
- Strengthen wetlands restoration and promote sustainable mining practices for biodiversity conservation.
- Prevent informal settlements, and upgrade existing informal settlements by applying greening neighbourhood concepts.

- All proposed investment in the urban areas should have integrated, resilient, reliable and sustainable infrastructure which will enable the District to adapt to climate change and function efficiently at the local level.
- Like all agriculture in the District, urban agriculture should be promoted and implemented sustainably using organic fertilisers, and reducing the use of pesticides.
- To contribute towards food security, urban agriculture must be promoted to enhance food security in urban areas and reduce long distance travels to markets.

4.5. Transportation Network

Transportation plays a crucial role in economic activity. Economic growth and progress depend on direct physical access to various economic activities. An efficient transportation system is vital for supporting sustainable economic development, as it facilitates the movement of people and goods. A reliable transportation network is essential for optimizing economic activities.

Rwanda is in line to modernise transportation services and infrastructure while integrating them into the overall development strategy of other sectors to meet its socioeconomic development goals.

4.5.1. Existing Road Network in Rulindo District

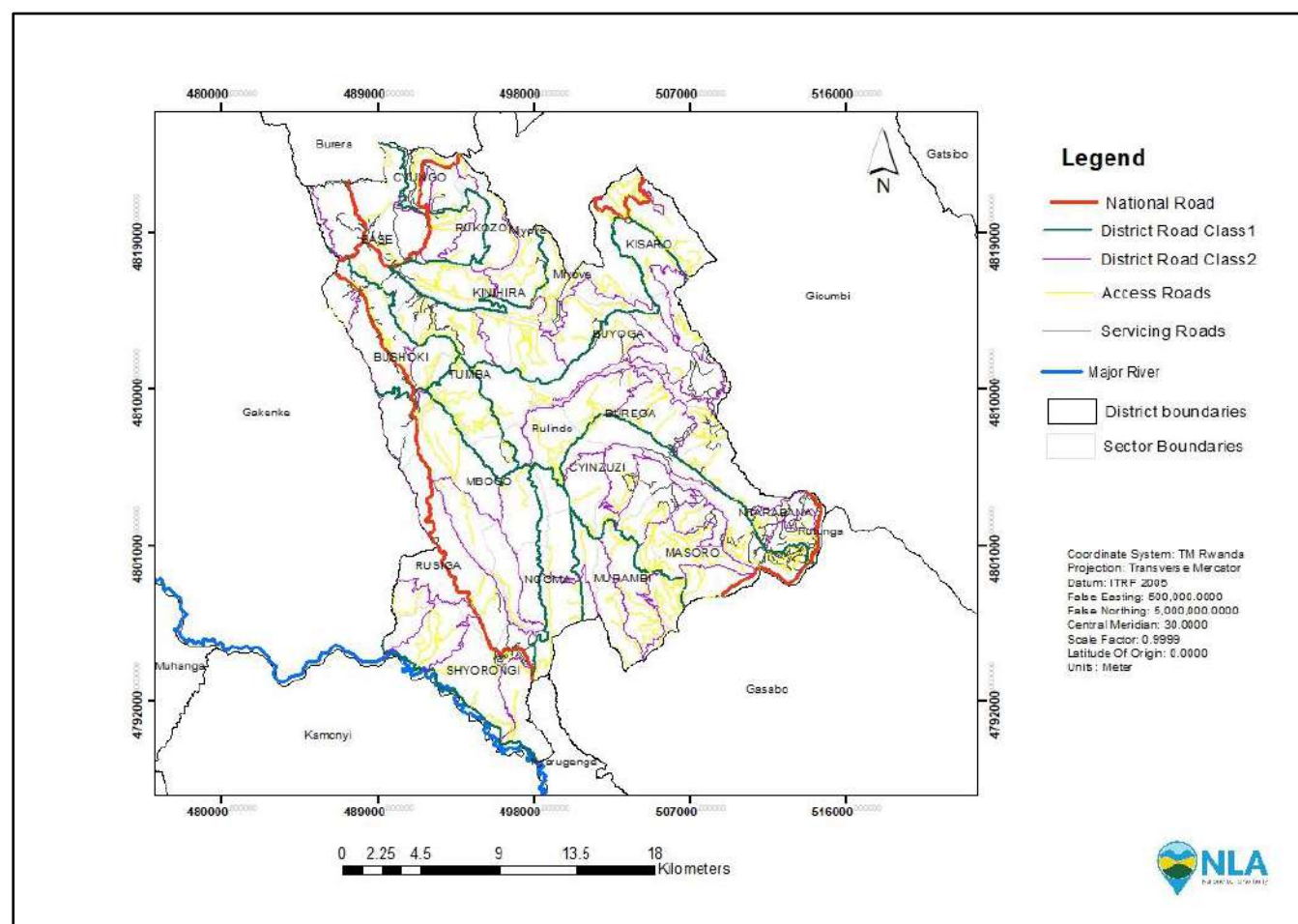
Road transportation is the most common mode of transportation in Rulindo District. In addition to walking, the local population uses bicycles and motorcycles for short trips, while buses and cars are preferred for longer journeys. Trucks play a key role in logistics, transporting goods and agricultural produce. The total length of roads in Rulindo is 1,309.5km, covering an area of about 664 hectares.

Table 21. Length of Existing Roads in Rulindo District

Road Classification	Length of roads (km)
National Roads	71.3
District Roads Class 1	191.2
Draft District Roads Class 2	313.3

Other Roads	733.1
Total	1309.5

Rulindo District is crossed by the National Road (NR4) linking Kigali City to Gakenke, Musanze, Nyabihu and Rubavu Districts. These Districts make a commercial corridor. Rulindo District is also crossed by the National Road (NR3) linking Kigali City to Gicumbi and Gatuna Border Post Rwanda.



Map 16. Existing Road Network in Rulindo District

4.5.2. Emerging Issues on road network in the District

The transport sector is one of the key engines of economic growth. Improving the quality and reliability of transport infrastructure and services attracts both domestic and foreign investment, while increasing access to jobs. In the framework of developing appropriate proposals to improve the road network system in Rulindo District, an analysis of emerging issues was conducted:

- Some roads lack formalised sidewalk for pedestrians, forcing drivers and pedestrians to share the road;
- Unpaved roads lead to poor road quality, especially in rainy seasons, resulting to potholes, flooding and mudslides;
- Heavy rainfall has caused damage to bridges due to flooding debris such as fallen trees;
- Illegal parking in commercial areas due to lack of designated parking causing traffic congestion and disruption of traffic flow;
- All roads with walkways must include pedestrian ramps to ensure universal access for individuals with impaired mobility, such as those using wheelchairs;
- Some roads lack formal intersection control, causing traffic disruptions on major routes. Enhancing road signs and markings can improve safety at these crossroads;
- Zones for pedestrians, cyclists and motorists should be physically separated to enhance road safety;
- Paving and upgrading of District Roads is proposed.

4.5.3. Proposed Transportation Plan

4.5.3.1. Proposed Road reserve in Rulindo District

The Rwandan Public Transport Policy provides guidelines for developing the public transport plan for Rulindo, discussed in the following paragraphs. In Rulindo District, roads have been planned in accordance with legal recommendations for road reserves. The total area to be covered by Rulindo's roads will be 3,175.7 hectares, with a total length of 1,503.9 km. The table below proposes road standards for the Rulindo road network outside urban boundaries.

Table 22. Proposed road reserve in Rulindo District

No	Road Categories	Proposed Road Width (road reserve)	Length/km
1	National Road	44 m (22m×2)	63.89
2	District Road Class 1	44 m (22m×2)	156.57
3	District Road Class 2	24 m (12m×2)	300.39

4	Access and Service Roads	9 m (4.5m×2)	983.13
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Road recommendations:

- The Rurban areas are all linked by unpaved roads, which should be upgraded and paved to promote growth in the District;
- The District Road Class 1, linking Bubangu Rurban to NR3 is unpaved, and should be upgraded;
- The road passing through Kinini Rurban connected to NR4 is unpaved, and should be upgraded;
- An important but unpaved District Road that crosses Ntarabana to Burega, Cyinzuzi and Nyacyonga-Mukoto from National Road (NR3) crossing Masoro, Murambi, Ngoma, Cyinzuzi. This should be upgraded;
- The unpaved District Road that connects to the National Road (NR4) which crosses in Bushoki Sector to Nyirangarama TVET School, should be upgraded;
- There are additional District Roads (Class 1 and Class 2) as well as servicing or access roads spatially distributed within rural settlement sites, providing access to different public, commercial facilities and residential houses. All roads should be paved.

4.5.3.2. Proposed road widths within Urban Boundaries

Due to the existing situation, road reserves in urban and Rurban areas have been predefined and resized differently from road reserves in rural areas. National Roads and District Road Class 1 are resized to 28m, District Road Class 2 to 18m, and other roads (servicing and access roads) to 9m. In Shyorongi Rurban, a ring road has been planned for heavy tracks which will reduce the traffic along the National Road (Kigali-Ruhengeri). An access road connecting Kinini Rurban and the main road has been proposed as the existing road was closed due to safety of Inyange Secondary School. The table below tabulate the road classifications and its reserve:

Table 23. Proposed road reserve in Rulindo District urban areas

No	Road Categories	Proposed road width (road reserve)	Length/km
1	National Road	28 m (14m×2)	18
2	District Road Class 1	28 m (14m×2)	18.66

3	District Road Class 2	18 m (9m×2)	78.17
4	Access and Service Roads	9 m (4.5 m×2)	257.87

4.5.3.3. Proposed public transportation plan

In 2023, Rulindo District had several public transportation lines including Nyabugogo to Shyorongi (Tap&Go), Nyabugogo to Nyabyondo (Tap&Go), Kigali to Base, and Kigali to Base and Gicumbi.

Public transportation has been a vital part of our society for decades. Using public transportation allows people to travel between different locations.

Rwanda's population is growing rapidly and will continue to do so. As a result, people will need mobility services. If there isn't a reliable transportation system in place, people will be forced to rely on their own cars, which will lead to further traffic congestion and spur climate change. The Government of Rwanda is working to enforce public transportation in order to cut carbon emissions, ease traffic flow and allow people to travel to their places of employment, services and other destinations.

Rulindo District suggests adding public transportation routes connecting it to Kigali City and neighbouring Districts at various locations. The following table shows the existing and proposed public transportation lines in Rulindo District;

Existing public transportation lines

- Base-Cyungu-Kisaro-Gicumbi
- Nyabugogo-Shyorongi (Station)
- Nyabugogo-Shyorongi-Kinini-Base
- Nyabugogo-Rutonde-Rwahi
- Nyabugogo-Gicumbi

Proposed public transportation lines

- Nyabugogo-Nyacyonga-Mukoto
- Kigali-Bubangu-Remera
- Base-Butaro
- Kajejuba-Kiyanza-Remera

- Mukoto-Tumba-Buyoga
- Nyabugogo-Jali-Remera
- Burega-Buyoga-Kisaro
- Base-Mushongi-Kinihira-Miyove
- Gaseke-Muyanza-Ngabitsinze
- Shyorongi-Yanze-Ngoma
- Rwahi-Muvumu-Gitanda

The following are the bus parking proposals in Rulindo District;

- Kinihira Bus parking
- Kinini Bus Parking
- Mugote Bus Parking
- Shyorongi Bus parking
- Bubangu Bus parking
- Rwahi Bus Parking

4.5.4. Green Transport Promotion Strategies

Green transport refers to any mode of transportation powered by alternative energy sources, alternative fuels, or human physical effort, which, when in operation, produces minimal or no greenhouse gases. The benefits of green transportation include reduced dependence on non-renewable energy sources and decreased demand for fuel and gasoline. Greenhouse gas emissions from burning gasoline and diesel contribute to global warming and climate change. Additionally, pollution poses significant health risks, leading to increased hospitalizations and fatalities. Numerous diseases, including lung cancer, respiratory infections, stroke, and heart disease, are linked to air pollution.

In addition, an increase in public transport and NMT will reduce the number of vehicles on the roads and reduce traffic congestion. Compared with private cars, public transportation reduces CO₂ emissions by 45%, decreasing pollutants in the atmosphere and improving air quality. As electric rail travel and electric buses increase in use, the benefits to the environment from public transportation also increase.

In developing countries, an increase in wealth often leads to a shift from non-motorized transport (NMT) to motorized transport. In Rulindo District, the challenging topography necessitates sustainable transport solutions. Many areas are connected by suspension bridges, particularly in regions separated by rivers and swamps where road construction is impractical. These bridges are primarily located in the Cyungo, Base, and Bushoki Sectors.



Figure 26. Rulindo District suspended Bridges

➤ Non-Motorized Transport Network

To establish a sustainable transportation system in Rulindo District, it is essential to maintain and promote the existing culture of walking, cycling, and using suspension bridges as modes of transport. Some strategies to achieve this include:

- Conducting regularly public health campaigns to encourage walking and cycling;
- Upgrading roads with NMT infrastructure and creating an attractive streetscape;
- Provide “Park and Ride” facilities close to public transport nodes;
- Ensure NMT priority at intersections;
- Consider NMT only areas within the CBD and other focus areas;
- Provide sufficient and convenient cycle parking facilities (e.g., covered and secure);
- Provision of cycle tracks or dedicated segregated cycling infrastructure (“cycle superhighways”), where appropriate;

- Regular cycling promotion days;
- Provision of hanging bridges;

Infrastructure for NMT is part of green transport network strategies. This plan should complement existing public transportation options while also offering a comfortable, secure alternative to encourage walking and cycling throughout the whole of Rulindo District.

Attractive green transportation infrastructure encourages more people to walk, which relieves pressure on the road system. It is proposed as part of promoting green mobility as well as supporting public health. It is important for people to continue to embrace a lifestyle with NMT as it is crucial for the successful development and sustainable growth of Rulindo District. The NMT strategy must be rolled out to ensure that all collector and arterial roads have NMT facilities.

Priority should be given to locations such as schools, hospitals, public buildings, and the central business district (CBD) across the District. It is recommended that non-motorized transport (NMT) infrastructure be established to enhance access to all-weather roads. Depending on available space, NMT zones should be developed along existing roads. Additionally, it is important for the NMT infrastructure to be widely accepted by the community.

While it may not be possible to eliminate all forms of transportation, there are more environmentally friendly options available. Examples include electric scooters, electric bicycles, hybrid and electric cars, diesel and biodiesel vehicles, as well as public transportation and carpooling.

4.6. Public Facilities and Services

It is envisioned that the implementation of the proposed settlement structure will enhance access to public facilities and services by centralizing them within consolidated settlements, particularly focusing on healthcare facilities and schools. As a result, the provision of services to sprawled settlements will be discontinued.

4.6.1. Education facilities

4.6.1.1. Existing Situation Educational Services

In Rulindo District, the net attendance rate in primary schools was recorded at 89%. Similarly, in secondary schools, the net attendance rate was 27%. According to the Education Integrated Household Survey (EICV5) thematic report, the computer literacy rate among individuals aged 15 and above was reported at 6.5%.

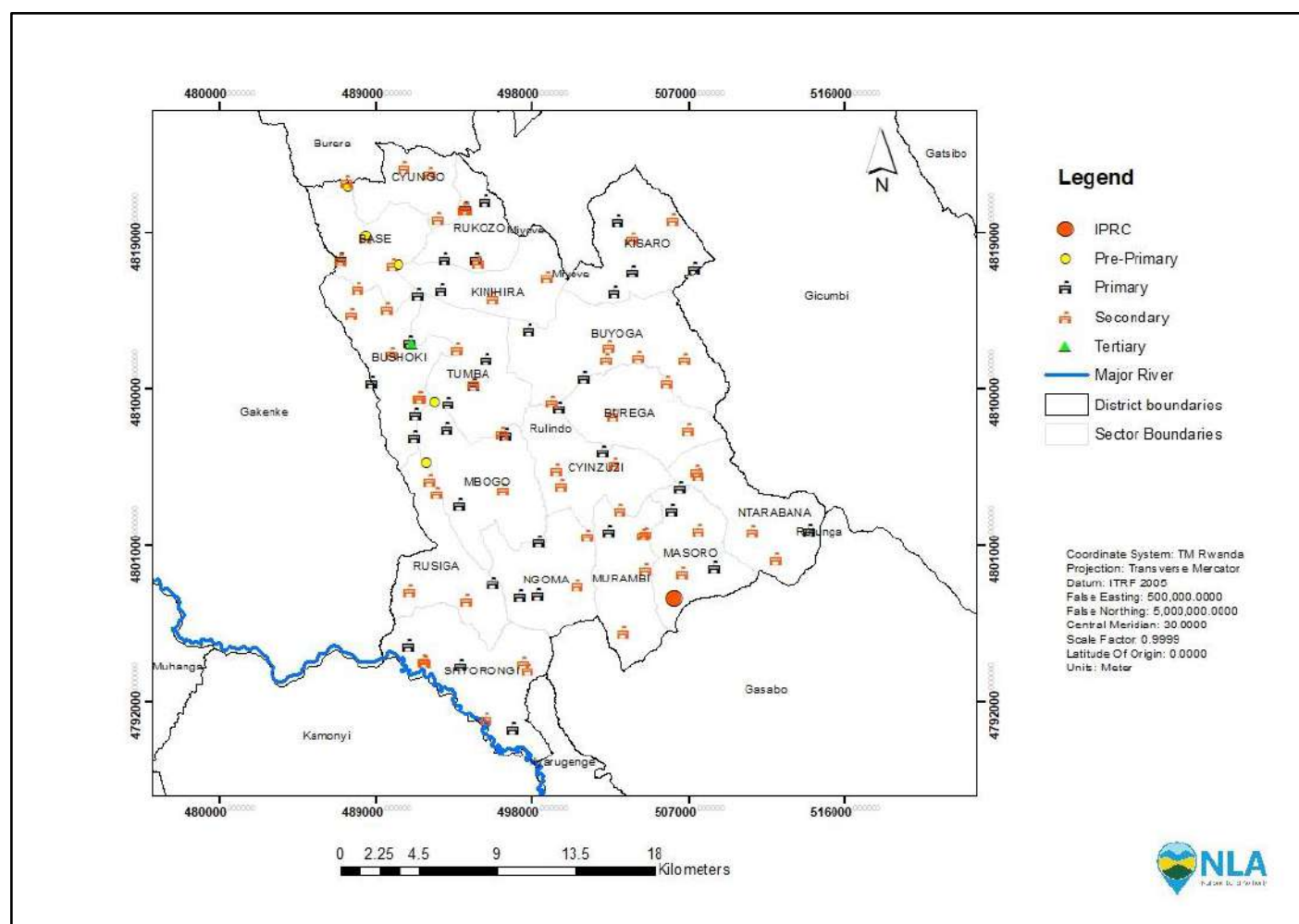
The promotion rate in primary schools was 81.5%, indicating the percentage of students who progressed to the next grade. The repetition rate in primary schools was recorded at 16%, indicating the percentage of students who repeated the same grade. In secondary schools, the promotion rate was notably higher at 84% while the repetition rate was significantly lower at 1.4%.

In terms of educational infrastructure in Rulindo District, there are 4 pre-nursery schools, 101 nursery schools dedicated to Early Child Development, 104 primary schools, 107 secondary schools (75 lower secondary schools, 32 upper secondary schools), and 9 TVET (Technical and Vocational Education and Training programme) offering levels from 1 to 5. There are two higher learning institutions, IPRC Tumba located in Tare Sector and a branch of IPRC Kigali for the Engineering Department (Rulindo District Education office, 2022).

Table 24. Rulindo District Education Situation Year 2022

Level	Total number of schools by level			
	Public	Government aided	Private	Total
Pre-Nursery	2	1	1	4
Nursery	57	38	6	101
Primary	59	39	6	104
Lower Secondary	39	34	2	75
Upper secondary	16	14	2	32
TVET level 1 to 5	5	2	2	9
Adult literacy	0	0	1	1
Tertiary	1	1	0	2

Source: Rulindo District, Education Services, May 2023



Map 17. Geographical location of the existing schools in Rulindo District.

4.6.1.2. Planned Educational Services

The government's targets to reach upper middle-income status by 2035 will involve intense improvements in both the amount of and the quality of human capital. Economies that have grown rapidly over an extended period have made substantial investments in the healthcare and education of their citizens. (World Bank, 2020). Investments in human capital is a long-term investment, as only a small part of the population enters the labour force each year. The sooner investments in human capital are made, the sooner Rwanda will achieve increased growth. Rwanda is behind the average of low-income countries, in restricting and in primary and lower secondary school completion as per world development indicators data.

A) NLUDMP 2020-2050 Recommendations on Education Sector

• Nursery and Primary Education by 2050

According to NLUDMP 2020-2050, the following standards and parameters have been established for nursery and primary schools.

- Average class size: 35 pupils/class
- Average school size: 840 pupils
- Required size for a nursery school: 0.5 ha
- Required size for a primary school: 1 ha

• Secondary, Vocational and Technical Education by 2050

According to NLUDMP 2020-2050, the following standards and parameters have been established for secondary education to support the improvements both in quality and quantity.

- Enrolment rate will be 90%;
- Average class size: 35 pupils/class
- Average school size: 840 pupils
- Required size for a secondary school: 1.5 ha
- Required size for vocational and technical school: 2 ha

In preparing the Rulindo District Land Use Plan (DLUP) for the year 2050, an increase in the student population is anticipated, which will directly impact the existing schools in the District. There is a growing demand for new classrooms in both primary and secondary schools, as well as Technical and Vocational Education and Training (TVET) institutions. Students comprise nearly 30.5% of the total population. If this trend continues, Rulindo District will need to construct a significant number of new classrooms, preferably in multi-story buildings to optimize land use.

Table 25. Projected number of classrooms and pupils by 2035-2050

Pre-primary education						
Description	2022	2030	2035	2040	2045	2050
Total Population	360,144	395,425	419,211	444,427	471,159	499,500
Nursery (3-5) years old	29,806	32,726	34,694	36,781	38,994	41,339
Existing Classrooms	265	-	-	-	-	-
Classrooms to be constructed for each planning period	852	935	991	1,051	1,114	1,181
Total number of classrooms at the end of each planning period	587	83	56	60	63	67
Total classrooms to be constructed (Cumulatively)	587	670	726	786	849	916
Primary Education						
Description	2022	2030	2035	2040	2045	2050
Total Population	360,144	395,425	419,211	444,427	471,159	499,500
Primary (6-11) years old	52,709	57,873	61,354	65,044	68,957	73,104
Existing Classrooms	1,328	-	-	-	-	-
Classrooms to be constructed for each planning period	1,506	1,654	1,753	1,858	1,970	2,089
Total number of classrooms at the end of each planning period	178	148	99	105	112	119
Total classrooms to be constructed (Cumulatively)	178	326	425	530	642	761
Secondary Education						
Description	2022	2030	2035	2040	2045	2050
Total Population	360,144	395,425	419,211	444,427	471,159	499,500
Secondary (12-17) years old	48,597	53,358	56,567	59,970	63,577	67,401
Existing General secondary Classrooms	636	-	-	-	-	-
Existing TVET Classrooms	142	-	-	-	-	-
Classrooms to be constructed for each planning period	610	137	91	97	103	110
Total number of classrooms at the end of each planning period	1,388	1,525	1,616	1,713	1,816	1,926
Total classrooms to be constructed (Cumulatively)	610	747	838	935	1,038	1,148
Required TVET Classrooms (60%)	366	448	503	561	623	689
Required General secondary Classrooms (40%)	244	299	335	374	415	459

Therefore, jointly both public, churches, non-governmental organisations and the private sector have to be conscious of the situation and directly respond to this future demand by investing in education. Vertical construction of school buildings is required for efficient land utilization.

4.6.2. Healthcare Facilities

4.6.2.1. Existing Healthcare Facilities in the District

Rwanda's healthcare system has undergone multiple changes, leading to significant improved accessibility of medical facilities throughout the country, both geographically and financially. Advanced medical equipment has been made available to ensure accurate diagnosis and effective treatment of illnesses. Through the community-based health insurance (Mutuelle de Santé), more than 84% of Rwandans now have health insurance, guaranteeing access to primary healthcare for all citizens. As a result, life expectancy has risen from 49 years in 2000 to 66.7 years in 2017, to 69 in 2022. The maternal mortality ratio has declined, decreasing from 476 per 100,000 live births in 2010 to 210 per 100,000 live births in 2015. Over the years, the number of hospitals in Rwanda has increased from 34 in 1994 to a total of 48, including 8 national referral hospitals, 4 provincial hospitals, and 36 District hospitals. (NLUDMP 2020-2050)

Rulindo District has a range of healthcare facilities strategically dispersed across the District to ensure good access for the population. The majority of residents (95%) are covered by Community-based health insurance (CBHI) or Mutuelle de Santé, 3.8% are covered by RSSB; 0.2% rely on private insurance, while 0.9% are covered through insurance provided by their employers (NISR, 2023).

There is a District Hospital (Rutongo Hospital) and a Provincial Hospital (Kinihira Hospital), both serving as key points of reference for the primary healthcare institutions within the District. Each hospital has its own designated area of coverage, along with the necessary expertise and resources to deliver secondary medical care to patients requiring hospitalisation. The hospitals offer a range of services outlined by the government, including the "complementary package of activities" (CPA) and specialised treatment for complex cases. They also cater for patients referred by primary health centres and engage in District health planning and supervision.

In addition to the Provincial and District hospitals, Rulindo District has 22 health centers, 38 health posts, and 1 clinic. These facilities have been developed primarily to enhance the availability of essential primary healthcare services. They aim to address challenges such as financial limitations, lack of insurance, and geographical distances that patients may face when seeking care.

Except for Shyorongi, Ntarabana, and Murambi Sectors, which each have two health centers, all other sectors have one health center each. Overall, these healthcare facilities—including health centers, health posts, and the clinic—were established to serve the local population by promoting health, wellness, and providing primary and preventive care within the community. The following tables provide further information on the distribution of healthcare facilities in Rulindo District.

Health Centers	Sector
1. Bubangu HC	Murambi
2. Burega HC	Burega
3. Kajeububa HC	Ntarabana
4. Kinini HC	Rusiga
5. Kiyanza HC	Ntarabana
6. Masoro HC	Masoro
7. Murambi HC	Murambi
8. Muyanza HC	Buyoga
9. Remera-Mbogo HC	Ngoma
10. Rulindo HC	Mbogo
11. Rutonde HC	Shyorongi
12. Rwahi HC	Shyorongi
13. Shyorongi HC	Shyorongi
14. Buyoga HC	Buyoga
15. KISARO HC	Kisaro
16. Marembo HC	Cyungo
17. Mushongi HC	Base
18. Rukozo HC	Rukozo
19. Tare HC	Bushoki
20. Kinihira HC	Kinihira
21. Tumba HC	Tumba
22. Cyinzuzi HC	Cyinzuzi

Table 26. Health Centers in Rulindo District in 2023

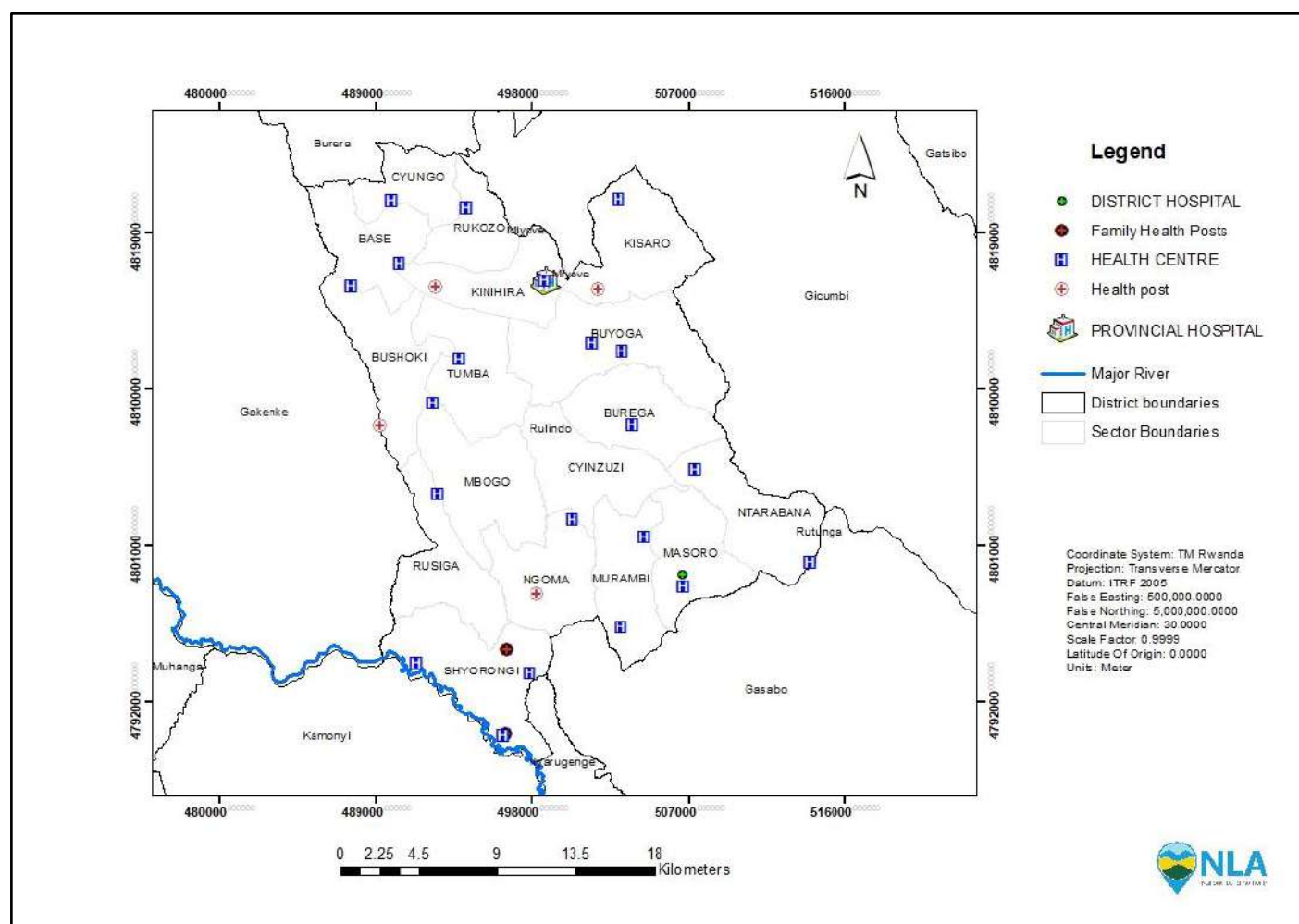
Health Posts	Sector
1. Gitare HP	Base
2. Kabeza HP	Base
3. Taba HP	Burega
4. Butangampundu HP	Burega
5. Gasiza HP	Bushoki
6. Kayenzi HP	Bushoki
7. Giko HP	Bushoki
8. Gipfundo HP	Buyoga
9. Busoro HP	Buyoga
10. Gitumba HP	Buyoga
11. Budakiranya HP	Cyinzuzi
12. Rudogo HP	Cyinzuzi
13. Karambo HP	Cyinzuzi
14. Nturo HP	Cyungo
15. Marembo	Kinihira
16. Sayo HP	Kisaro
17. Gitatsa HP	Kisaro
18. Mubuga HP	Kisaro
19. Kamushenyi HP	Kisaro
20. Cyivugiza HP	Masoro
21. Bweranyange HP	Masoro
22. Rurenge HP	Mbogo
23. Mushali HP	Mbogo
24. Gitabage HP	Mbogo
25. Mvuzo HP	Murambi
26. Gatwa HP	Murambi
27. Nyabuko HP	Ngoma
28. Kabuga HP	Ngoma
29. Nyaruvumu HP	Ngoma
30. Mahaza HP	Ntarabana

31. Ubumwe HP	Ntarabana
32. Buraro HP	Rukozo
33. Kabonanyoni	Rukozo
34. Nkanga HP	Rusiga
35. Gitanda HP	Rusiga
36. Muvumu HP	Shyorongi
37. Taba HP	Tumba
38. Nyirabirori HP	Tumba
39. Mutoyi HP	Kinihira

Table 27. Health Posts in Rulindo District in 2023

The number of patients that District hospitals receive daily exceed their capacity. Additionally, the hospitals are aging and in need of rehabilitation, as are the ambulances, which should be replaced. This situation poses a significant risk to expectant mothers and patients requiring transport from rural areas, forcing them to walk long distances.

Healthcare facilities in Rulindo District are insufficient, especially given the anticipated population growth and the travel distances needed to access care. Furthermore, there is a shortage of skilled healthcare professionals in Rulindo District, reflecting a broader national issue.



Map 18. Distribution of existing healthcare facilities

4.6.2.2. Proposed Healthcare Facilities in the District

Planned Healthcare Facilities

To cope with the geographical difficulties in accessing healthcare services in rural areas, the DLUP recommends to promote habitation in rural settlement sites to facilitate provision of healthcare services. In addition, an increase in population will have a direct impact on existing healthcare facilities. There will be a demand to extend or renovate existing facilities, and build additional ones. It is also recommended to assure the supply of water and electricity in all healthcare facilities as well as internet for efficient service delivery.

NLUDMP 2020-2050 in lines with Health Services

According to NLUDMP 2020-2050, the following healthcare standards are proposed:

- ✓ Community health organised in all clustered rural settlements sites;
- ✓ 2 Hospitals/District, 2 Provincial level hospital per Province, 720 beds per hospital (2 Hospitals in Rulindo District)
- ✓ 2 Health Centers (HC) for each one of the 416 Sectors = 832 HC
- ✓ 1 Health Post (HP) for each Cell = 3,000 HP

Vertical construction should be mandatory for any new healthcare facility to be built within urban and/or rural settlement boundaries.

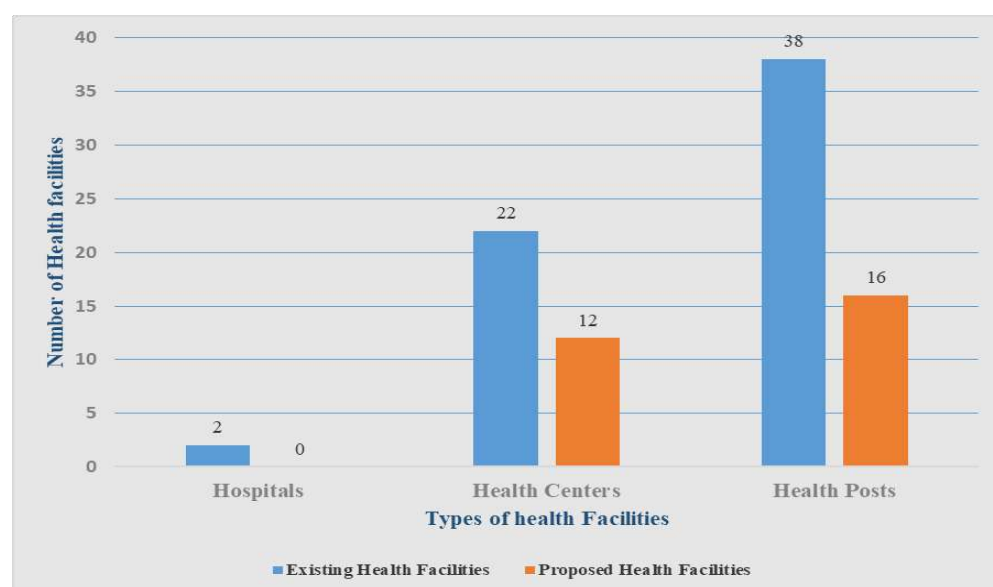


Figure 27. Existing and planned healthcare facilities in Rulindo District.

4.6.3. Public Administration

4.6.3.1. Existing Public Administrations Services in the District

Rulindo District has 17 administrative Sectors, 71 Cells, and 494 Villages providing public administration services to the citizens and providing governance, law and order, and public services, the implementation of development schemes, carrying out of elections, and ensuring the safety and security of citizens. The District administration works in close collaboration with the state government and other departments to ensure the timely delivery of public services to the community. The District administration also works in

partnership with NGOs and other civil society organisations to ensure the proper implementation of government schemes and programmes.

Rulindo District has implemented a decentralisation policy since the year 2000, aligning it with the decentralisation undertaken throughout the country. A key objective behind this policy is to enhance the efficiency of accountable service delivery. It aims to empower local citizens allowing them to participate in the planning and management of local affairs. The local governance system is regulated by a number of legal and regulatory frameworks including the constitution of Rwanda, the law governing decentralised administrative entities and other several frameworks. All these regulatory and strategic documents emphasize the importance of local populations and groups in fostering local development.

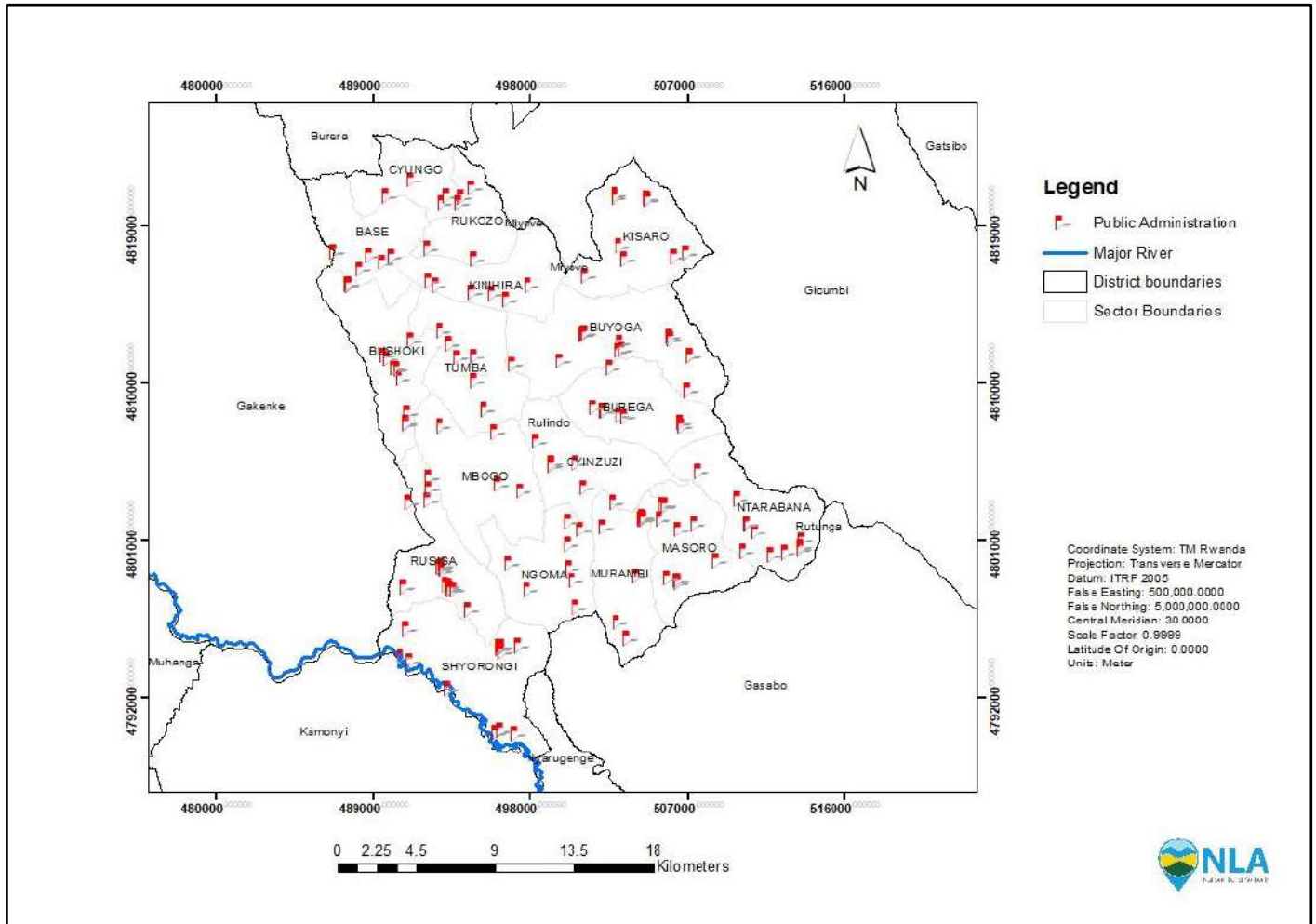
In Rulindo District, the gradual implementation of the decentralization policy has influenced the delivery of services based on the type of service, the readiness of the relevant sectors regarding legal and regulatory frameworks, and the capacity of local jurisdictions. Additionally, various initiatives have been undertaken in each sector to prepare local governments for this transition. These initiatives include joint planning and institutional reforms within sector ministries, involving the revision of policies and the creation of agencies to support the districts.

4.6.3.2. Planned Public Administration and Future Guidelines in the District

In preparing the Rulindo District Land Use Plan (DLUP), the recommendation for the decentralization of public services and the implementation of citizen-based governance is essential. To achieve this objective, it is recommended that each cell have its own office and that each sector establish its own office. Additionally, it is suggested that the District office be relocated to the new District Town (Mugote), which is centrally located to improve accessibility for all residents.

The rationale behind these recommendations is to bring public services closer to the community and to promote effective citizen engagement in local governance. By establishing offices at the Cell and Sector levels, it allows for improved accessibility and convenience for residents who may otherwise have to travel long distances to access government services. This decentralised approach can also foster stronger community participation and involvement in the decision-making processes, as local offices are more accessible and can better understand the specific needs and concerns of their respective areas.

Relocating the District office from Bushoki Sector to Ngoma Sector, which is centrally located, further supports the goal of accessibility by reducing travel time and costs. This move also symbolizes a commitment to equitable service delivery, ensuring that the District administration is more accessible and responsive to the needs of the entire community.



Map 19. Figure showing Planned Public Administration

4.6.4. Sport and Leisure Facilities in Rulindo District

Promoting a healthy lifestyle is a key objective for Rulindo District, and one of the most effective ways to achieve this is by encouraging sports and leisure activities. By emphasizing the importance of physical activity and providing opportunities for residents to engage in sports and leisure, the District aims to instill a culture of healthy living. There are 31 existing playgrounds and 23 proposed playgrounds to facilitate sports and leisure activities, including football, volleyball, basketball, and cricket.

In addition to the social and health benefits, sport and leisure activities contribute to skills development. Team sports promote teamwork, communication, leadership, and problem-solving abilities. Individual sports require discipline, self-motivation, and goal-setting skills. By engaging in these activities, residents of Rulindo District can acquire and refine valuable life skills that can be applied beyond the sports arena.

Sport and leisure activities also provide a platform for talent identification and development. By investing in local sports clubs, academies, and programs, Rulindo District can identify and nurture talented individuals, helping them reach their full potential. This not only benefits the individuals themselves but also contributes to the pride and recognition of the District as a hub for sporting excellence.

In addition, promoting sports and leisure activities can positively impact tourism and economic growth in Rulindo District. By hosting sporting events and attracting participants and spectators, the District can stimulate tourism and support local businesses. Increased tourism creates greater economic opportunities, including investments in sports infrastructure, hotels, restaurants, and other related industries. This, in turn, generates employment and contributes to the overall development of the District.

4.6.5. Cemeteries and Crematoria

4.6.5.1. Existing cemeteries

The effective use of cemeteries to prevent the future relocation of bodies must be considered in land use planning. Rulindo District has a total of 123 existing cemeteries located in different sectors, among them 16 are not in use and 6 planned for expansion. Some of these cemeteries are situated within forests and are poorly managed and an accurate map showing their exact locations. The Rulindo District Land Use Plan (DLUP) promotes the effective use of land and the proper management of existing cemeteries as a proactive approach to address future challenges related to the re-use of cemeteries and relocation of graves and to mitigate land use conflicts.

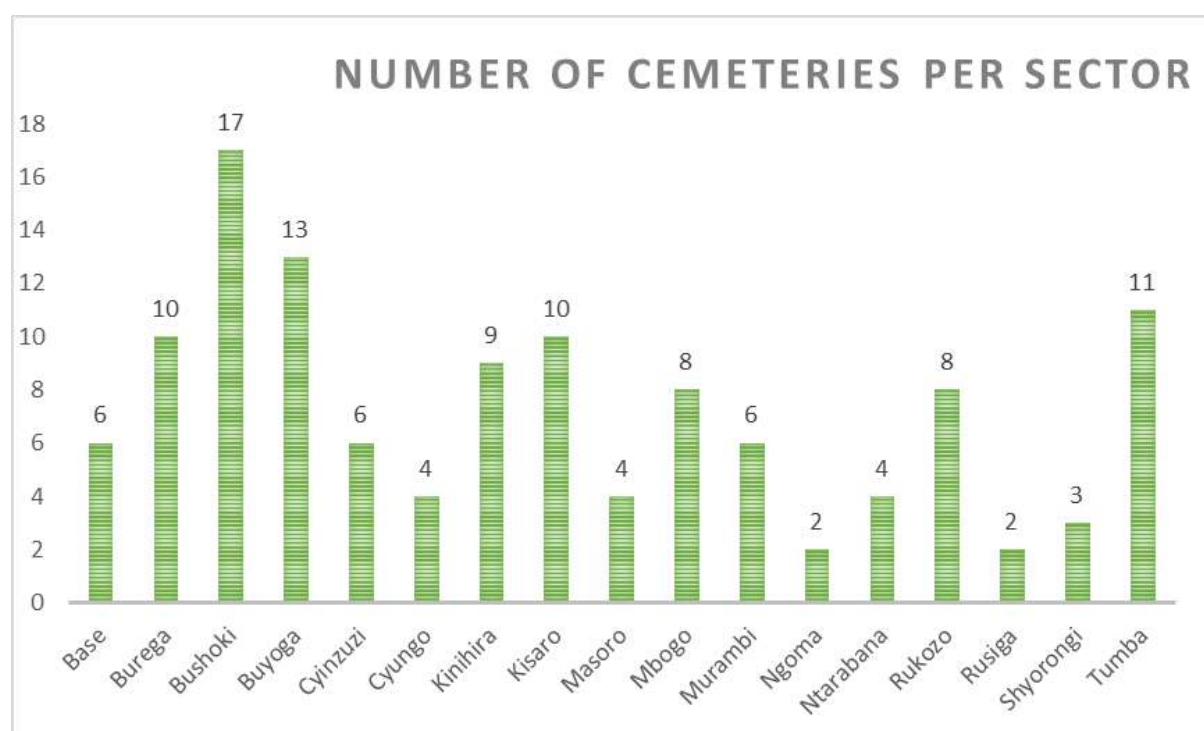


Figure 28. Existing cemeteries in Rulindo District

4.6.5.2. Planned perspectives on cemeteries and crematoria

When planning new cemeteries in areas without existing ones, several factors must be considered to create accessible and dignified spaces for honoring the deceased. One primary consideration is the location of the cemeteries. It is essential to identify suitable sites that are easily accessible to the local population, taking into account factors such as proximity to residential areas and transportation routes.

Currently, 6 cells lack existing cemeteries, requiring residents to travel long distances to access burial sites. Additionally, some cemeteries are fully utilized. In response to this need, 19 new cemeteries have been planned, and others have been expanded to accommodate the community's requirements.

Additionally, the size and capacity of the new cemeteries should be determined based on the District's population size and burial needs. Projected population and cultural practices related to burial should be taken into account to ensure adequate space for future requirements.

To establish functional cemeteries, basic infrastructure must be in place. This includes proper pathways, and signage for easy navigation. Adequate water supply and waste management facilities should be considered to maintain cleanliness and hygiene within the cemeteries.

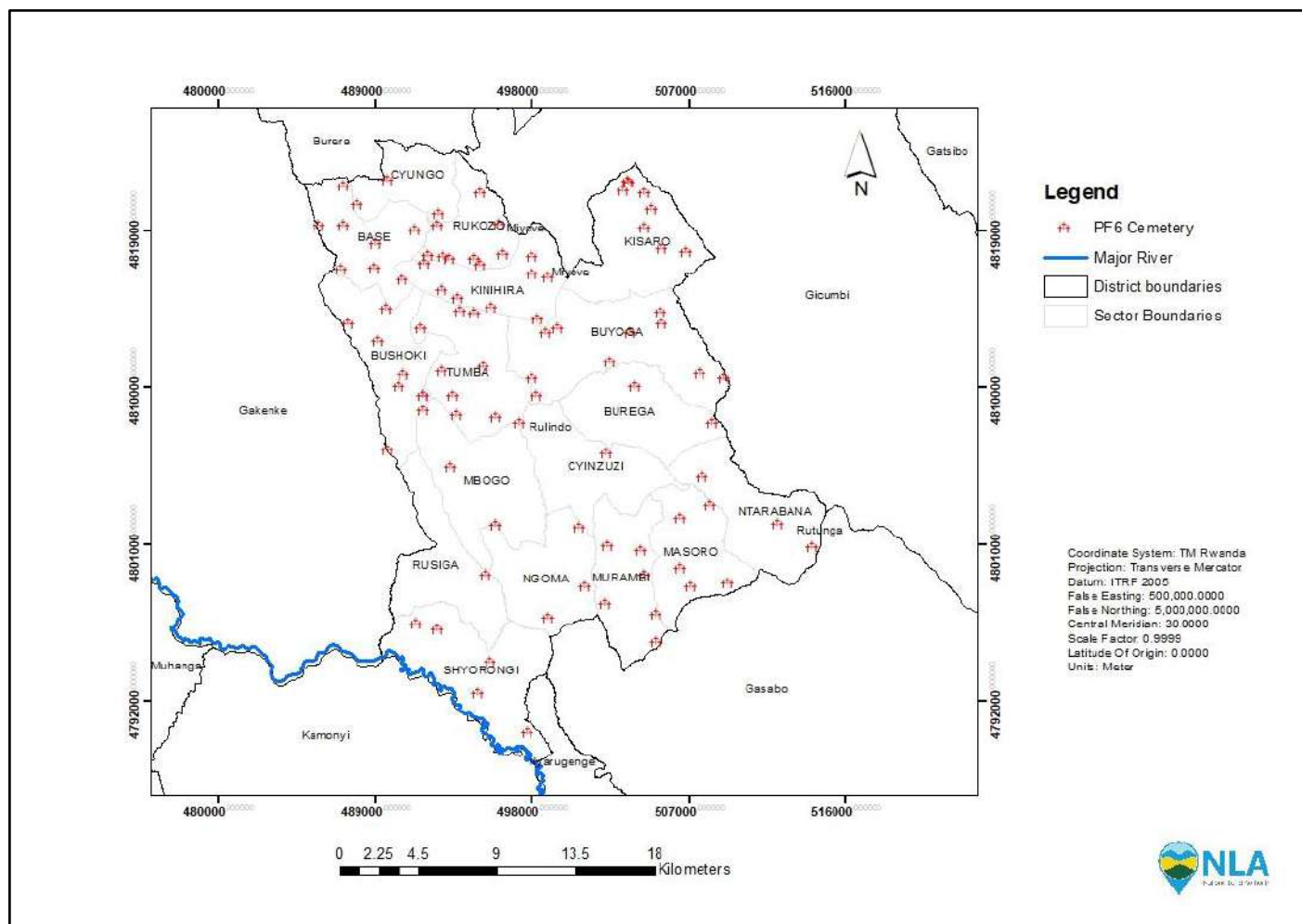
Cultural considerations play a significant role in designing and managing cemeteries. Consulting with local communities and religious leaders is crucial to understand their preferences and requirements. This ensures that the design and practices align with cultural and religious traditions, facilitating a respectful environment for families to pay their respects.

Environmental impact assessments are essential to minimise negative effects when establishing new cemeteries. Factors such as land use, vegetation preservation, and waste management practices should be carefully evaluated to reduce any potential harm to the surrounding ecosystem.

Recommendations on cemeteries in Rulindo District

The following are recommendations to consider while implementing Rulindo DLUP:

- There should be awareness campaigns and facilities for promoting cremation, so that the Rwandan communities can adapt to that culture;
- there is need to use natural degrading mechanisms of the human body instead of using tiles and concrete structures for tombs;
- The improved technology on vertical burial can allow for layering of coffins in multi-story and underground facilities;
- There is need to put in place incentives for adopting the new methods of burial.



Map 20: Showing existing and proposed cemeteries in Rulindo District

4.6.6. Genocide Memorial Sites

Rulindo District has nine existing genocide memorial sites that are well-managed. These sites play a crucial role in preserving the memory of the tragic events that occurred during the genocide against the Tutsi in 1994. They serve as important reminders of the country's history and the necessity of ensuring that such atrocities are never repeated. As part of future plans, the Mvuzo Memorial site is to be relocated to the main road, while the Rusiga memorial site has been extended.

4.6.7. Religious facilities in the District

4.6.7.1. Existing Religious facilities in the District

Religious facilities play a crucial role in providing spaces for worship, community gatherings, spiritual guidance, and cultural preservation. These facilities, such as churches, mosques, temples, synagogues,

and other sacred spaces, serve as focal points for religious observance, fostering a sense of belonging and providing individuals with opportunities for personal reflection, communal support, and the exploration of faith.

Religious affiliation in Rwanda is widespread, with the majority of the population identifying with a particular faith. Only a small fraction, approximately 3%, do not adhere to any religious beliefs. Among the various religious groups, Christianity is the most prevalent, representing 92% of the total population. Within Christianity, Catholicism is the largest denomination, practiced by around 40% of the population. Other Christian groups include ADEPR (21%), Protestants (15%), and Adventists (12%). The Muslim community constitutes approximately 2% of the population, while followers of traditional religions make up less than 1% (RPHC5, 2022).

In Rulindo District 2023, there are a total of 293 religious establishments, primarily churches. Of these, 287 are Christian churches, while the remainder serve as mosques for the Muslim community. The Christian churches are predominantly affiliated with two main denominations: ADEPR (Association des Églises de Pentecôte au Rwanda), which has 107 churches, followed by Catholicism with 68 churches, and the Seventh-day Adventist Church with 28 churches. A complete list of religious facilities can be found in the annex of this report.

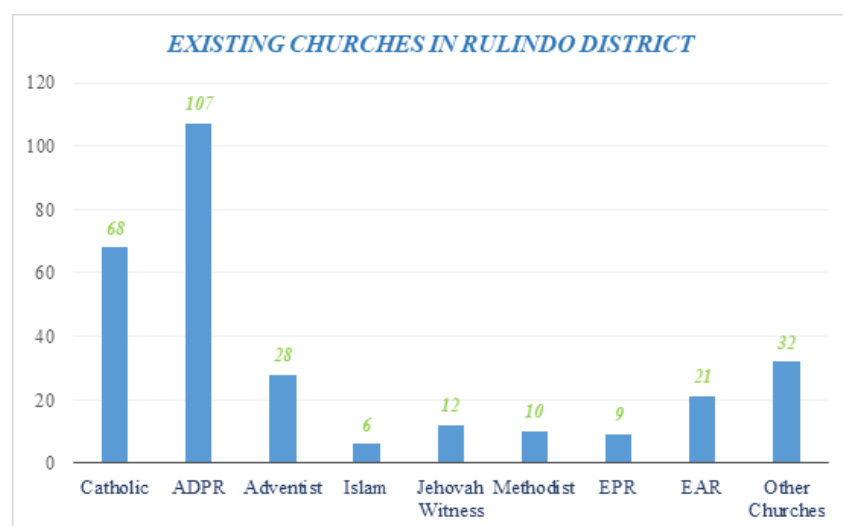


Figure 29. Existing churches in Rulindo District

4.6.7.2. Planned Religious Facilities and Future Guidelines in the District

Each neighbourhood, with a population of 15,000 to 20,000 people, should have at least one religious facility by 2050. In Rulindo District, there are currently 293 existing churches, along with a proposal for a new Catholic church in the Masoro Sector. The number of religious facilities meets or exceeds the recommended guidelines outlined in the NLUDMP 2020-2050, with an average of approximately 2.8 churches per neighborhood. Given this, the existing churches are considered sufficient, and there are no further proposals for additional churches. They are expected to adequately meet the population's demand by 2050.

Religious facilities in Rwanda should not exceed 0.5 hectares in size and must be located within designated religious facility zones. Conditional uses are permitted, including accommodations for priests and guests, small-scale commercial and retail activities, and the provision of a dining hall. These regulations are integrated into the land use plan to ensure alignment with the NLUDMP 2020-2050 guidelines.

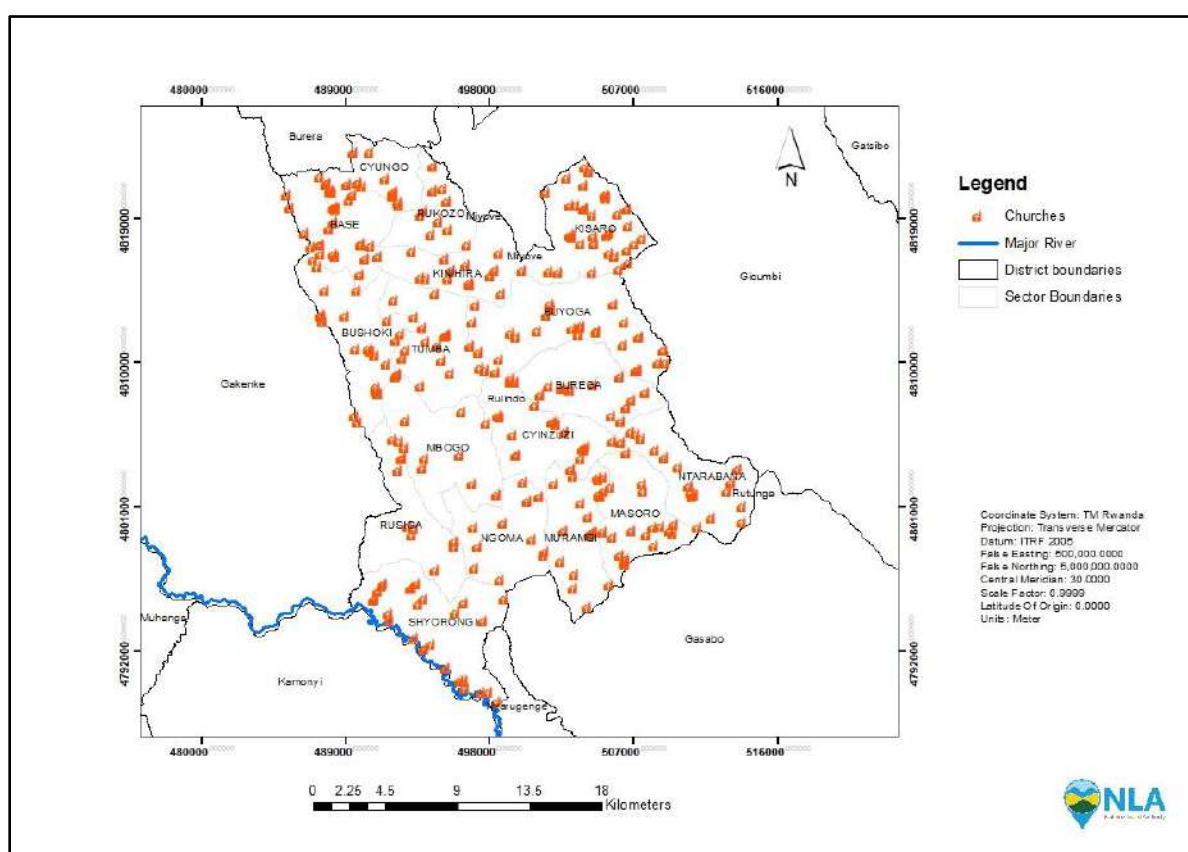


Figure 30: showing existing and planned religious facilities in Rulindo District.

4.7. Public Utilities

4.7.1. Energy

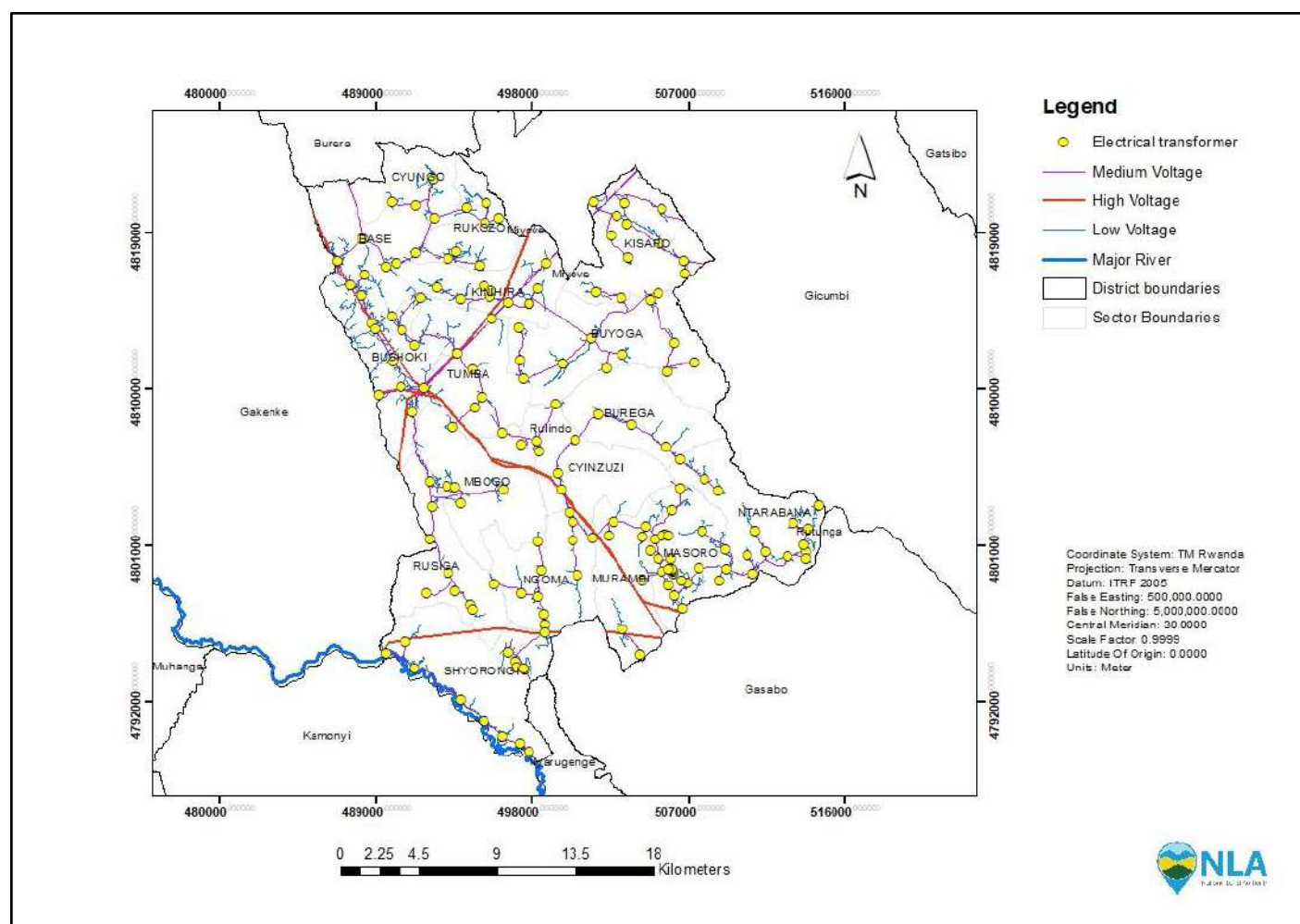
Energy is central to Rwanda's economic ambitions and development plans. It underpins all other sectors, including housing and urbanization, manufacturing, agro-processing, mining, tourism, and IT. Therefore, a well-functioning and efficient energy sector is crucial for achieving the country's national goals.

The energy sector in Rwanda comprises three sub-sectors: power, hydrocarbons, and renewable energy sources. Among the renewable sources are biomass, solar, peat, wind, geothermal, and hydropower. Biomass is the most widely used, dominating both the demand and supply sides of the Rwandan economy. Energy consumption per capita is projected to increase from 1,026 kWh in 2035 to 3,080 kWh by 2050. It is anticipated that energy capacity needs will reach approximately 3,788 MW in 2035 and 13,981 MW by 2050. A strong emphasis will be placed on ensuring an adequate and stable supply of electricity for both household and commercial purposes. (Vision 2050).

4.7.1.1. Existing situation of electricity connectivity and other sources of Energy in Rulindo District

Private households in Rulindo District utilise energy primarily for cooking and lighting, both off-grid (23%) and on-grid (33%), which serves as the primary energy source for lighting. Secondary sources include phone flashlights (36%), candles (4%), firewood (3%), and lantern lamps (1%), while firewood serves as the primary energy source for cooking (88%). Secondary energy sources for cooking are charcoal (10%), gas (1%), and the residual energy source for cooking is 1.3% (RPHC5, 2022)

Main electrical power lines and electrical facilities including high voltage, medium voltage and low voltage lines are distributed within the household. Both high and medium voltage have been given buffer zones of 25m and 12m respectively for safety purposes.



Map 21. Electricity Distribution in Rulindo District

Sectors	Total no. of HHs	No. of HHs on-grid	%	No. of HHs off.grid	%	Total No. on & off grid	%
BASE	5,239	2,423	46.25	1,261	24.07	3,684	70.32
BUREGA	3,546	1,431	40.36	1,611	45.44	3,042	85.80
BUSHOKI	6,015	812	13.50	431	7.17	1,243	20.66
BUYOGA	6,309	1,488	23.59	2,205	34.95	3,693	58.54
CYINZUZI	4,024	1,403	34.87	1,357	33.72	2,760	68.59
CYUNGO	3,917	1,474	37.63	519	13.25	1,993	50.88
KINIHIRA	4,375	2,279	52.09	896	20.48	3,175	72.56

KISARO	5,898	599	10.16	876	14.85	1,475	25.01
MASORO	6,970	2,525	36.23	1,267	18.18	3,792	54.41
MBOGO	4,875	747	15.32	2,195	45.03	2,942	60.35
MURAMBI	6,963	1,746	25.08	1,773	25.46	3,519	50.54
NGOMA	3,242	2,258	69.65	864	26.65	3,122	96.30
NTARABA NA	6,316	1,957	30.99	1,994	31.57	3,951	62.56
RUKOZO	4,344	1,498	34.49	607	13.97	2,105	48.46
RUSIGA	3,433	810	23.59	1,200	34.96	2,010	58.55
SHYORON GI	11,163	5,383	48.22	1,310	11.73	6,693	59.95
TUMBA	5,281	1,734	32.84	823	15.58	2,557	48.42
TOTAL	91,909	30,567	33.26	21,189	23.05	51,756	56.31

Table 28. Number and percentage of households with electricity

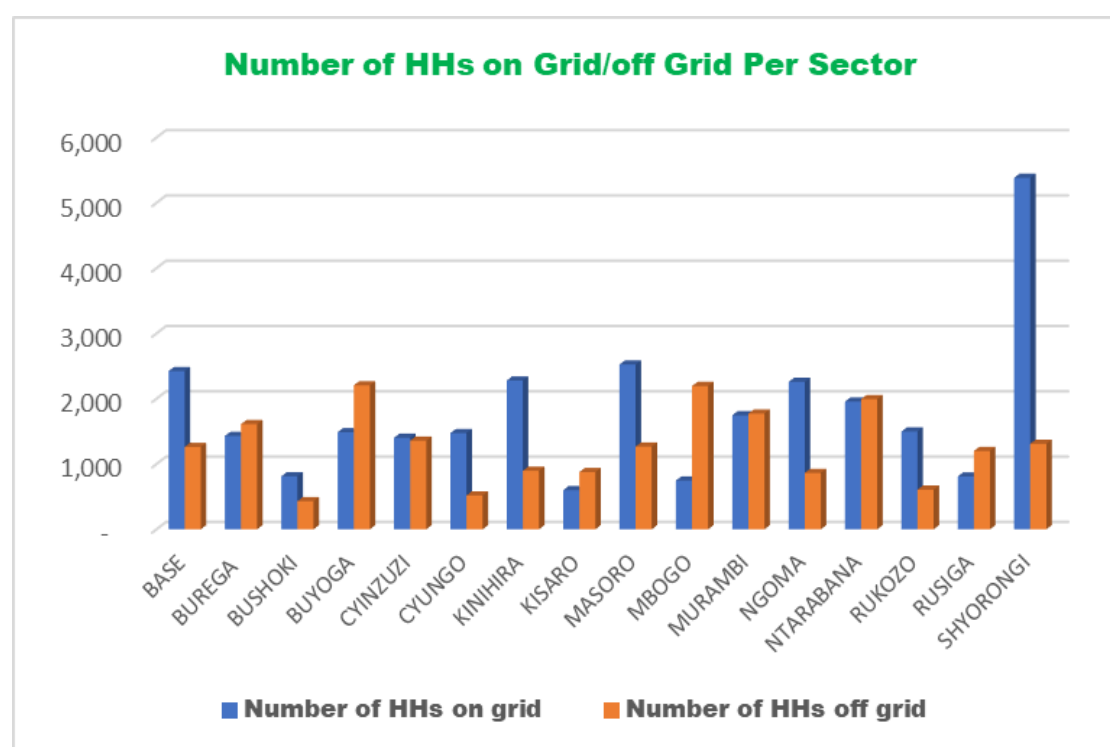


Figure 31. The number of HHs on grid/off grid per Sector

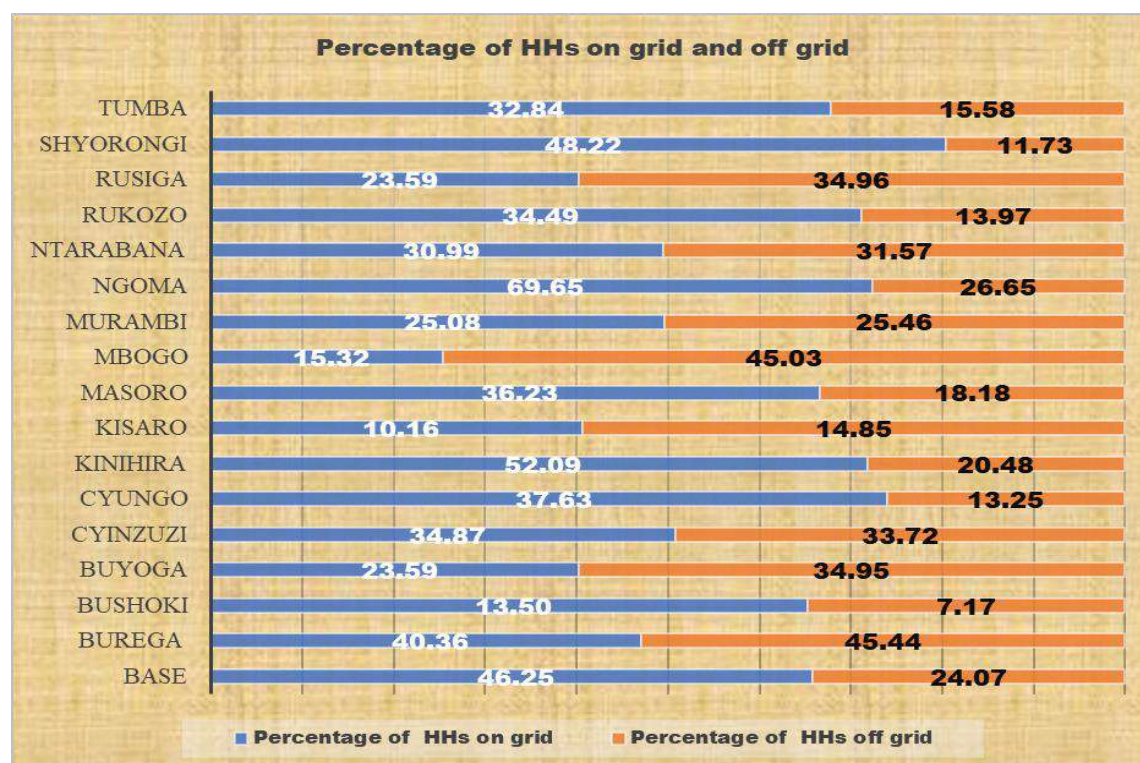


Figure 32. Percentage of HHs on grid and off grid

4.7.1.2. Electricity planning in Rulindo District

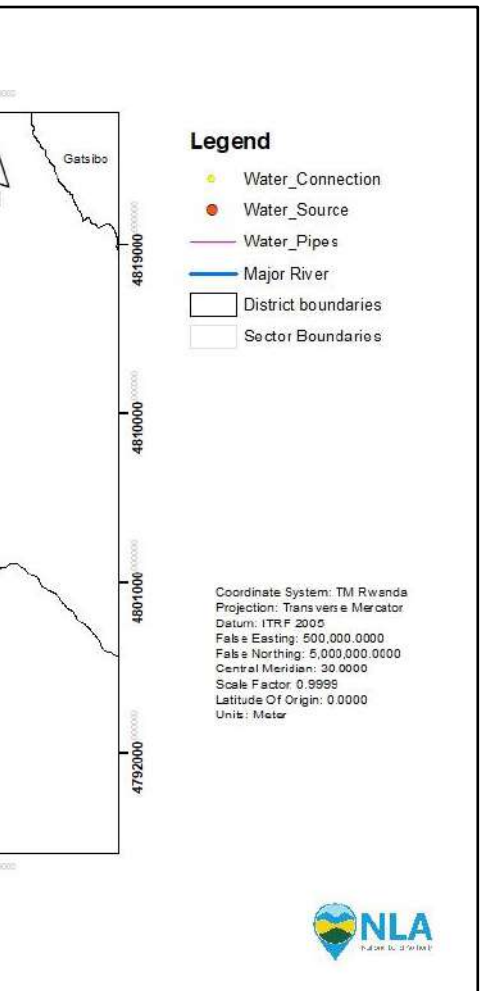
In Rulindo District, 44% of private households are not connected to the grid or to off-grid electrical systems, which impacts the district's development. To achieve 100% electricity coverage, the district will need to increase electricity distribution and the number of households with access to electricity, whether through on-grid or off-grid solutions. Additionally, efforts should focus on expanding streetlight coverage, promoting modern energy cooking technologies to reduce biomass use, and encouraging the use of renewable energy.

4.7.2. Water Utility

4.7.2.1. Existing Water connectivity in the District

Water and Sanitation Corporation (WASAC) is mainly responsible for supplying and managing potable water in the urban and rural areas. In some cases, operations and maintenance of rural water supply systems and schemes in different parts of the District are carried out by cooperatives, organised by the District.

to an improved drinking water
1.5% of private households use



No.	Source	Percentage
1	Public tap	38.2
2	Protected spring/well	39
3	Pipe borne water	7.9
4	Unprotected Spring/Well	11.5
5	Other	3.4

Table 29. Distribution of private households by main source of drinking water

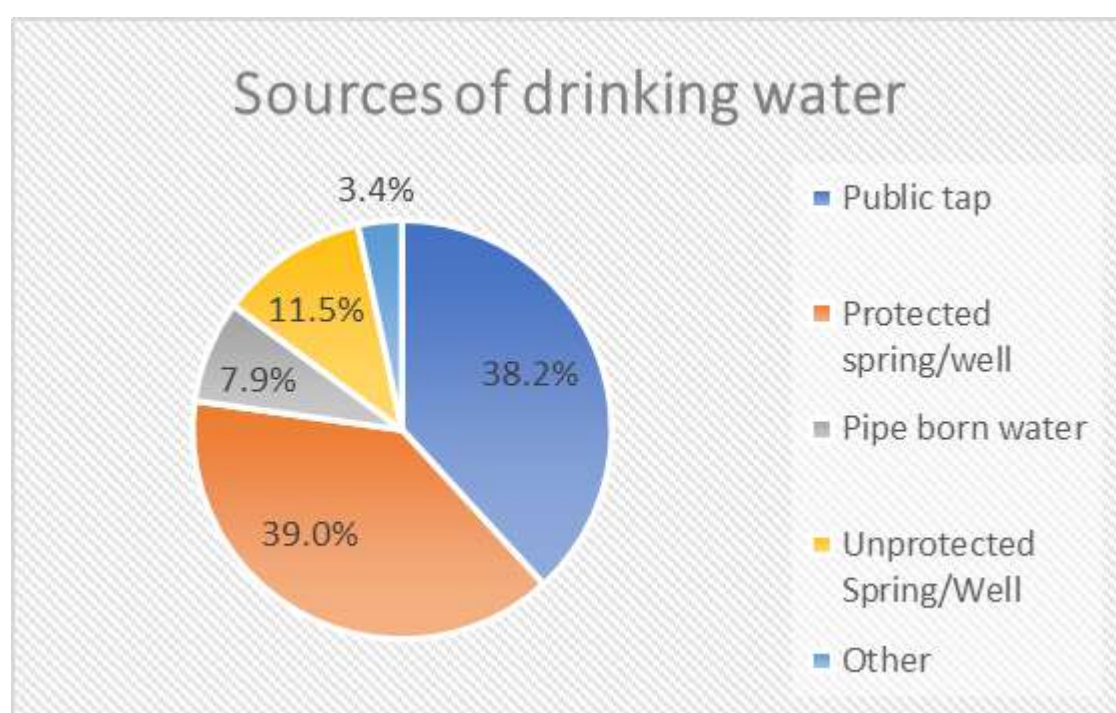


Figure 33. Source of drinking water in Rulindo District

4.7.2.2. Guidelines for Future Water Line Distribution in the District

The provision of adequate water supply and sanitation (WSS) services plays a crucial role in preventive healthcare and serves as both a prerequisite and an indicator of socio-economic development. Safe drinking water is considered a fundamental amenity, ranked among the highest priority public services by Rwanda's population.

The access to drinking water reduces time spent on fetching water and has a positive impact on school enrolment and attendance especially for girls. Absent, unsafe, water scarcity and distant water supplies are detrimental to all lives, and especially for women who are normally responsible for water collection and handling for household hygiene and for caring for the sick.

Therefore, this DLUP recommends Rulindo District to undertake the following actions to ensure there is sufficient water supply by 2035:

- a) Habitation in rural settlement sites and urban centers for easy access of households and supply of water services;
- b) Promote innovative technological options in form of gravity systems, spring protections, rainwater harvest, extending grid and solar pumping that are cost-effective;
- c) Rehabilitation and construction of new water supply systems;
- d) Protect all springs that are used for human consumption. Spring protection for piped water schemes should be optimised to make full use of the available discharge and to avoid decreasing yields. Spring protection is the most cost-effective solution, in terms of per capita investment.
- e) Promote rainwater harvesting as a complementary source of water, which is a viable option given that rainfall is relatively abundant in most regions of Rwanda and Rulindo District in particular;
- f) Introduce the improvement of water tap in 2050 as Urban in District and Rural urban in planned water supply system sustainable.

4.8. Agriculture and Livestock the District

4.8.1. Existing Agricultural Land in the District

The economy of the district is primarily driven by agriculture, which occupies 56% of the total land area and engages more than 55,400 people aged 16 and older. To prevent and control soil erosion, agriculture in the district primarily employs terraces. The district has a combined area of 29,630 hectares dedicated to progressive terraces, along with an additional 6,917 hectares allocated for radical terraces.

The modernization of agriculture to increase production is among the district's top priorities. In this context, the district actively enforces land use consolidation. An estimated 43,760 hectares of consolidated land are designated for the cultivation of maize, cassava, wheat, beans, and Irish potatoes. However, these hectares also include unprotected wetlands, and many consolidated sites have been impacted by rural

settlements, particularly in the Burega, Cyinzuzi, Buyoga, and Tumba sectors, leading to a reduction in consolidated land coverage.

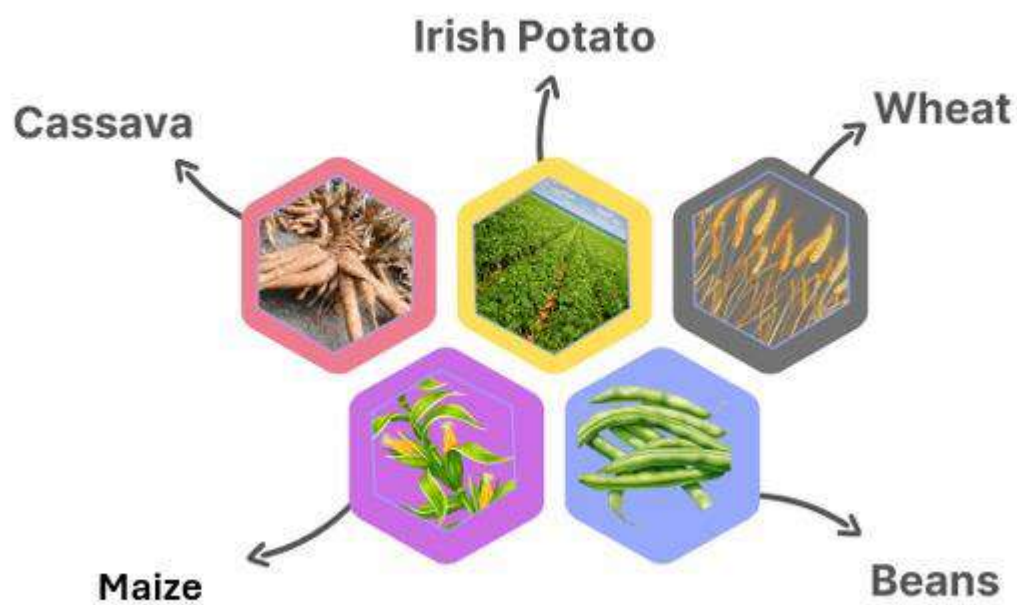


Figure 34. Main Crops in Rulindo District

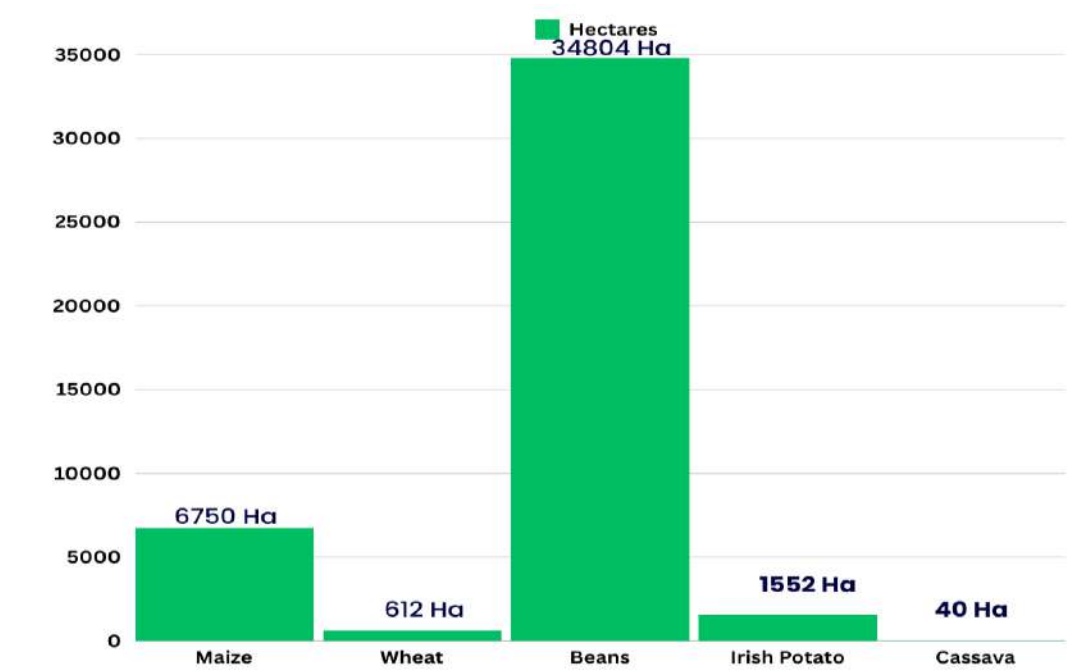


Figure 35. Total consolidated land by crop categories



Figure 36. Agricultural products in Rulindo District

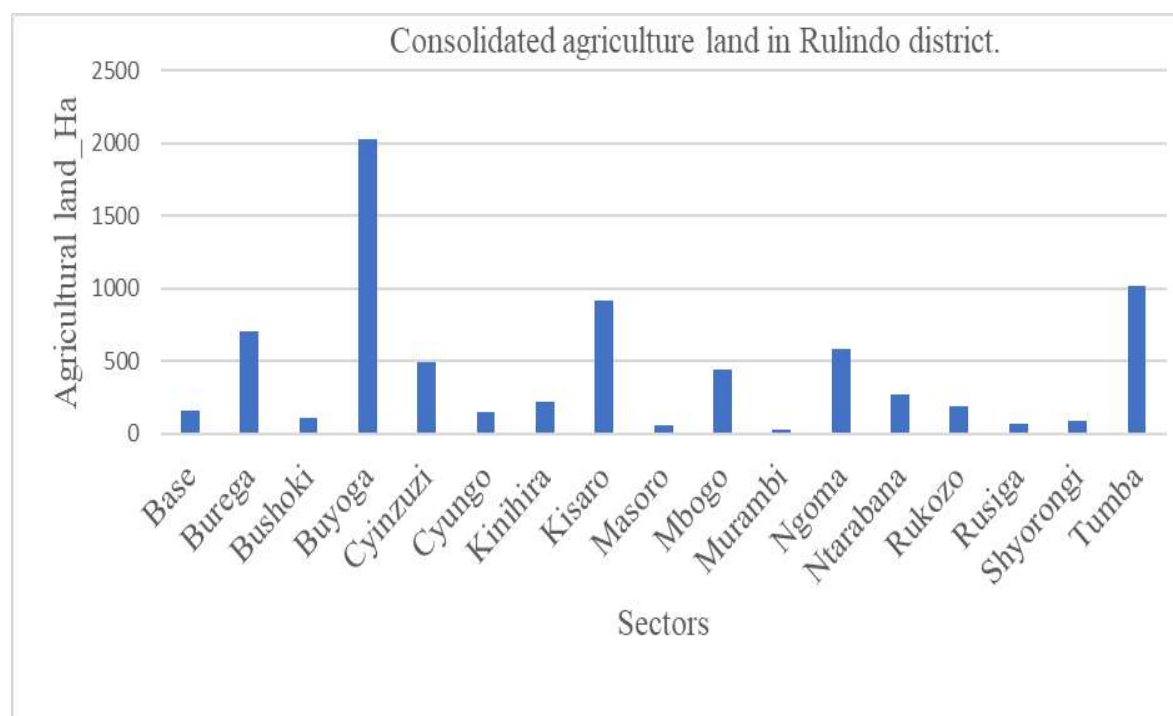


Figure 37. Consolidation of agricultural land per Sector in Rulindo District

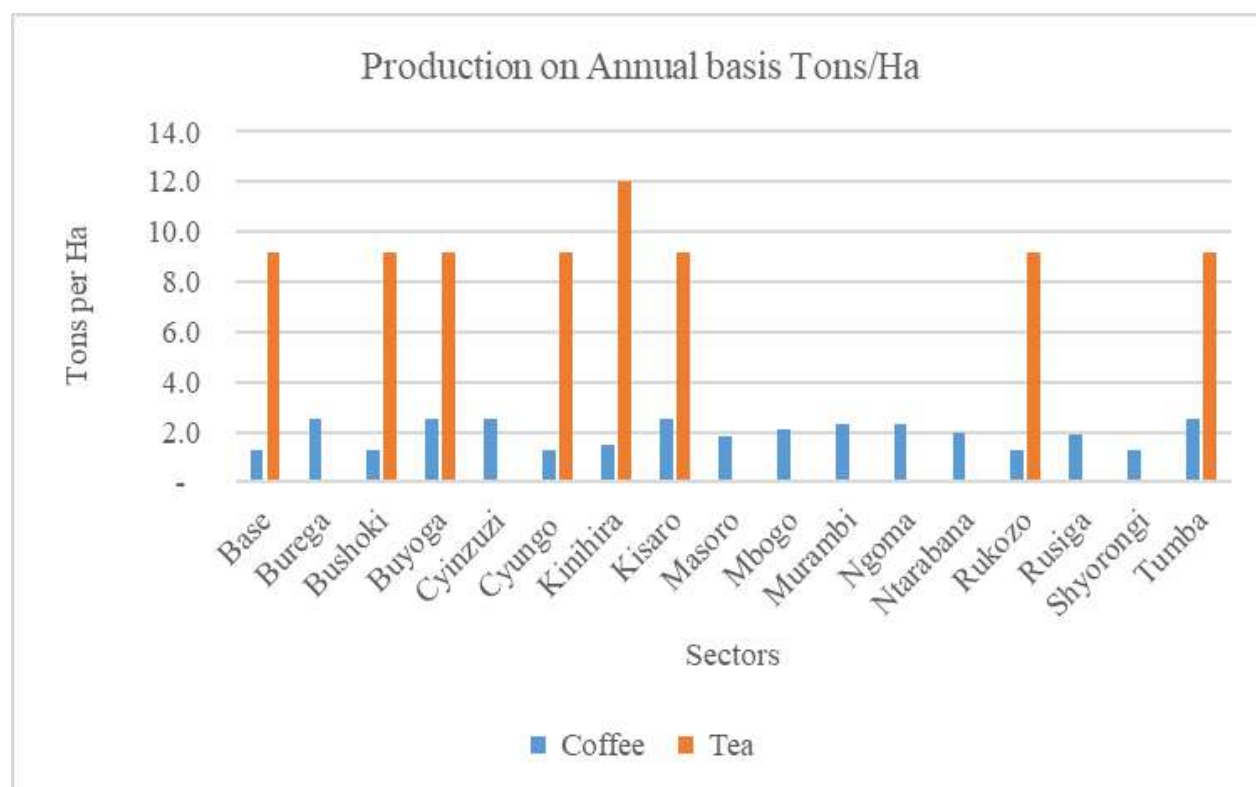


Figure 38. coffee and tea cash crops producers in Rulindo District, in 2022

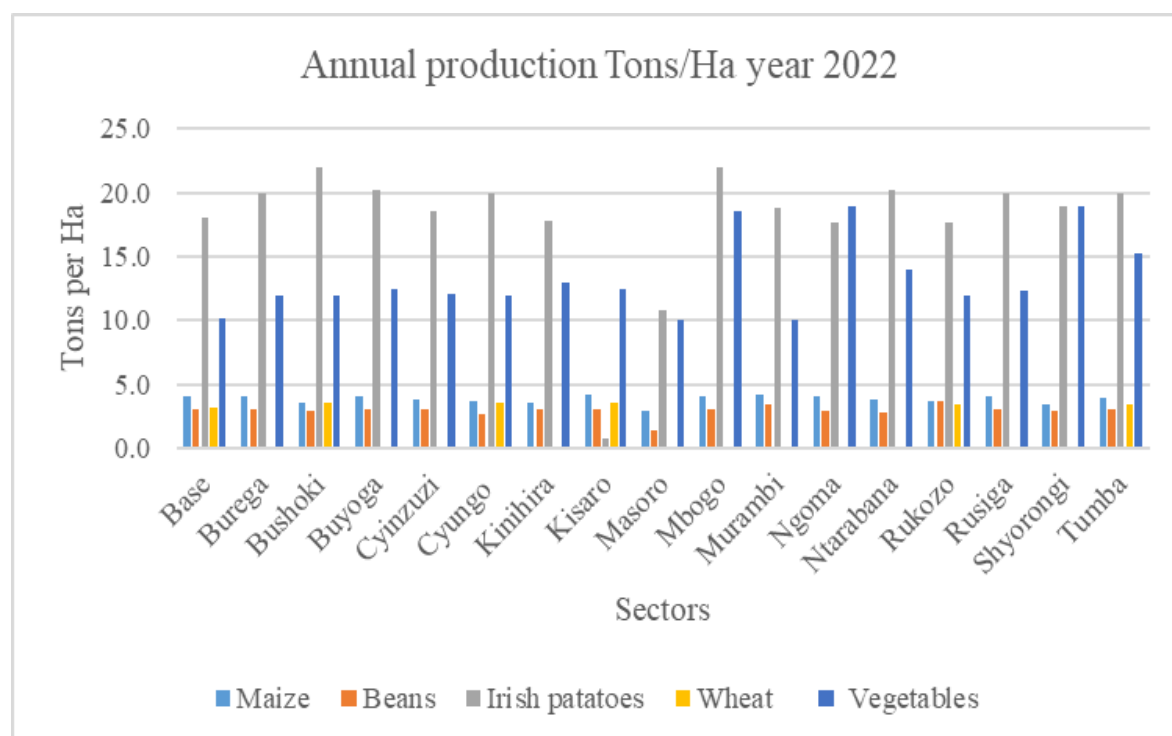


Figure 39. Main food crops per Sector in Rulindo District, Year 2022

4.8.2. Existing Irrigation Schemes in Rulindo District

To increase agricultural productivity, Rulindo District is embracing irrigation practices to reduce large dependence on rainfed agriculture which affect the production especially in dry season.

SN	Irrigated scheme	Types of irrigation	Location/Sector	Irrigated area (ha)
1	BAHIMBA	Surface irrigation	Rusiga, Bushoki, Mbogo, Base, Tumba	360
2	NYARUBUBA	Surface irrigation	Cyungo & Rukozo	74
3	YANZE	Sprinkler irrigation	Ngoma	80

4	MUYANZA	Dam	Buyoga, Ntarabana	Burega,	1100
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Table 30. Irrigated agricultural land (Ha) in Rulindo District

4.8.3. Proposed agriculture land: Agriculture Zone (A1)

Rwanda's Vision 2050 emphasizes achieving sustainable food security for the nation. In this context, existing agricultural land in Rulindo District will be protected with a focus on increasing climate-resilient agricultural productivity and agribusiness. To achieve the necessary agricultural production, it is essential to strengthen various soil protection measures, such as terraces and agroforestry, and to enhance agricultural land use consolidation. Non-consolidated agricultural land must be consolidated to boost and secure food and agricultural productivity.

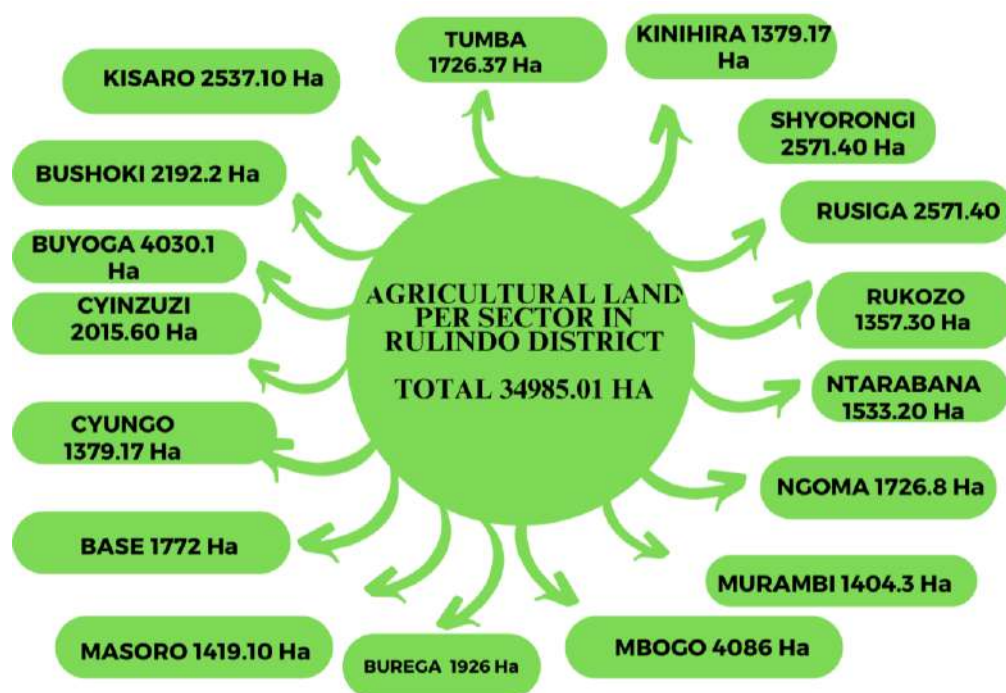


Figure 40. Agricultural land per Sector in Rulindo District

4.8.4. Existing vs Proposed Urban Agriculture

Agriculture in Rulindo District is not confined to rural areas; it also extends to urban areas. Despite greater competition for land in urban settings, urban agriculture will continue to be supported to provide food for urban households.

Table 31. Existing vs proposed urban agricultural land in Rulindo Urban areas

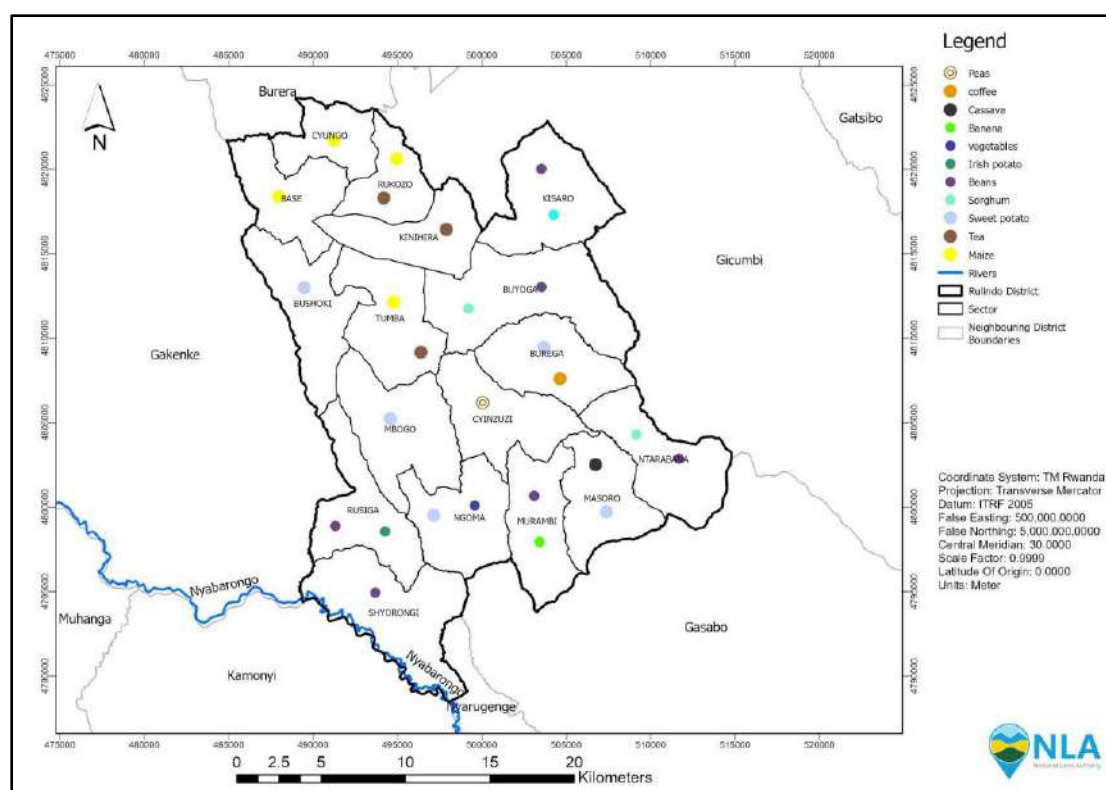
	Existing agricultural land		Proposed agricultural land	
	ha	%	ha	%
Mugote District Town Centre	115.09	51.6	21.8	9.8
Kinihira Rurban Centre	282.8	66.3	78.5	18.4
Kinini Rurban Centre	148.1	63.8	33.7	14.5
Bubangu Rurban Centre	250.51	69.5	64.5	17.9
Shyorongi Rurban Centre	284.2	76.1	7.3	1.9

While prioritizing food availability and poverty alleviation in rural areas, agribusiness plays a central role in advancing agriculture in Rwanda. Over time, there has been a gradual shift toward cultivating higher-value crops, promoting the growth of specialized high-value export crops, focusing efforts in areas with high potential, facilitating the commercialization of farming practices, encouraging the establishment of viable large-scale commercial agriculture, and connecting farmers with local and global markets.

Sustainable land use planning and management also involve categorizing land suitability for various crops. In Rulindo District, there are specific land categories suitable for maize (*Zea mays*), beans (*Phaseolus vulgaris*), sweet potatoes (*Ipomoea batatas*), soybeans (*Glycine max*), bananas (*Musa*), Arabica coffee (*Coffea arabica*), tea (*Camellia sinensis*), and wheat (*Poaceae*).

No	Sector	Crop name
1	BASE	Maize
2	CYUNGO	Maize
3	RUKOZO	Maize, Tea
4	BUSHOKI	Sweet potato
5	TUMBA	Maize, Tea
6	KINIHIRA	Tea
7	BUYOGA	Sorghum, Beans
8	BUREGA	Sweet potato, coffee
9	MBOGO	Sweet potato
10	RUSIGA	Beans, Irish potato
11	NGOMA	Sweet potato, vegetables
12	MURAMBI	Beans, banana
13	MASORO	Cassava, sweet potato
14	NTARABANA	Sorghum, Beans

Table 32. Table below shows crop suitability in Sectors



Map 23. Crop suitability per Sectors

4.8.5. Agriculture land Slope classification of in Rulindo District

Rulindo District's diverse inclines provide a range of terrains ideal for farming. Land with a slight incline, which comprises a substantial area, offers optimal conditions for agriculture. An even larger portion features moderate inclines that are also well-suited for farming. While steeper inclines may still be suitable for certain agricultural purposes, extremely steep slopes are ecologically significant and should be preserved.

Slope level	Hectares of agriculture land/ha	%
0- 6	502.9	1.8
6 -- 30	10155.9	36
30--55	12005.27	49.2

>55	3528	13
Total	26192.07	100%

Table 33. Agriculture land on slope classification in Rulindo District



Figure 41. Agriculture coverage per each Slope in percentage

Rulindo District needs to establish rules and guidelines for the protection of agricultural and livestock land by considering the following:



Figure 42. Rules and guiding terms for the protection of agricultural and livestock land

4.8.6. Livestock in Rulindo District

4.8.6.1. Existing Livestock in Rulindo District

In addition to agriculture, livestock serves as an important source of income for farming households. Rulindo District engages in the rearing of various livestock, including cows, hens, goats, rabbits, sheep, and pigs, all of which provide significant benefits to the local community in terms of milk, meat, and eggs. The district is home to a total of 54,757 cows, 39,240 goats, 19,283 sheep, 19,195 pigs, 29,947 rabbits, and 133,466 hens.

4.8.6.2. Proposed Livestock in Rulindo District

According to the proposed land use plan for Rulindo District, livestock (A2) covers 63 hectares and is primarily found in the Rusiga, Mbogo, and Kisaro sectors. Poultry farming is the dominant livestock

activity in the district, particularly in the Mbogo Sector, especially in Kinini Rurban centre. It is expected that poultry farming will continue to expand in Kinini Rurban Centre. Given that the land for livestock farming is very limited in Rulindo, this plan recommends to prioritize zero grazing and modern livestock farming.

4.9. Environmental and natural resources

A healthy environment is a key prerequisite for improving quality of life, achieving sustainable economic growth, and reducing poverty, all of which are core objectives of the Rulindo District Land Use Plan (DLUP). According to the National Land Use Development Master Plan (NLUDMP) 2020-2050, Rwanda's economy is based on natural resources, making environmental and climate change issues a top priority and a cross-cutting concern that must be addressed in various medium- and long-term national planning and strategic documents. A crucial aspect of implementing the NLUDMP 2020-2050 is ensuring the harmonization of land allocation across sectors while simultaneously focusing on the conservation of natural resources and promoting their sustainable use.

Increased public awareness of environmental protection and climate change resilience can be achieved by strengthening environmental committees, raising public awareness, and conducting Environmental Impact Assessments (EIAs) for all eligible projects. Environmental committees at the district and sector levels, along with clubs, should be established or reinforced and trained in environmental protection and sustainability to enhance interventions for environmental protection and climate change resilience.

4.9.1. Environmental Hazards in the District.

Rulindo District is affected by intense rainfall, which causes landslides that result in significant damage to structures, infrastructure, agricultural land, and loss of life. Heavy rainfall in built-up areas triggers landslides and flooding, leading to the displacement of residents. Additionally, landslides and sedimentation from the hillsides impact other land uses by depositing debris into rivers, wetlands, and roads, affecting both economic activities and ecosystems. In Rulindo District, landslides have become a notable environmental hazard, particularly in the hillside areas. Measures to conserve the environment include:

- Improving vegetation by planting trees on hillsides (afforestation);

- Developing terraces in areas that appear to have failed due to landslides as well as applying agroforestry were possible within agriculture land;



Figure 43. Pictures showing environmental hazards in Rulindo District.

4.9.2. Protected Areas in the District

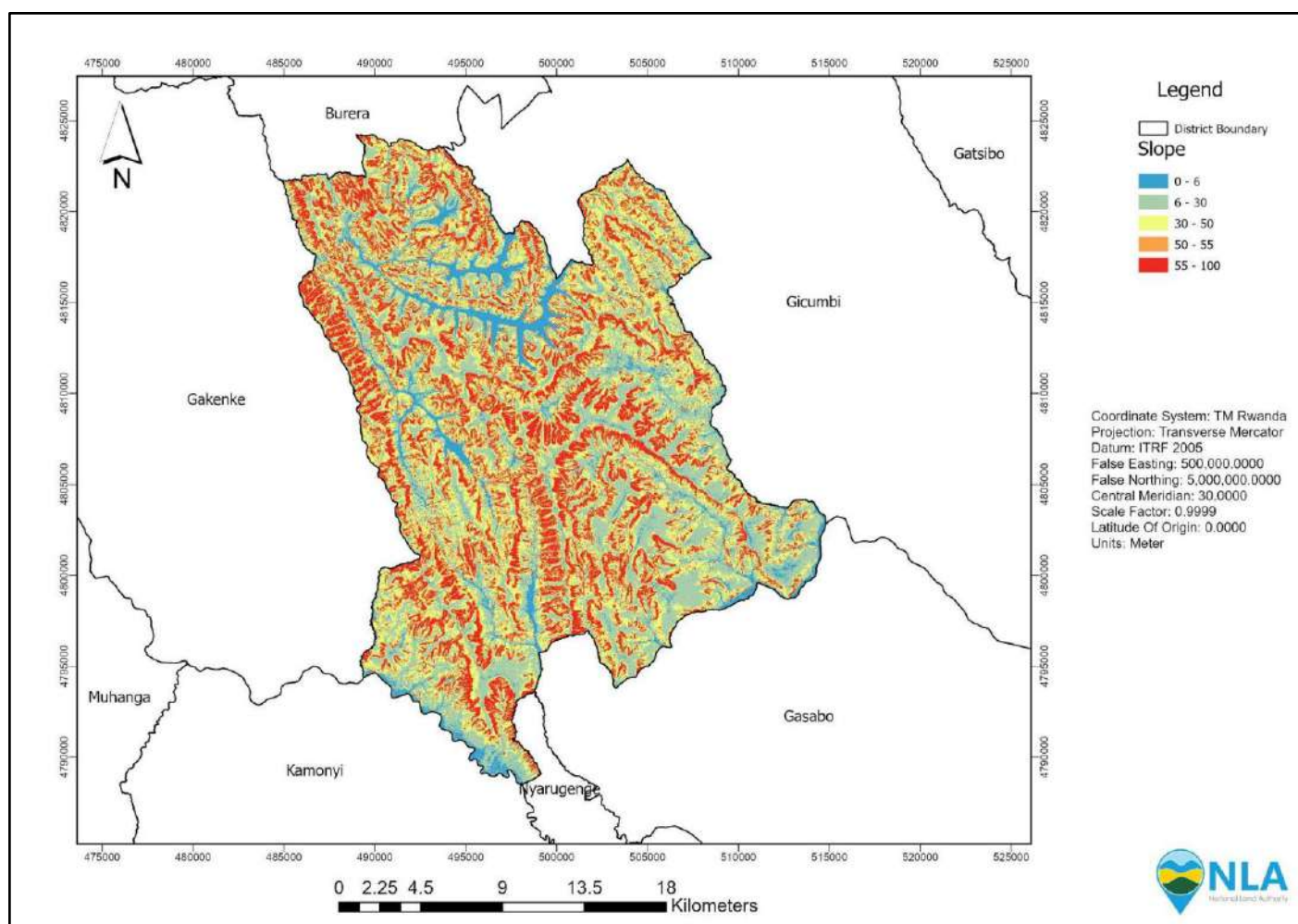
According to the NLUDMP 2020-2050 and the State of Environmental Outlook Report (2021), protected areas in Rwanda include water bodies, wetlands, natural forests (such as savannahs, national parks, and remnants of gallery forests), forest plantations dominated by exotic species (including *Eucalyptus* spp., *Pinus* spp., and *Grevillea robusta*), as well as trees scattered on farmlands (agroforestry) and along anti-erosion ditches. Rulindo District contains several protected areas, including sensitive zones covered by radical and progressive terraces, water bodies, wetlands, forest plantations, and agroforestry, all of which serve economic purposes and provide essential ecosystem services.

4.9.3. Forestry

4.9.3.1. Existing Forest Plantations in the District

Forests in Rulindo District account for 26% of the total forested area in the Northern Province and occupy 26% of the district's land, amounting to approximately 14,800 hectares. These forests are dominated by various tree species, including *Eucalyptus* (spp., maiden, and saligna), *Callitris* spp., and *Alnus acuminata*. They provide several benefits to the district, particularly in terms of soil conservation and nutrient cycling. However, forest cover in the district has decreased due to various factors, including human settlements and related impacts such as deforestation for firewood.

ecologically sensitive areas and the accordingly, the Rulindo District for forest zones, which cover the land with high slopes (above cover, along with undertaking tion. Additionally, there is an t plan and plantation practices



Map 25. Slope Zone in Rulindo District

In addition, the district should identify areas to restore the productivity of forestland while promoting afforestation to enhance forest cover. It is essential that the Rulindo District forest management plan, which emphasizes value addition and industrial use of forests, is established to support the forest industry during the reforestation of degraded areas, ultimately improving forest productivity in the district.

Given Rulindo District's vulnerability to landslides caused by heavy rains, the forest management plan should align with the protection of land prone to natural disasters. This approach will help adapt to the effects of climate change through strategic afforestation, plantation management, and harvesting. Furthermore, in light of both legal and illegal mining activities impacting the landscape and environment, a strategic plan is needed for the restoration of disused or abandoned mining sites, along with the implementation of Environmental Impact Assessments (EIAs) for all ongoing mining operations.

Furthermore, Rulindo District must promote other sources of energy for cooking like gas and charcoal made from plant debris instead of using firewood, as these are amongst causes that accelerate deforestation and forest degradation in the District and the country in general. Private forests should also be subject to simplified forest management plans to ensure that they are harvested according to the agreed plans within the District, under the supervision of the District Forest officer.

4.9.4. Wetland Land

Rwanda has a rich wetland cover of approximately 276,477 hectares, with 74% of the total wetlands designated for conditional exploitation, 6% under full exploitation, and 20% fully protected (Prime Minister Order, 2016). These wetlands provide critical habitats for wildlife and biodiversity, maintain essential hydrologic processes that clean and protect surface and groundwater, and support various local livelihoods. Additionally, wetlands play a significant role in adapting to climate change. They can buffer large volumes of water during heavy rains, preventing downstream flooding and mitigating erosion and soil loss. Furthermore, wetlands retain water in the landscape, helping to alleviate the effects of drought.

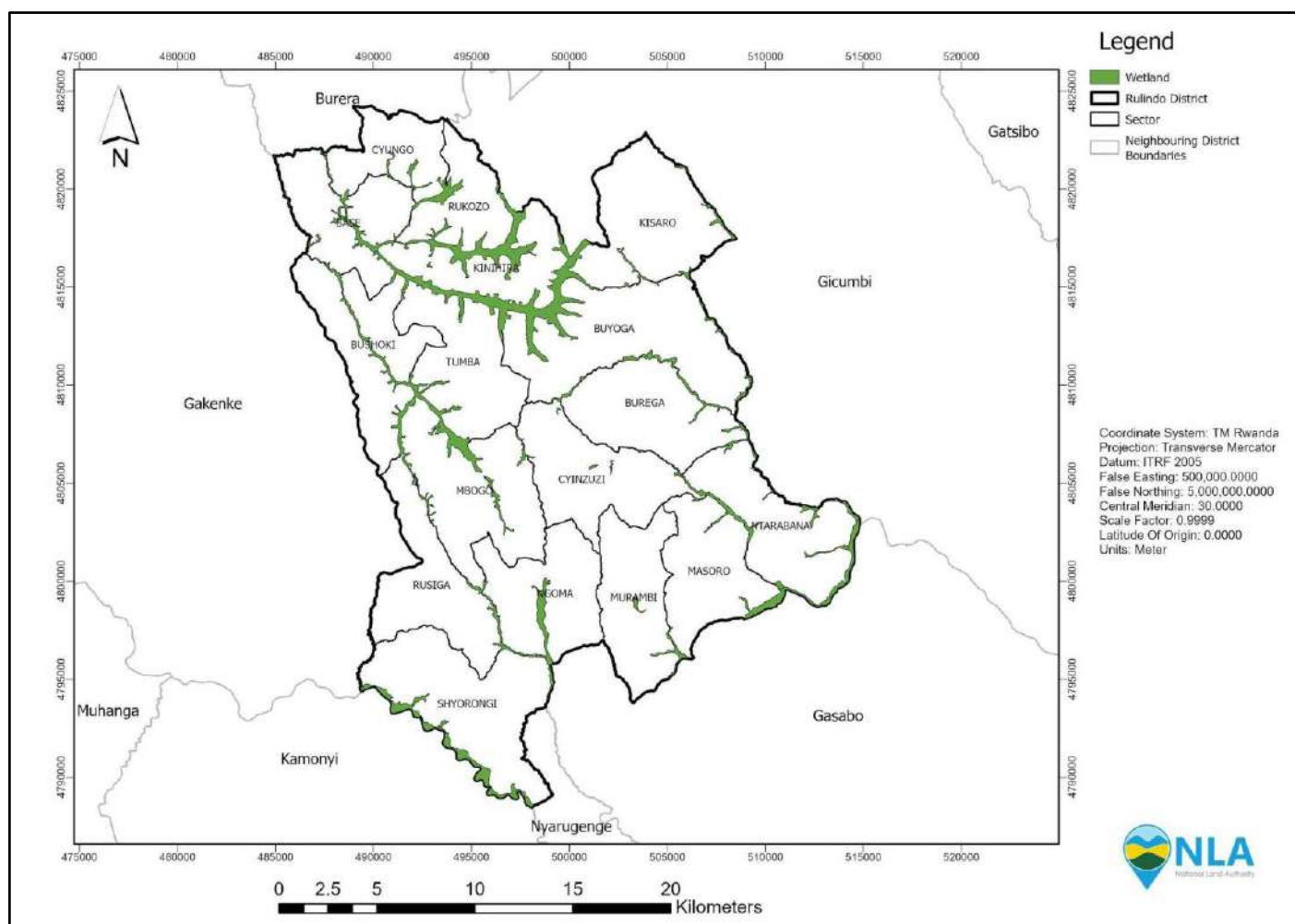
4.9.4.1. Wetlands in the District

Rulindo District has 3,182 hectares of wetlands, or swamplands, primarily due to its topography, which is characterized by steep hills separated by rivers, streams, and wetlands. Additionally, wetland buffer zones cover an extra 331 hectares.

The largest wetland in Rulindo District is Nyabarongo, covering nearly 80 hectares. It is managed under conditional operation, currently used for cultivating crops such as maize, beans, vegetables, and sugar cane, and it supports a variety of insects and amphibians. The highest concentration of wetlands is found in the sectors of Shyorongi, Kinihira, Base, Cyungo, Rukozo, and Mbogo.

Other wetlands in Rulindo District include Nyarububa, Gitandi, Kabindi (Gatobero), Nyamagana, Bahimba, Muyanza, Mwange, Muzenzo, Rusine, and Yanze, which collectively cover an area of 3,182 hectares. All wetlands in the district are classified as unprotected and are primarily used for agriculture. The main crops cultivated in these wetlands are maize, vegetables, beans, pepper, and stevia. Five wetlands—Nyarububa, Gitandi, Bahimba, and Muyanza—are equipped with irrigation systems, while others remain undeveloped.

The wetland buffer was established to conserve wetlands and protect the ecological integrity of environmentally sensitive areas from unsustainable exploitation, ensuring public health and general welfare. The intent is to control and sustainably guide the use of wetlands and their surroundings for social, economic, and cultural purposes. However, these buffer zones are often not respected. During field visits, the NLA Team observed that most buffer zones are used for agricultural activities, which can lead to erosion and land deterioration.



Map 26. Showing spatial distribution of wetland/swamp land in Rulindo District

4.9.4.2. Planned Perspectives on wetlands land in Rulindo District

Emphasizing the integration of wetland conservation and buffer zone protection in land use planning, sustainable practices should be promoted. The land use zoning regulations and setback requirements aim to safeguard buffer zones from encroachment and harmful practices. In the district, wetlands are zoned as

unprotected and designated for agricultural use. The following recommendations should guide the management of wetlands:

- To conduct a feasibility study on preservation and protection of Nyabarongo wetland;
- To conduct a feasibility study on wetlands for conditional use, e.g. recreation, research, tourism;
- Conservation of all wetland buffers zones as per the zoning regulations;
- To conduct an in-depth study on the systematic restoration of degraded wetlands.
- The District, together with stakeholders, are to ensure development and enforcement of Environmental Impact Assessments (EIA) to ensure sustainable utilisation of wetlands.

4.9.5. Water Bodies

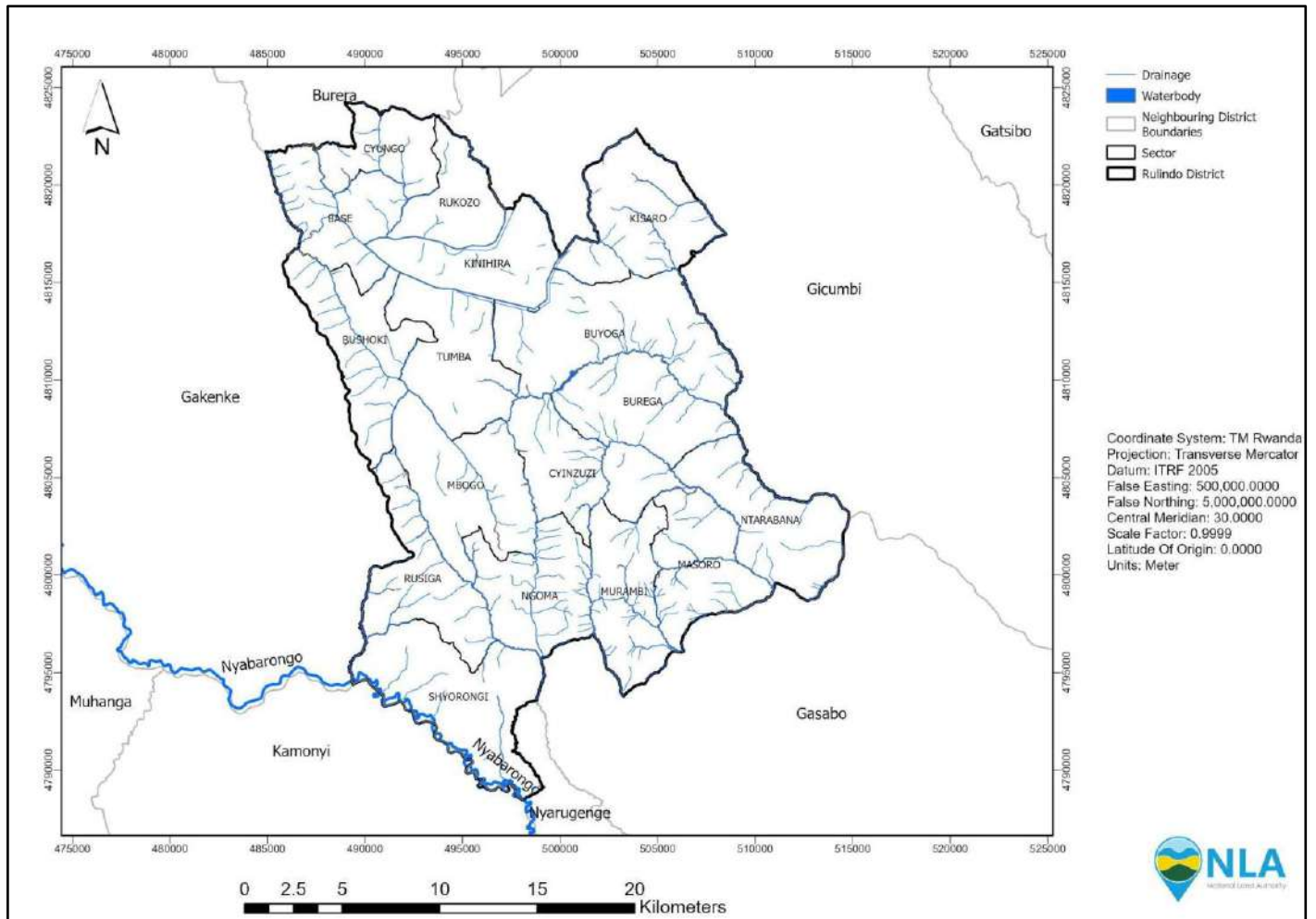
4.9.5.1. Existing Situation on Water Bodies in Rulindo District

Rulindo District is hydrologically located in Nyabarongo lower catchment, Nile Basin. It has access to River Nyabarongo, which is a large river in Rulindo District. Other main rivers include Yanze, Bahimba, Base and Rusine. One main river runs alongside the district border, Nyabarongo River in the south.

Due to erosion caused by agricultural activities on steep slopes, water runoff carries fertile soil into the Base and Nyabarongo Rivers, ultimately reaching the Nile River. Therefore, measures should be implemented to reduce the high volume of sediments discharged into these rivers. Water bodies cover 227 hectares in the district, and there is one irrigation dam with a capacity of 2.3 million cubic meters. The dam is 26 meters high and covers an area of 1,100 hectares.



Figure 44. Showing Muyanza Site water reservoir in Rulindo District



Map 27. Spatial distribution of water bodies in Rulindo District

4.9.5.2. Planning Perspectives

Water bodies must be protected for their economic and ecological value. The planned buffer zones, which are 10 meters along rivers and 50 meters around the dam, cover an area of 236.5 hectares. These buffer zones can be utilized for forestry with appropriate tree species, tourism, and conservation planting, such as bamboo. Additionally, there is a need to establish sustainable farming practices that enhance yields while limiting sediment runoff from agricultural land. There is also an opportunity for water-based transport, guided by REMA, RWB, MININFRA, and other relevant institutions.

4.9.6. Mining situation in Rulindo District

Rwanda is rich in various minerals, including cassiterite (SnO_2), wolframite $[(\text{Fe},\text{Mn})\text{WO}_4]$, colombo tantalite $[(\text{Fe},\text{Mn})(\text{Nb},\text{Ta})_2\text{O}_6]$, gold, and iron, as well as gemstones such as amethyst, sapphire, and tourmaline. Other resources include quarry stones used in the construction industry, such as amphibolite, granite, quartzite, volcanic rocks, clay, kaolin, dolomite, sand, and gravel (RMB, 2022). Trinity Metals, located in Rulindo District, is engaged in mining activities in the Shyorongi, Masoro, Cyinzuzi, and Burega sectors, extracting major minerals such as cassiterite, coltan, and lithium. The company employs 2,335 people, all of whom have insurance, a solidarity fund, and membership in a women's association. The Rutongo mine spans an area of 9,125 hectares and consists of 27 blocks.

However, there is conflict between the local population and mining activities, particularly near storage facilities for explosives. The buffer zone between residential areas and warehouses containing explosives is set at 500 meters, and the vibration distance varies depending on the type of explosive used. In Rulindo District, mining activities are divided into 25% governmental and 75% private sectors.

4.9.7. Planning perspectives on mining in Rulindo District

Mining is a key sector for Rulindo's development. The District aims for a vibrant, efficient and responsible mining sector spurring sustainable economic development of the community. This DLUP recommends to use the following action for a well-developed and sustained mining sector:

- Sensitise cooperatives and companies to move from traditional to modern mining activities that have less negative impact on landscape and the environment;
- Undertake landscape rehabilitation initiatives for disused or abandoned mining sites;
- Consolidating small mining concessions into District mining blocks to meet national quality standards;
- Promote value addition and processing of mining products for growth and employment;
- Post mining land uses are recommended for all abandoned mines and quarries;
- Reforestation of exploited mining sites for environment protection, biodiversity enhancement and human protection.



Figure 45. Rutongo mining sites in Masoro Sector

4.9.8. Waste management in the District

The amount of solid waste is increasing as a result of rapid growth and migration from rural to urban areas. The fast urban population increase has a significant socio-economic and environmental influence

on solid waste management techniques. The Rwandan goal is to provide 100% of the population with access to an improved type of sanitation system.

4.9.8.1. Solid Waste: Existing Situation

In Rulindo District, there are no solid waste collection services. Waste from local markets is thrown in fields or bushes and burnt during the evening. Solid waste management in the District is characterised by:

- ❖ Lack of solid waste collection and transport system in general;
- ❖ Lack of waste collection system leading to sanitation challenges at household level.
- ❖ Lack of suitable and well managed waste transfer stations;
- ❖ Lack of segregation framework of solid waste at their sources (solid waste mixture);
- ❖ Lack of a solid waste management system leading to environmental pollution.

Overall, most of the population disposes of their waste within their own plots. In both urban and rural settlement areas, waste is often disposed of in fields. Additionally, some commercial areas lack sufficient waste collection systems. However, certain rural settlement sites and commercial facilities have established local disposal sites, including Rusine Market, Buyoga Trading Centre, Cyinzuzi Sector, and Kinihira Rurban.

Types of waste generated in Rulindo District:

Types of waste generated in Rulindo District are classified into 3 main categories:

- ✓ Organic Waste – The biodegradable waste is the main type of waste generated. Examples of organic waste are food waste, biomass and garden waste. They are usually disposed of directly into the open land in some areas or used as compost.
- ✓ Non-organic Waste – Electronics, plastic, paper, glass, metal, and combustibles are the most common materials of the non-biodegradable waste mainly from light industries and commercial areas. Recycling of non-organic waste is not common. However, there is a national ban on the use of plastic bags which has helped to reduce the volume of plastic waste in the District.

- ✓ Hazardous Waste – Any waste that poses threat to human health or the environment is classified as hazardous waste. They are mainly generated by hospitals, heavy industries and other facilities. Currently, hazardous waste from Kinihira Hospital is disposed of at incinerators and is not taken to a dump site.



Figure 46. Construction of disposal site of Rusine Market in Masoro Sector



Figure 47. Unsuitable disposal site in settlement sites

4.9.8.2. Solid Waste: Planning Perspectives

A transfer station plays a vital role in solid waste management by providing a centralized location for waste consolidation, sorting, and transfer. It improves the efficiency of waste transportation, facilitates recycling efforts, and ensures proper disposal of non-recyclable waste. It is proposed that the decentralized waste treatment plant in Base Sector be extended by constructing a transfer station to enhance solid waste management within the District before waste is transported to the main regional landfill planned for Musanze District. To enable effective recycling and reuse, it is recommended that the transfer station comply with the designated waste categories: organic, non-organic, and hazardous waste.

To prevent waste from being randomly dumped, an efficient waste collection system must be established, alongside a public awareness campaign in urban areas and the main emerging center. Additionally, recycling practices should be introduced in all settlements to promote resource sustainability and land use efficiency. There is a need for coordination and collaboration among relevant government agencies, stakeholders, and communities to ensure a comprehensive and sustainable approach to waste management.

The District and relevant stakeholders should engage in public awareness campaigns, education, and community engagement initiatives to promote waste reduction, proper waste disposal, and recycling practices to foster a sense of ownership among citizens that will contribute to the success of waste management efforts.

Considering the economic factor, the waste management plan should recognize the financial aspects of solid waste management. This requires thorough research on the cost-effectiveness of various waste management options, taking into account investment requirements, operational and maintenance costs, and potential revenue streams from waste recovery or recycling. Economic incentives and mechanisms, such as extended producer responsibility and waste-to-energy incentives, should also be explored to encourage sustainable waste management practices.

4.9.8.3. Liquid Waste

a) Existing Situation

The current methods of waste water disposal in Rulindo District include on-site containment systems such as pit latrines and septic tanks found in available institutions and few households. In most cases, when the

pits are full, they are abandoned and replaced with a new one in a different location. In some cases, particularly for institutions, the pit latrines are emptied and the sewage is transported to a designated collection site.



Figure 48. Wastewater treatment plant in Base Sector

b) Planning Perspectives

On-site sanitation and semi centralised systems, on a small scale, remain the most viable options for the disposal of wastewater in rural areas. Only in areas where the population densities are high, will it be practical to provide a piped sewer network.

A feasibility study on liquid waste management is recommended, considering the existing urban infrastructure, population density, and projected population growth within the District, with a focus on the high density areas within urban and rural areas. It would include identifying suitable routes for sewer pipelines, determining the capacity of treatment plants, and considering environmental factors.

It is recommended that the waste management plan recognizes that a centralised sewerage system may not be feasible or cost-effective for all areas in Rulindo District. There should be an assessment on the remaining areas to determine suitable on-site sanitation solutions, such as improved pit latrines, decentralised wastewater treatment systems, or other appropriate technologies. The plan would consider factors such as population density, geographic conditions, cultural practices, and community preferences to identify the most suitable options.

In addition, careful water source monitoring is required due to pollution from industries and mining activities. District technicians should be trained on sustainable wastewater management measures.

4.9.9. Stormwater Management

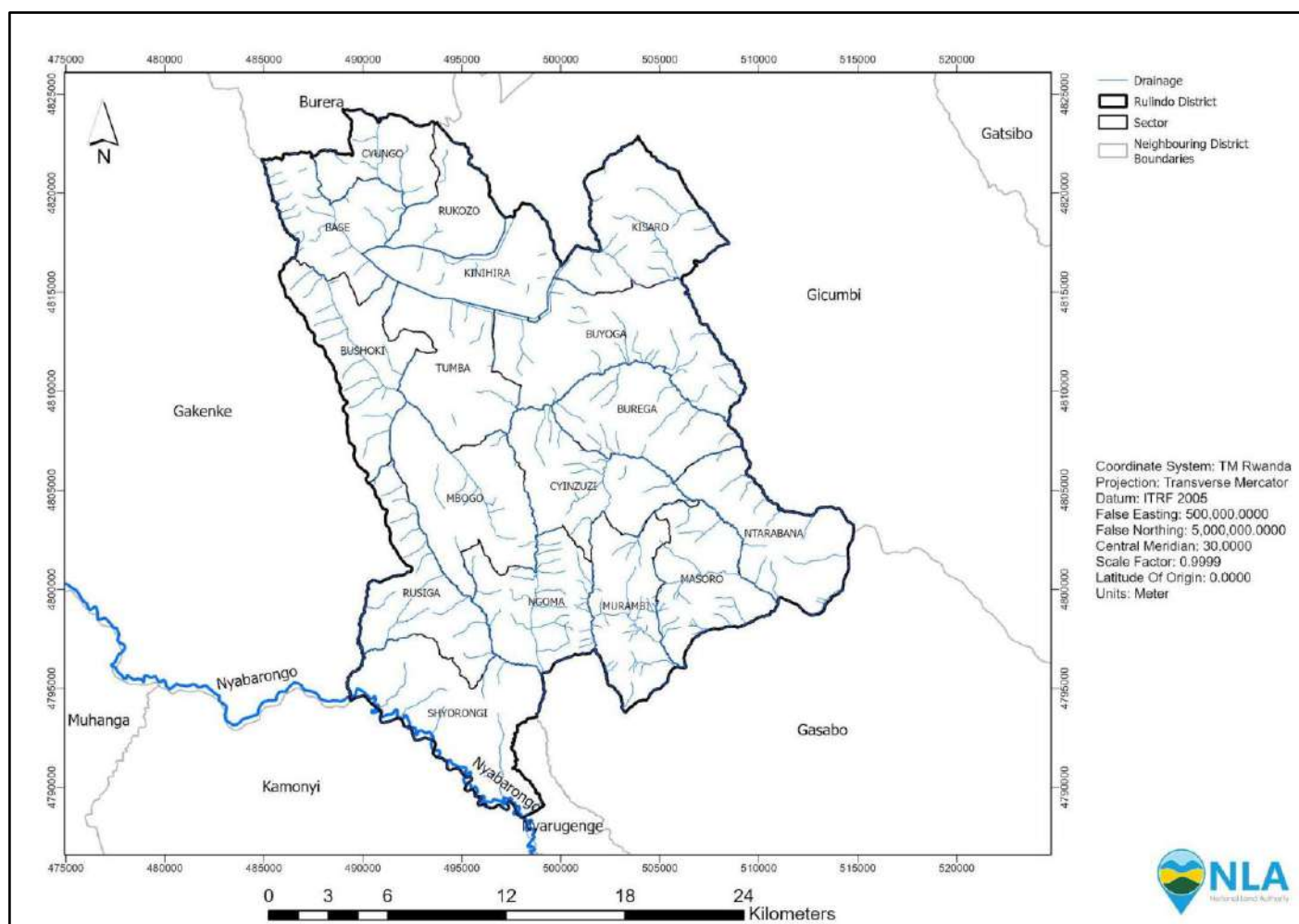
4.9.9.1. Existing Situation

Rulindo District has a tropical climate. The average annual rainfall is about 1,240 mm/year with high amounts of rainfall in April, October, and November. Heavy rainfall increases discharge of water on the surface of different areas of Rulindo District leading to having large amount of surface water and flooding of low-lying areas to be flooded. The stormwater management network in the District includes both natural drainage and constructed drainage channels. Storm water is discharged to low-lying areas leading to oversaturation, especially in wetlands.

Stormwater-related issues include culverts that are fully or partially clogged, road segments lacking adequate drainage, and drains that are not connected to culverts or other points for runoff discharge. Additionally, there is a lack of maintenance for existing hydraulic structures.

The existing open stormwater channels and collectors should be addressed to improve safety for both pedestrians and vehicles. Regular maintenance of drainage channels would reduce the amount of siltation and improve drainage capacity. District technicians should be trained on sustainable stormwater management. Developments within designated areas for main drainages should be discouraged, which are aimed for collecting water from various catchment areas.

4.9.9.2. Planning Perspectives



Map 28. Natural stream network in Rulindo District

As shown on the map, the drainage system follows several parameters, including the road network, topography, and stream network. The drainage network represents the pathways of natural streams. It is recommended that these factors be considered when constructing roads, settlements, and infrastructure, as they can significantly impact the natural flow of water and cause damage to the landscape.

A drainage layout has been produced for the main drainages in urban and rural areas to prevent flooding during heavy rainfall. The carrying capacity of each drainage system, and flood risk mapping, will be analyzed during detailed stormwater management studies.

Further planning proposals for stormwater management include the following:

- During the construction and implementation of neighbourhood plans, a small-scale study will be needed to identify additional drainage channels within settlement sites.
- All buildings in settlement sites should have rainwater harvesting systems connected to drainage channels to facilitate stormwater collection and conveyance.
- All drainage channels in urban areas must be constructed in accordance with the topography, ensuring that no channels require excavation against the slope.
- Adjustments should be made prior to implementation to minimize the cost of expropriation, particularly where drainage channel layouts intersect with key infrastructure.
- Detailed studies should provide a complete designation of inundation areas along major watercourses, considering built-up areas and land use planning documentation to determine the size of potential flood hazard areas.
- To delimit all areas exposed to flood risk, including regulatory provisions, the prepared flood hazard and flood risk maps should serve as a mandatory basis for development.

The DLUP establishes riparian buffer zones as areas along shorelines, wetlands, or streams where development is restricted or prohibited. The primary function of these buffers is to physically separate and protect aquatic areas from future disturbance or encroachment. A properly designed buffer can serve as a right-of-way during floods, sustaining the integrity of aquatic ecosystems and habitats.

4.9.10. Tourism and Conservation

Rulindo has numerous natural tourist sites that, if developed and marketed effectively, could attract many visitors. These attractions include the Ikirenga Cultural Center (ICC) and its related cultural sites. The District needs to attract potential investors in eco-tourism to sustainably develop and manage these sites, increasing revenue and employment opportunities. This potential is bolstered by Rulindo's favorable geographical location, serving as the gateway to the Northern Tourism Corridor, which provides a competitive advantage for attracting tourists and investors in this sector. Rulindo is also positioning itself as a preferred stopover for travelers. In partnership with various stakeholders, the District is exploring ways to transform its administrative area into an appealing transit point for tourists traveling to and from Volcanoes National Park, Twin Lakes, Gishwati-Mukura National Park, and Lake Kivu.

4.9.10.1. Existing Historical Tourist Destinations in the District

Rulindo District is home to the throne of King Ruganzu II, as well as historical sites in Shyorongi and Ngabitsinze. As the country seeks to diversify tourism and increase revenue from this sector, Rulindo District has the opportunity to invest in cultural tourism. Existing historical touristic sites in Rulindo District include:

Ikirenge Cya Ruganzu: This site features a rock believed to bear the footprint of King Ruganzu. The impressions of his toes and heel are thought to have been made by the legendary warrior.

Remera y’abaforongo/Ngabitsinze Remera y’abaforongo/Ngabitsinze is one of the historical sites in the Northern Province, renowned for the attack led by Forongo, the commander of King Mibambwe I Sekarongoro Mutabazi’s army. Forongo and his troops famously defeated the Nyoros at Ngabitsinze.

Here, the Rwandan army, under Prince Forongo’s command, showcased their strategic skills by effectively preparing for battle with a small number of soldiers. Forongo lit a fire in Ngabitsinze and instructed his sons to spend the night walking around it. The soldiers encamped nearby were frightened when they saw what appeared to be many people circling the fire throughout the night, leading them to flee in panic. Others followed with spears. The Nyoros ultimately failed, which is how Ngabitsinze got its name. Today, a foundation stone has been laid at this historical site in the Cyinzuzi Sector.

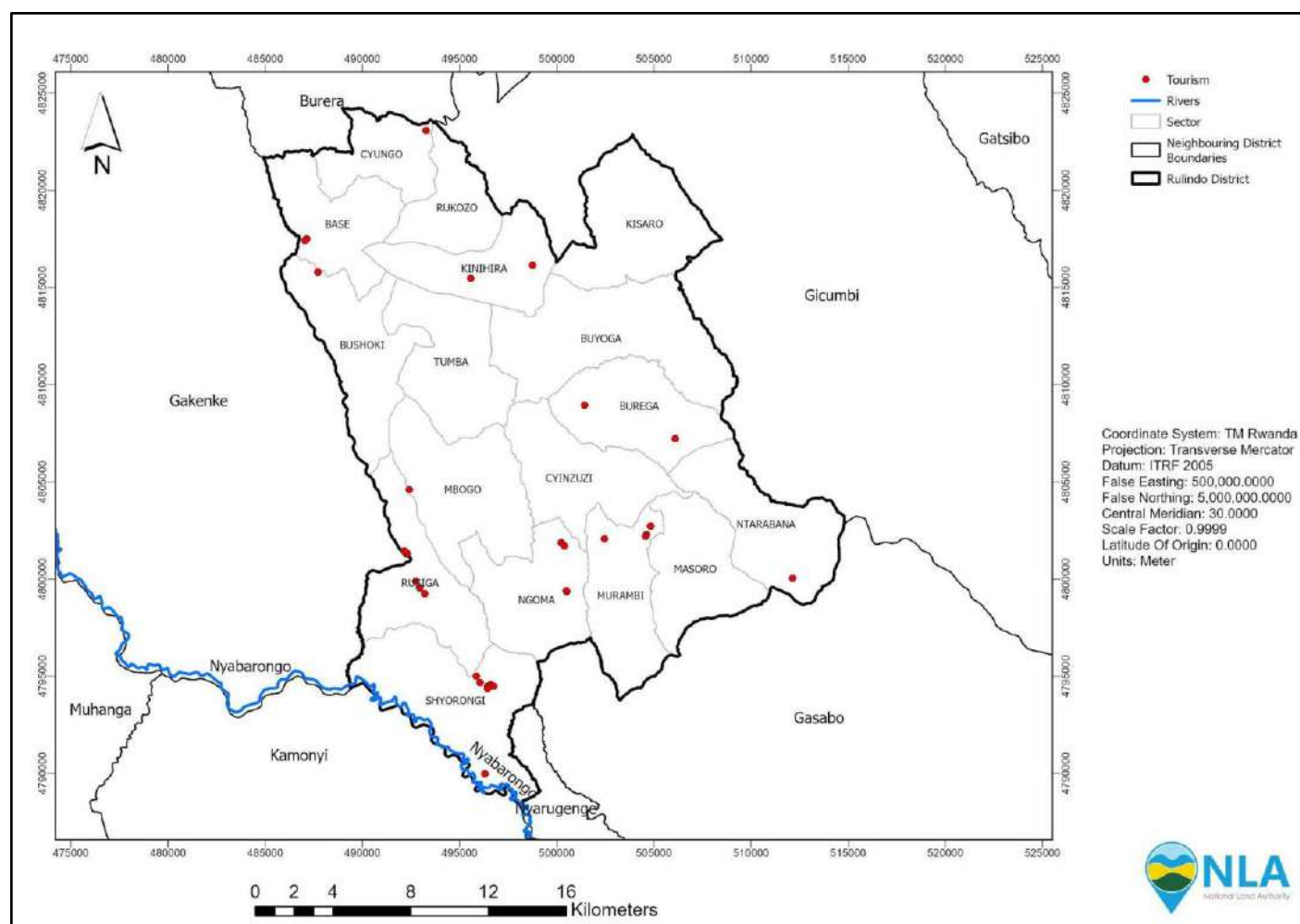
Mubigabiro by’Abami: This tourist site is located in Burega Sector, within Butangampundu Cell. It has historical significance, as it was associated with notable royal families and queens, including King Kilima Rugwe, Ruganzu Ndoli, Queen Nyirakigeli IV Murorunkwere, and Cendeli.

❖ Other sites including:

- Akavure ka Ngiramazi: It is a rock shot by king RUGANZU NDOLI searching for water for his army. It has a shape like Akavure. It is located in Mbogo Sector.
- Igiti cy’umwifuzo in Ntarabana Sector planted by Rwabugiri
- Ku Kiraro Cyamutara in Ntarabana Sector for the Rwandan King Mutara I Semugeshi
- Ku Igiti Cy’Imana in Tumba Sector
- Kinihira aho basinyiye amasezerano y’amahoro in Kinihira Sector
- Isoko y’ Akandi in Base Sector

Figure 49. Historical touristic sites in Rulindo District





Map 29: showing Historical touristic sites in Rulindo District

4.9.10.2. Proposals on tourism scheme in the District

Tourism can significantly contribute to the development of Rulindo District if properly planned, managed and marketed. However, apart from Kirenge Cya Ruganzu, other tourist sites are not economically and culturally protected. Most sites are used for other land use instead of touristic sites. In collaboration with local authorities and the District, Akavure Ka Ruganzu, Ngabitsinze and Ibigabiro by'Abami should be developed in terms of facilities and their history to be marketed as tourism attractions. Other touristic sites should be protected with a landmark explaining the historical background of the site.

Moreover, it is recommended to upgrade and expand the existing stopover business at Bushoki and Rusiga Sectors as well as develop new strategic locations for tourists to enjoy innovative products unique to the District. This initiative will strengthen the Northern tourism corridor.

4.10. ECONOMIC DEVELOPMENT

4.10.1. National Context on Economic Development

Rwanda aspires to achieve sustained economic growth over the long term, creating wealth for all Rwandans. The country has set a goal to become an upper-middle-income country by 2035 and a high-income country (HIC) by 2050. Quantitatively, this means that by 2035, Rwanda aims to achieve a GDP per capita of over USD 4,036 and a GDP per capita of over USD 12,476 by 2050. Achieving these targets will require high and sustained economic growth, driven by a focus on key sectors such as agriculture, manufacturing, and services.

One of the key pillars of Rwanda's economic development strategy is the promotion of private sector-led growth. This has involved a range of measures to create an enabling environment for businesses to flourish, such as streamlining business registration procedures, improving access to finance, and promoting investment in priority sectors. Additionally, Rwanda has sought to leverage its strategic location within East Africa to position itself as a regional hub for trade and investment.

Achieving Rwanda's economic aspirations will require sustained effort and investment over the long term. The country has made significant progress in recent years, with improvements in key sectors such as agriculture and manufacturing. However, challenges remain, particularly in areas such as infrastructure development and access to finance.

Furthermore, the projected demographic changes will have significant implications for policy development, particularly in areas such as education, healthcare, and employment. The growth in the working-age population presents an opportunity for the country to expand its workforce and drive economic growth, but this will require targeted investments in skills development and job creation.

4.10.2. Existing Employment Opportunities in the District

Rulindo DDS 2018-2024 highlighted various potentialities and economic opportunities that can be exploited for developing and improving the wellbeing of the citizens especially in terms employment creation.

- ❖ **Strategic Location:** Rulindo District is strategically located midway between Kigali City and Musanze Secondary City, positioning it as a gateway to some of Rwanda's most popular tourist

destinations, including Virunga in Musanze, Rubavu, and Ruhondo Beach in Burera. This advantageous location allows the District to serve as a resting place for tourists traveling to and from these hotspots. Additionally, it facilitates the convenient marketing of local products in Kigali City, enhancing trade opportunities for the region.

- ❖ **High-Value Products:** Rulindo District has identified a list of high-value products that can give the District a competitive edge over other regions when these products receive the necessary attention and investment. These high-value products include stevia, tea, coffee, flowers, vegetables, spices, eggs, tiles, and bricks. Focusing on the production and marketing of these products can significantly boost the District's economic output and enhance its agricultural and industrial sectors.
- ❖ **Mines and Quarries:** The District is rich in mineral resources, including clay deposits found in Buyoga, Burega, Shyorongi, Cyinzuzi, Mbogo, Bushoki, Rusiga, Base, and Cyungo. Additionally, peat is abundant in the Bahimba marshland. Rulindo District also contains significant mineral deposits, such as cassiterite in Masoro, Murambi, Cyinzuzi, and Ntarabana Sectors, and wolfram in Shyorongi and Rusiga Sectors, along with various sand and stone resources. The extraction and utilization of these minerals can create employment opportunities, stimulate local industries, and contribute to the District's economic growth.
- ❖ **Tourism:** Rulindo District is home to numerous tourist attractions, historical sites, spectacle arts, craft arts, material culture, mining and agricultural grounds and a successful community-based tourism model which make it a great potential for cultural tourism in improving and increasing the flow of tourists to the District.

4.10.3. Employment status in Rulindo District

According to the thematic report for economic activity (EICV5), Rulindo District has a working-age population of 311,000 individuals, with a workforce to population ratio of 89%. In terms of job status, 59% are independent farmers, 19% in wage non-farming activities, 16% are engaged in wage farming, 5% are independent non-farmers, and 0.6% are unpaid non-farmers. When considering the distribution of these individuals across broad economic sectors, 71% are employed in agriculture, 16% in services, and 13% in industry.

The recent Rwanda Labor Force Survey (RLFS) 2022 revealed that the employment-to-population ratio stands at 42%, indicating the proportion of the working-age population currently employed. In contrast, the unemployment rate is reported at 23%. The survey identified that 99,477 individuals are outside the labor force, 92,054 individuals are employed, and 27,777 are unemployed. Recognizing the importance of job creation in addressing the country's rapid population growth, reducing poverty, and fostering overall economic development, the government has made this a priority. The DDS outlines an aim to create 26,646 decent and productive jobs by 2024, with a particular emphasis on empowering youth and women.

To better illustrate the current status of employment creation in Rulindo, a graphic representation is provided below:

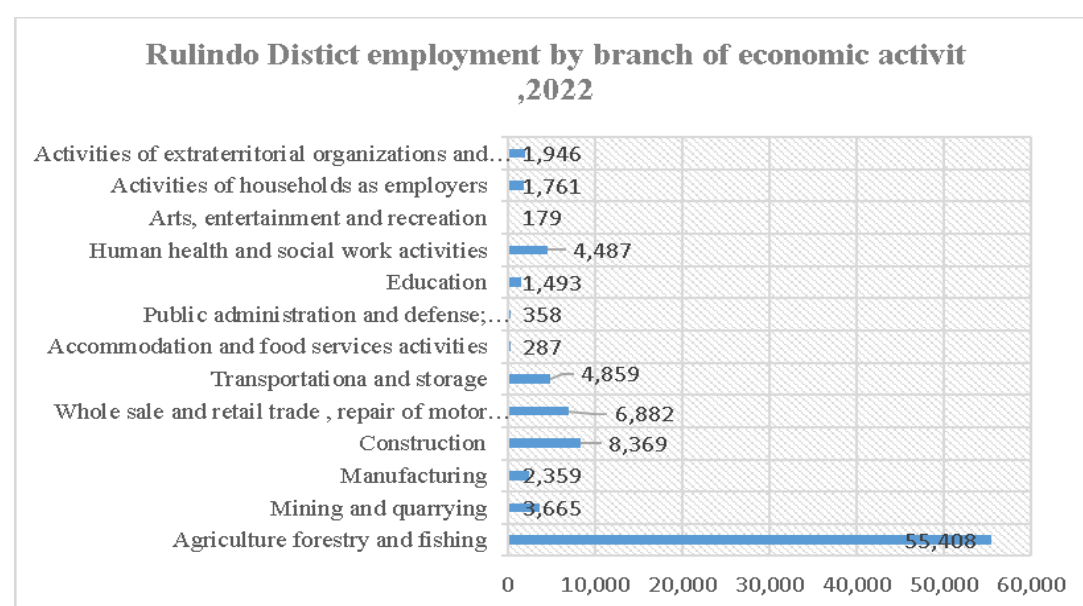


Figure 50. Employment by area and branch of economic activity (Rulindo District), RLFS 2022

Based on the provided graph, which illustrates the distribution of job creation in various economic sectors in 2022, the agriculture sector accounts for 60% of the employment market, the construction sector for 9%, wholesale and retail trade, and repair of motor vehicles and motorcycles for 7%.

The predominance of the agriculture sector in job creation during the specified period underscores its crucial role in the economy, reflecting the sector's capacity to absorb a substantial portion of the workforce. The significant proportion of jobs generated in this sector highlights the continued reliance on agriculture for livelihoods, with its inherent importance in supporting food security and sustaining rural communities.

4.10.4. Proposal on employment opportunities

Based on RLFS 2022, plus the percentage estimates as presented in NLUDMP 2020-2050, the employment sectors is dividend in five main categories:

- ❖ Agriculture, Forestry and Fishing
- ❖ Mining and Quarrying
- ❖ Construction
- ❖ Manufacturing
- ❖ Services

The methodology for employment projection in Rulindo District involved cascading the assumptions outlined in NLUDMP 2020-2050 taking into consideration the economic specialisation of the District, allowing for accurate and consistent estimation as presented in the table below:

Sector of activity	Percentage	Number of employment to be created
Formal Employment 2050	100.0	262,877
Agriculture, forestry and fishing	8.1	21,307
Mining and quarrying	5.5	14,458
Agro-processing mills and Udukiri	18.4	48,455
Construction	17.0	44,689
Services	51.0	133,967

Table 34. Employment opportunities in Rulindo District by 2050

Based on this, a total of **262,877** employment opportunities are projected to be created by the year 2050. Among these, the service sector is expected to be the main contributor in terms of job creation, accounting for **51%** of the total formal employment. This sector encompasses various activities such as financial services, trading, garages, and tourism.

Following the service sector, agro-processing mills and Udukiri are anticipated to create **18.4%** of the total formal employment. It is important to note that Rulindo District focuses primarily on agro-processing mills and Udukiri activities within the industrial sector. The construction sector is expected to generate **17%** of the total formal employment. The construction sector includes infrastructure development projects. Despite occupying a significant portion of employment in Rulindo, the agriculture sector is projected to account for only **8.1%** of the total formal employment in 2050. The adoption of advanced technology necessitates extensive agriculture practices in order to increase productivity and efficiency.

The mining and quarrying sector, although characterised by limited mineral deposits, is anticipated to provide **5.5 %** of the total formal employment. This sector will require the utilisation of high-end technology and specialised skills.

4.10.5. Commercial Business and Industry in Rulindo District

4.10.5.1. Commercial business

a) Existing Trading centres

Rulindo District currently hosts a total of 6,765 traders and 175 trading centres, which are dispersed across various Sectors. These trading centres, although generally small in size, exhibit variations in terms of dimensions, services provided, and available infrastructure. To illustrate their diversity, specific examples of noteworthy trading centres within the District will be highlighted.

The trading centers in Rulindo District play a pivotal role in driving the District's economic growth, primarily through their contributions to tax revenues. By fulfilling their tax obligations, these centers collectively generate approximately 846,997,000 RWF in annual revenue. This income is crucial for the District, enabling the provision of essential public services and facilitating infrastructure development.

While trading centers in Rulindo District make significant economic contributions, they also face certain challenges, including inadequate infrastructure and limited access to resources. However, it is essential to recognize the potential opportunities for growth and development within these centers. Strategic initiatives aimed at addressing these challenges and capitalizing on opportunities can further enhance their economic performance and foster sustainable development.

b) Large and local markets

Rulindo District has 37 markets including 11 large markets and 26 local markets in need to be upgraded to local modern markets. In this regard, 32 markets have been proposed including six large markets in Masoro, Rutonde, Ntarabana, Remera, Bubangu, Kinini and 26 local markets proposed in other trading centers within the rural settlements site boundaries.

Table 35. Large markets in Rulindo District

Number	Sector	Name of Market
1	Shyorongi	Rwahi & Shyorongi
2	Bushoki	Gasiza
3	Base	Base
4	Kisaro	Kisaro
5	Kinihira	Kinihira
6	Buyoga	Buyoga
7	Ntarabana	Kiyanza
8	Masoro	Rusine
9	Murambi	Mugambazi
10	Ngoma	Remera

Source: Rulindo District, 2023

c) Planning situation

Rulindo DLUP has allocated 358 hectares for the Mixed-Use Commercial Zone (C1) development, while 13 hectares have been designated for the City Commercial Zone (C3) development. These commercial zones are strategically distributed across both urban centers and rural settlement sites to facilitate the establishment of commercial activities. The DLUP also envisions the emergence of a

dynamic, competitive, and innovation-driven enterprise sector consisting of private firms. This sector is expected to demonstrate agility in response to emerging domestic and regional trends. To boost private investment, efforts will be made to brand the District and connect entrepreneurs in various fields with relevant markets. By capitalising on potential growth areas such as mining, tourism, tailoring and craft, agriculture, and industries, the private sector will not only drive economic growth but also contribute to the emergence of a thriving middle class of entrepreneurs.

The NLUDMP 2020-2050 recommends that Rulindo District be predominantly led by forestry, commercial agricultural processing, and mining. The establishment of agro-processing industries will not only enhance the value chain of locally produced goods but also create employment opportunities for the local communities. The abundant availability of raw materials from the agriculture Sector will ensure that trade development moves in the right direction. The development of trade and agro-processing plants will play a crucial role in diversifying livelihoods and enabling local residents to engage in activities beyond farming, thus improving their overall socioeconomic status.

4.10.5.2. Manufacturing and Industrial Development

a) Existing situation

Currently, light industries are dominant in Rulindo District and there is no existing zone for only industries. Agro processing Industries are scattered and produce various products such as banana wine, beer, maize flour, coffee processing, sunflower oil, juice, Isombe, and liquid soap.

NO	Sector	NAME OF INDUSTRY	TYPE OF INDUSTRY; LIGHT, MEDIUM, HEAVY	PRODUCT FABRICATED
1	Base	INNOPRO Ltd	Light	Banana wine, beer
2		BASE COMPANY LTD (BACO Ltd)	Light	Maize Flour
3		GROW AGRITEC Ltd	Light	Maize Flour

4		ICYUZUZO AMESCOPRO LTD	Light	Sunflower Cooking Oil
5	Base	IKIREZI MAIZE LTD	Light	Maize Flour
5	Burega	ABUKAMU	Light	Coffee Processing
6		CAFERWA BURIZA CWS	Light	Coffee Processing
7	Bushoki	Ese URWIBUTSO	Light	juice, bakery, wine, dairy, chill and others
8		ISANGE BUSINESS COMPANY LTD	Light	Banana wine, beer
9		Ese SHEKINA	Light	Batunganya Isombe
10		BUSHOKI COFFEE	Light	Coffee Processing
11		COOPAC RULINDO	Light	Coffee Processing
12		IMBUTO PRODUCT	Light	Liquid Soaps
13		ATELIER DE COUTURE UMUCYO	Light	Tailoring
14		INGANZO MUYANZA	Light	Poetry
15	Kinihira	URUGANDA SORWATHE	Light	Tea products
16	Kisaro	ISARO MAIZE COMPANY	Light	Maize Flour
17		CPPA/RUTUNGA NYA INYAMA (CHEZ FRERE)	Light	Meat products

18	Ntarabana	MBA GROUP Ltd	Light	Liquid Soap
19	Rusiga	R&B Import Export Ltd	Light	Coffee Processing
20	Shyorongi	KIGALI FOOD PRODUCTION Ltd	Light	Meat products (Sosiso)
21		MULTIPLAST	Light	Plastic products
22	Tumba	COCATU	Light	Coffee Processing
23		TUMBA COFFEE Ltd	Light	Coffee Processing
24	Masoro	RUTONGO MINES LTD	Light	Minerals
25	Shyorongi	EUROTRADE INTERNATIONA L LTD	Light	Minerals
26	Masoro	Green Harvest Products Ltd	Light	Spices : Chilli sauce
27	Buyoga	Imbuto Product	Light	Liquid soap
28	Masoro	AGASINGIZO Investment Ltd.	Light	Maize Flour
29	Masoro	SAWA GRAIN MILLS Ltd.	Light	Maize Flour

Table 36. Existing industries in Rulindo District, 2023

b) Planning Perspectives

In Rulindo District, light industries are interspersed with other land uses, particularly in residential, commercial, and agricultural areas. During the development of the DLUP, two light industrial zones have been proposed to accommodate all industries within the District. The first industrial zone is located in Shyorongi Sector, specifically in Bugaragara Cell, Gatwa Village, covering an area of 7.16 hectares. The second zone is situated in Base Sector, encompassing Gitare and Rugaragara Villages, and covers 3.9

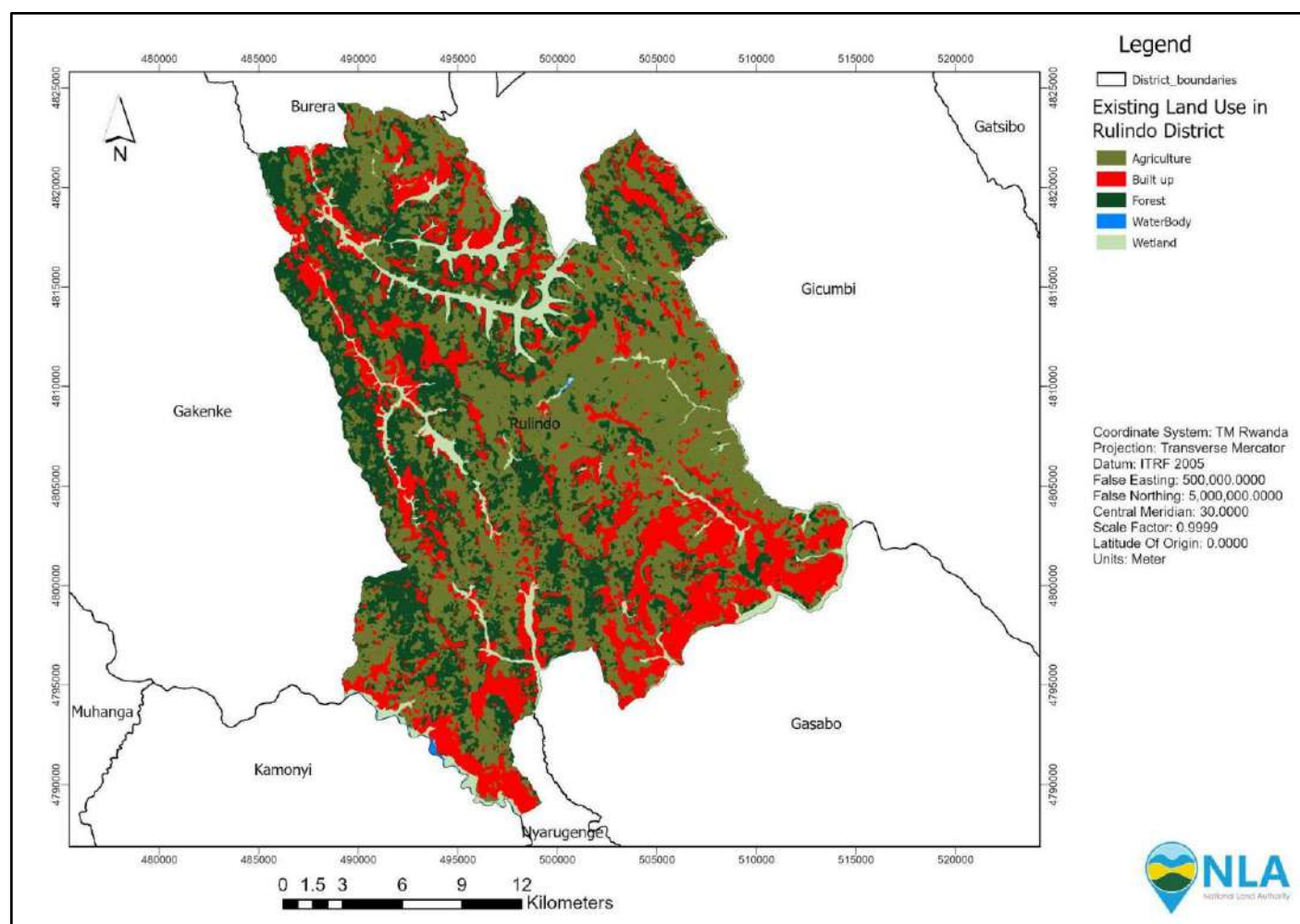
hectares. This Base site will accommodate all agro-processing industries within the Base center and its surroundings.

4.11. District Land Use Balance sheet

The land use balance sheet summarizes land allocated for various uses, balancing all thematic sectors and land requirements for current and future needs based on the District's potential, planning priorities, and future demands. The objective of the DLUP is to manage the effective use of land and resources, guiding future development in line with the NLUDMP 2020-2050, and to address the needs of the projected population by 2050.

4.11.1. District Existing and Proposed Land Use

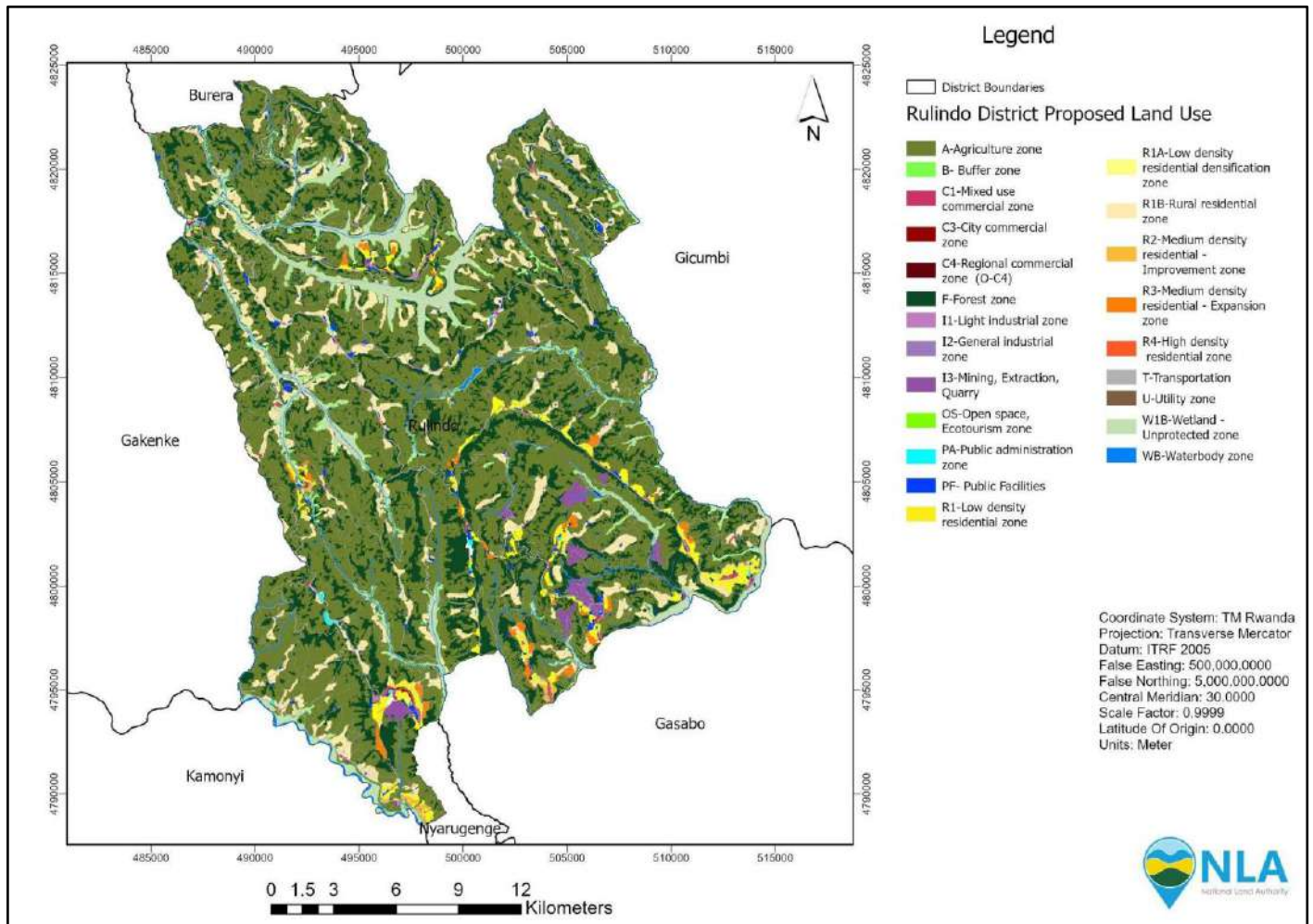
Rulindo District covers an area of nearly 567 km², including water bodies. It is one of the districts with land suitable for agriculture, which accounts for 49.2% of the District, while forest cover is at 20.8% and Built-up areas cover 23.7% as of 2023.



Map 30: showing existing land use in Rulindo District

During the development of the proposed detailed land use plan, agricultural zones were protected and preserved, resulting in an increase in agricultural land to 55.5%. Some forests have been designated as agroforests, particularly in Kinihira, Buyoga, and Cyungo Sectors, to support tea plantations. Additionally, mining activities under forest cover in Masoro, Burega, Murambi, and Cyinzuzi Sectors have contributed to a reduction in forest cover in the District, decreasing from 25.9% to 20.08%.

The new planned built-up areas (including settlement structures and infrastructure) aim to accommodate Rulindo's future population. Following the proposed land use, the built-up zone will cover 16.3%. The table and map below show the comparison between the existing and proposed land use for 2023 and 2050, as well as a visual representation of existing and proposed land uses in Rulindo District.



Map 31. showing Proposed land use in Rulindo District

4.11.2. Detailed Proposed Land Use Balance Sheet

This section presents the proposed land use balance for the urban and rural areas of Rulindo District, including the District town, rural areas, and zoning balance for rural settlement areas. The existing land use balance has been developed to compare the current land use with what is proposed in the DLUP. The table below represents the detailed proposed land use balance sheet based on the general land uses considered.

No.	Land Use Category	Existing Situation in 2023		Planned Uses 2050	
		Area (Ha)	Percentage	Area (ha)	percentage
1	Agriculture	27899.9	49.2	31511	55.5
2	Forest and Conservation	11793.4	20.8	11317.7	20.08
3	Urbanization, Settlements & infrastructures (Built-up areas)	13459.2	23.7	9489.6	16.369
	Commercial			371.3	0.65
	Industrial			512.9	1.06
	Public Administration			69.7	0.1
	Public facilities			515.5	0.735
	Public Utility			5.5	0.009
	Residential			4913.2	8.41
	Transportation			3171.2	5.505
4	Wetland	3447.1	6.07	3216.3	6
5	Waterbody	98.8	0.17	250.2	0.4
6	Buffer			935.7	1.6

Table 37. Showing Existing vs Proposed Land allocation in Rulindo District

5. IMPLEMENTATION STRATEGIES

The Rulindo DLUP 2023–2050 will be implemented in four distinct phases: Phase One (2023–2029), Phase Two (2030–2035), Phase Three (2036–2040), and Phase Four (2041–2050). The implementation of the Rulindo DLUP will involve all partners and stakeholders through an appropriate coordination and participation approach.

5.1.1 Institutional Framework

One of the fundamental aspects of achieving the goals set out in the Rulindo District Land Use Plan for a specific spatial space is the implementation of such a plan by the established implementation Agency. The implementation of the Rulindo DLUP, which is the official document (that contains public policy, programs and projects for Rulindo District), is a major determinant of urban and rural development and the Rulindo District has a major role to play. Stakeholders are the key players in the implementation of DLUPs. The table below shows the targeted stakeholders and the associated roles and responsibilities.

N°	Actors & Stakeholders	Intervention Sector	Responsibilities
1.	Rulindo District	All interventions Sectors	• Develop working mechanism that brings all actors on board; • Strengthen capacity building of staff, hold workshops and regular meetings with all District partners to share best practices; • Facilitate the provision of extension services; • Mobilise necessary resources for the implementation of the District priorities; and • Initiate, Coordinate, Monitor and Evaluate the Implementation Phases

2.	MINALOC	All interventions Sectors	• Ensure that all the guidelines and directives from the central government are fully disseminated to the District; • Proper use of the public resources; • Supporting stakeholder coordination in their activities at District level.
3.	MINECOFIN	Public Financial Management	• Leads the resource mobilisation, allocation process and approve new innovative financing mechanisms; • assists in linking the District strategic outcomes with the NST1 and higher-level plans; • Coordinate the transfer of earmarked funds
4.	MININFRA	Transport Urbanisation Energy Water and Sanitation	• Ensure the sustainable development of infrastructure; • Overseeing maintenance and development of infrastructure.
5.	MINEDUC/HEC	Education	• Developing and managing Education Monitoring and Evaluation systems; • Promoting information and technologies in the area of education; • Promoting information and communication technology as a tool for learning and teaching; • Overseeing the programs of school construction and equipment; • Overseeing formal education and continuing training of teaching staff

6.	MoH	Health	• Financial accessibility of health services; • Strengthening national referral hospitals, treatment & research centres; • Institutional capacity building; • Human Resources Development.
7.	MINAGRI	Agriculture	• Organisation, mobilisation and capacity-building for producers and their organisations; • Promoting the gender approach and reducing vulnerability among disadvantaged groups; • Diversification and intensification of plant, animal and fish production;
8.	MoE/ REMA	Environment and Natural resources	• Strengthening climate resilience of communities; • Water Resources Management • Monitor and assess development programs to ensure compliance with the laws on environment during their preparation and implementation; • Provision of advice and technical support to individuals or entities engaged in natural resources management and environmental conservation; • Monitor and supervise impact assessment.
9	MINICOM	Private Sector development and employment	• Support private Sector growth and job creation with a focus on SMEs; • Build an effective human resource base and institutional capacity for delivery.

10	MINISPORTS/ MOYA/MINUB UMWE	Sports and Culture	• ensure that sports and culture policies and strategies are disseminated and effectively implemented to attain the intended results; • Supervise the functioning and management of affiliated institutions and agencies of the ministry for efficiency and effectiveness; • promote research and development of cultural and sport activities.
11	National Land Authority (NLA)	All Sectors	• Overall Monitoring and Evaluation of Rulindo DLUP Implementation Phases; • Capacity Building of all implementation Actors at all levels of Governance • Involve public and private investors and developers for Rulindo DLUP Implementation
12	LODA	Private Sector Development & Youth Employment Social protection Urbanisation and rural settlements Transport	• Local Economic & Community Development; • Capacity building of local administrative entities; • Monitoring and evaluating the implementation process of development programs.

13	RHA	Housing Public Building	• Monitoring and Inspection of Housing Permitting; • Effective Management of Public Buildings (Construction, Repair and Maintenance).
14	RAB	Agriculture	Practise modern methods in crop and animal production, research, agricultural extension, education and training of farmers in new technologies.
15.	NAEB	Agriculture	Facilitate the growth of business to diversify agriculture and livestock commodity export revenues.
16.	Rwanda Cooperative agency (RCA)	Agriculture Financial Sector Development Empowerme nt of Youth, Women and People with Disabilities	• Promoting the cooperative organisations Sector; • Promoting business entrepreneurship in the cooperative organisations Sector; • Assisting cooperative organisations in their capacity building through training and seminars of its members and managers; • Supervising implementation of laws and instructions governing cooperatives.
17.	BDF / BRD	Financial Sector Development	• Promoting SME development through the provision of financial services; • Accelerate export development, Catalyse agricultural financing; • Promote affordable housing, Manage and facilitate financing for education loans; and • Increase investments in energy development.

18.	REG	Energy	- Responsible for maintaining and improving power plants, transmission and distribution networks, as well as delivery of electrical energy to consumers at a sustainable fee; - Community companies support in small micro hydro power plants.
19.	WASAC	Water and Sanitation	To increase the water production, distribution, and performance improvement aimed at provision of quality water and sanitation services
20.	Development Partners (World Bank, Un-Habitat, AFD, etc.)	Urbanization and Rural settlement Upgrading of Informal Settlement Resettlement of People living in High-Risk Zones	- Provision of basic infrastructure; - Technical assistance to support sustainable urban management and capacities at Secondary Cities District level and facilitation of Local Economic Development; - Financing of projects for improvement of living conditions of Rulindo Population.

Table 38. Rulindo District Implementation key actors and their responsibilities

5.2 Rulindo District Catalytic Improvement Projects (CIP)

1. Climate-Resilient Hillside Agriculture and Agroforestry Project

This project aims to enhance sustainable agricultural productivity on Rulindo's hilly terrain by scaling up agroforestry, terracing, and irrigation systems. It will integrate tree-planting with radical terraces in key sectors like Cyungo, Rukozo, and Bushoki, and expand irrigation infrastructure in Kisaro, Ngoma,

Muyanza irrigation scheme and other potential areas. The project also supports soil erosion control and improved climate resilience, helping farmers adopt sustainable practices and increase yields.

2. Rulindo Integrated Agro-Processing Project

This project aims to strengthen agriculture and livestock value chains by improving input delivery, training farmers, and enhancing veterinary services. It will anchor these activities around the agro-Processing Zone (I2) in Shyorongi Rurban Center, which will host facilities for maize milling, dairy processing, tea packaging, and cold storage. This project focuses on construction of Swine abattoir, Kiyanza and Kinihira Maternities wards rehabilitated as well as Base Vermifiltration faecal sludge plant operationalized. By linking rural producers to this hub through improved infrastructure and cooperative networks, the project will boost value addition, create jobs, and position Rulindo as a regional agro-processing center.

3. Developing an Integrated Agribusiness and Transit Corridor

This project will upgrade key roads including the Nyacyonga–Mukoto road, Rehabilitation of Rwintare-Gitanda-Muvumo feeder road 17 km, Trail bridges, Maintenance of feeder roads (Kinini-Raro-Nyabuko-Yanze 21km, Kiyanza-Kiri-Murambi 12km, Rusine-Sanzare-Karambo-Mitabi 11.7km, Kirambo-Gisanze Mudakiranya 11.3km, Jali-Remera 7.3km, Cyondo- Base 6.8km, Base-Tumba 8.8km, Ngiramazi-Muyanza 9km), SP ePW- Maintenance of community roads, Kinihira Water supply system reinforced (5.790 km) and other potential road networks especially connecting to market and production units, etc. The aim is to enhance agricultural market access, facilitate goods movement, and position Rulindo as a strategic link between northern Rwanda and Kigali.

4. Development of Sustainable Mining Development Corridor

This project focuses on unlocking the potential of Rulindo’s mining sector by improving access to key mineral corridors in Rutongo and Nyakabingo, where cassiterite and wolfram are extracted. It involves upgrading mining access roads and bridges, establishing decentralized mineral handling centers, and implementing sustainable water and environmental management systems. The project aims to boost local employment, ensure responsible mining practices, and position Rulindo as a national mining hub.

5. Stopover Business Hub Development and Market Modernization Project

This project aims to transform Rulindo District into a leading stopover business hub by developing modern markets, promoting agro-processing, and enhancing business infrastructure along national roads. The initiative will focus on constructing modern markets, small livestock markets, and strategic stopover business transit points along key transport corridors, including the Kigali-Musanze, Kigali-Gatuna, and Base-Butaro roads.

6. Administrative Centered Modernization Project

This project focuses on relocating and constructing a modern District Headquarters in Ngoma Sector and rehabilitating all sector and cell offices. It aims to improve public service delivery, administrative efficiency, and citizen access to services, while promoting modern, ICT-enabled governance across the district.

7. Enhancing Education and Knowledge Development Project

This project aims to improve education quality in Rulindo by upgrading infrastructure and supporting early childhood and vocational education. Key actions include constructing new classrooms with furniture, supporting community-based ECDs in collaboration with the NCDA, and upgrading TVET schools (Kinihira, Buyoga, APEKI Tumba, and Bushoki) with modern facilities like workshops, smart classrooms, computer labs, and dormitories.

1. Resettlement people from high-risk zone

This project focuses on the planned and human resettlement of communities living in high-risk zones in Rulindo and surrounding areas, such as steep slopes, flood-prone zones, and areas vulnerable to landslides or other natural hazards. The objective is to ensure the safety, dignity, and long-term wellbeing of affected populations by relocating them to safer, planned settlements with access to basic services and infrastructure. The project includes risk assessment, stakeholder engagement, provision of housing, and livelihood restoration support. It contributes to disaster risk reduction, climate resilience, and aligns with Rwanda's national housing policy and urban development strategies.

2. Sustainable urban and settlement neighborhood development

This project aims to promote inclusive, well-planned, and environmentally sustainable neighborhoods in Rulindo and other urbanizing areas. It focuses on developing mixed-use, climate-resilient, and affordable settlements that integrate housing, green spaces, infrastructure, public services, and mobility networks.

3. Increasing adaptation to climate resilient project

This project aims to enhance the capacity of urban and rural communities in Rulindo and surrounding regions to adapt to the impacts of climate change through the design and implementation of climate-resilient infrastructure and development initiatives. It focuses on integrating climate risk assessments into urban planning, promoting nature-based solutions (such as green infrastructure and reforestation), improving water and energy management, and building resilient housing and public services.

5.3 Participatory Land Readjustment Approach and Detailed Physical Plans Initiatives in the District

Readjustment of existing plots and detailed physical plans of existing plots are recommended during implementation of Rulindo District Land Use Plan to assure rational development and effective land uses. Where the plots are of different quality or value, area or value adjustments are made.

The underlying principle is that every landowner must be compensated with land of equivalent value. The readjustment process transforms irregularly shaped plots into regular, standardized shapes, ensuring access to essential infrastructure such as roads, electricity, water, schools, hospitals, and other services. This access significantly enhances the value of the land in each area. Additionally, statutory phasing will be mandatory in each land-use plan.

The communities that are landowners must be willing to participate in all phases from beginning to end. This includes the elaboration of physical site plans, data collection, and all mapping and site demarcation exercises until the assignment is completed and approved, with in-depth advice from planners and appraisal experts. A land readjustment map and appraisal documents must be approved together with the detailed local plan as one unit. Alternatively, simplified voluntary land exchange processes may be introduced.

A readjustment is an essential tool for land consolidation and orderly development. The communities in Rulindo District should have ownership in all phases and must contribute to ensuring compliance during development. The National Land Authority has established a practical guide for participatory land readjustment, outlining procedures for local physical plan development and defining the roles and responsibilities of local communities, site committees, local authorities, and the consultants or experts involved in planning the neighborhood. Therefore, a community approach is integral to the successful implementation of the Rulindo District Land Use Plan. In Rulindo District, the following detailed physical plans have been approved, along with their locations.

Table 39. Priority Site Physical Plans and infrastructure servicing

S/N	Name of the site	Sector	Status	Other Description
1	Kabagabaga	Shyorongi	Semi-implemented	Site servicing improvement will be needed
2	Bubangu	Murambi	Semi-implemented	It includes two nodes: Rebero & Gashubi+Ruhunga. Site servicing improvement will be needed.
3	Tabyuka	Buyoga	Ongoing	In partnership with RHA.
4	Mugote	Ngoma & Cyinzuzi	Ongoing	In partnership with RHA, Two nodes: Ngoma & Cyinzuzi.
5	Shyorongi	Shyorongi	Semi-implemented	In partnership with RHA in the project of plot servicing but need to be aligned with standard plot size and road reserves provided by zoning regulations and Land Readjustment Guidelines.
6	Kajevuba	Ntarabana	Semi-implemented	Implemented by former Rural Settlement Task Force, MINALOC through VUP but need to be aligned with

				standard plot size and road reserves provided by zoning regulation and Land Readjustment Guidelines
7	Rusine	Masoro	Semi-implemented	Plot servicing by RHA but need to be aligned with standard plot size and road reserves provided by zoning regulation and Land Readjustment Guidelines

5.4 DLUP Implementation Plan and Phasing 2023-2050 with Midterm Planning 2023-2035

The implementation phasing of the Rulindo District Land Use Plan (DLUP) is integrated into all local and land use plan provisions and is tailored to the local context. The primary spatial principle guiding this phasing is Tiling, which prevents random and isolated development locations. The phasing plan for the Rulindo DLUP aims to provide flexibility to implementing agents and stakeholders, allowing them to prioritize investment projects that support local economic development. This approach ensures efficient and adequate use of resources and funds to finance selected priority projects.

This phasing plan provides the District, communities, and donors/financiers with rationale to prioritise infrastructure and associated urban and rural services to incrementally develop in a phased manner. Phasing plans have been elaborated in Shyorongi District Town and Rurbans of Kinini, Bubangu, Kinihira and other special sites including Mugote, Base and Rutonde. Rulindo DLUP will be implemented in four phases: **Phase One: 2023-2029; Phase 2: 2030-2035; Phase 3: 2036-2040; Phase 4: 2041 -2050.**

Phase One (2023-2029): This phase focuses on the built-up areas having Physical Plans and Land Readjustment Plans serviced with basic facilities and infrastructure such as roads, water, electricity, drainages, etc. in urban and rural settlement areas. Phase one include, All R1B and R1A, Road network (T1), Shyorongi and Rwahi Bus park, Light Industry/Agakiro of Rutonde, all public facilities and administrations, Mixed use commercial zones C1 and City commercial zone C3. All zones in this phase with no detailed site plan, building permits will be allowed after being serviced with basic infrastructures including roads, electricity, water, etc.

However, from Phase One, the DLUP phasing plan allows the Implementation Flexibility on phases which provides that the district can allow developments for immediate implementation of any of any phase by issuing of new building construction permits, when the neighbourhood is well serviced with roads and other basic public amenities, or when investors commit to distribute all basic infrastructures (Roads, water, electricity, etc.), without a government or public investments.

Phase Two (2030-2035): This phase will focus on selected sites for residential zones in urban areas and in rural settlement sites where the servicing activities are initiated including areas of urban expansion and urban peripherals for the areas suitable for urban development and rural areas today used for agriculture and livestock. These areas do not have access to basic services and infrastructure today. Issuance of new building construction permits is prohibited in phase two, except for large-scale investment cases, where the investors will comfortably distribute all basic infrastructures (Roads, water, electricity, etc.), without government or public investments. The district will provide construction permits in phase 2, after elaboration of detailed physical plans and distribution of all basic infrastructures (Roads, Water, Electricity, IT, etc.). In Rulindo District R2, T2 and Dumping sites of BASE are in phase two of the implementation.

Phase Three (2036-2040): This phase will be implemented at a later stage, focusing on zones to be developed and permitted for conditional uses as outlined in the zoning regulations attached to the District Land Use Plan as its integral part. It also involves the following:

- ✓ Zones for agriculture and Forest uses;
- ✓ Zones without basic services, facilities and infrastructure (Without roads, water, electricity, etc.).
In Rulindo District, R3 zones have been put in phase three of the implementation;
- ✓ Zones without Neighbourhood and Detailed Site Plans;
- ✓ Wetlands, water bodies and its buffers;
- ✓ Informal Settlement Zones; and

Phase Three considers the areas of urban expansion and urban peripherals, for areas suitable for urban development and rural areas that today are used for agriculture. These areas currently do not have basic services and infrastructures. Issuance of new building construction permits is prohibited in Phase 3, except

for large investment cases, where the Government or investors will commit to distribute all basic infrastructure (roads, water, electricity, etc.), without government or public investments.

Phase four (2041-2050): Apart from sustainable agriculture, use of wetland, waterbody, forest projects, use of buffer zones and other cross-cutting land uses in all phases. This phase will mostly consist of a long-term project which will be raised after Rulindo DLUP mid-term review in 2035 after evaluation.

Table 40. DLUP Implementation Plan per thematic area

Thematic areas	Projects	Phase 1 (2023-2029)	Phase 2 (2030-2035)	Phase 3 (2036-2040)	Phase 4 (2041-2050)	Responsible Institution
<i>Agriculture, Mining & Economic development</i>	Climate-Resilient Hillside Agriculture and Agroforestry Project					MINAGRI, District, RAB, RFA, MINEMA
	Rulindo Integrated Agro-Processing Project					District, MINICOM, PSF
	Developing an Integrated Agribusiness and Transit Corridor					District, MINAGRI, RTDA
	Stopover Business Hub Development and Market Modernization Project					District, PSF, MINICOM
<i>Urbanization, Infrastructure, Tourism and environment</i>	Sustainable urban and settlement neighborhood development					District, RHA, NLA, MININFRA, RTDA, District

Resettlement people from high-risk zone.					District, RHA, NLA, MININFRA, MINEMA, RTDA, District
Enhancing Education and Knowledge Development Project					District, MINEDUC
Increasing adaptation to climate resilient project					REMA, MoE, RFA & District
Administrative Centered Modernization Project					District, MINALOC

5.5 Principles Guiding the Zoning Requirements in cities / urban areas

5.5.1 Integrated Development and Urban Resilience

The integrated approach to urban development promotes appropriate growth of Cities, ensures sustainable mobility, more cohesive communities, and a better environment. By looking at the City in a holistic fashion, it strengthens the urban resilience, known as “the capacity of urban systems, communities, individuals, organizations, and businesses to recover, maintain their function and thrive in the aftermath of a shock or a stress, regardless of its impact, frequency or magnitude”. These Zoning Regulations enhance this approach and help to build the resilience, providing adequate tools and measures to guide the growth of the City as an urban system, where all components - infrastructural, institutional, economic, and social are taken into consideration.

5.5.2 Inclusivity and Community Involvement in the Planning

Inclusivity and equity in the planning and development process help create more sustainable cities with people getting the right to fully participate in every aspect of social, economic, political, and cultural life and voice their concerns and aspirations to create thriving neighborhoods and communities. All developments shall consider the needs and aspirations of all groups, including vulnerable groups and people of all abilities, in the design and implementation process. A participatory and bottom-up approach shall be followed involving and engaging the community in the design, development, and monitoring process.

5.5.3 Incrementality and Flexibility

The principle of incrementality is adopted in these Zoning Regulations to allow communities, investors, and developers to develop according to their current financial capacities. The objective is to create a flexible environment where all developments happen in an organic manner, without creating financial overexposure and hence hindering the affordability of the development. At the same time, the incremental approach is designed in such a way that future addition to the development would help achieve the desired density for the specific zone in future years.

Incremental development also allows developers to better adapt to current and future market conditions, thus reducing investment risk and facilitating access to the market to a larger segment of the population. Incremental development shall be an opportunity to limit ongoing informal

development processes and ensure efficient provision of infrastructure and service delivery and rational land use.

5.5.4 Mixed Land Use

The zoning regulations allow and encourage Integrated and mixed-use development within all zones to create higher density, compact and vibrant places for people from all groups and neighborhoods. Neighborhoods shall showcase a blend of residential, commercial, cultural, public facilities, and micro-enterprises that are accessible and well connected to the transit system. This will enhance inclusivity, bring work closer to homes and reduce disparity and social segregation between different groups.

5.5.5 Pedestrian First

Cities around the world are increasingly recognizing the essential role of walkability in ensuring the health and accessibility of their citizens, as well as driving economic growth. Planners, designers, and developers must prioritize the creation of walkable and integrated neighborhoods that connect residences to public facilities, commercial areas, and recreational spaces. The DLUP supports the expansion of the Non-Motorized Transport (NMT) network throughout the city, aiming to establish complete, continuous, and safe walkway and cycleway networks that provide clear protection from motor vehicles and are accessible to all groups. Universal design principles will be adopted to eliminate physical barriers and ensure safe routes for smooth mobility and easy access.

5.5.6 Roads connectivity and Transit Oriented Development (TOD)

Transit-oriented development (TOD) is the most effective approach for Rwandan cities to maintain low levels of private vehicle ownership and avoid unsustainable, car-dependent sprawl. TOD is essential for promoting inclusivity, equity, and the long-term sustainability of urban areas. This integrated development model brings people closer to activities, work, homes, and public spaces, providing inclusive access to citywide opportunities and resources at minimal financial and environmental cost, while also enhancing resilience to climate change and other disasters.

The City provide high-quality, safe, and reliable mass transit system for a sustainable, and equitable development. Mixed-use, integrated, and higher density developments that are well

connected with easy walking and cycling connection, and in proximity to reliable transit service to the rest of the City are at the base of this master planning effort.

5.5.7 Green growth and Sustainable Design

All developments must be designed and constructed with a strong emphasis on environmental considerations, incorporating sustainable design practices throughout both the design and construction phases. It is crucial to promote environmentally responsible buildings that harmonize with the existing urban fabric. Subject to review and evaluation of developments in specific zones, and in accordance with the GBMC, the District One Stop Center may, at its discretion, grant increases in floor area, building height, or building coverage for projects that adopt sustainable design technologies or provide additional benefits to neighboring communities, such as public spaces or recreational areas.

5.6 DLUP Monitoring and Evaluation

Proper monitoring and implementation of the Rulindo District Land Use Plan (DLUP) will be conducted continuously. Revisions may also be made to specific sectors when deemed necessary, without compromising the development of other sectors. Ensuring compliance across different planning levels is essential to avoid the mistakes that have occurred in past plans, policies, and projects due to a lack of coordination. The purpose of this section is to establish administrative and planning tools that facilitate the transfer of planning instructions from the central level to the local level.

A Continuous Compliance Planning (CCP) principle has been adopted to ensure the integrity of the planning process. No construction permits will be issued until the plan is completed and approved by the Rulindo District Council. Under the CCP principle, the following measures and procedures are essential for achieving the desired compliance in the planning process: providing a non-objection to any change in land use or projects by the National Land Authority, which is responsible for Land Use Management. This will be supported by coordinated efforts from the Ministry in charge of Lands, which will be instrumental in resolving coordination and compliance issues.

NLUDMP 2020-2050 dominance, ensuring that the projects and activities of all Ministries & Authorities comply with this plan. The national development planning and budgeting process

should ensure that Sector priorities and investments comply with the NLUDMP 2020-2050. In other words, there must be a balance between economic planning and spatial planning.

Delineate and enforce settlement boundaries. It is recommended that new boundaries gain legal status only to meet development needs for the upcoming 27 years (2023-2050). All master plans should include implementation phases for midterm review without exceeding these boundaries. The areas of the development phases will be adjacent to one another to create a cohesive system for efficient land use. Consolidation principles in land use planning will be applied across all levels and sectors of land-use planning. Regular updates of spatial data and base maps through large-scale mapping will significantly support the development of master plans and the monitoring of land use.

To improve the performance of the Building Permitting Management Information System and its dissemination across all sectors to support urban and rural construction and development permitting in Rulindo District, a strong community outreach program will be continuously organized. This program aims to promote a change in mindset regarding land use planning throughout the District of Rulindo, fostering community awareness and ownership.

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Bibonywe kugira ngo bishyirwe ku mugereka w'Iteka rya Minisitiri n° 009/25/10/TC ryo ku wa 28/07/2025 rishyiraho igishushanyo mbonera cy'imikoreshereze n'imitunganyirize by'ubutaka cy'Akarere ka Rulindo	Seen to be annexed to Ministerial Order n° 009/25/10/TC of 28/07/2025 establishing land use and development master plan of Rulindo District	Vu pour être annexé à l'Arrêté Ministériel n° 009/25/10/TC du 28/07/2025 établissant le schéma directeur d'utilisation et d'aménagement des terres du District de Rulindo
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Kigali, 28/07/2025

(sé)

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Bibonywe kandi bishyizweho Ikirango cya Repubulika:
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