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Second Party Opinion

Rwanda's Sustainable Finance Framework

July 23, 2024

Location: Rwanda

Sector: Sovereign

Alignment With Principles

Aligned = ✓ Conceptually aligned = ○ Not aligned = ✗

- ✓ Social Bond Principles, ICMA, 2023
- ✓ Social Loan Principles, LMA/LSTA/APLMA, 2023
- ✓ Green Bond Principles, ICMA, 2021 (with June 2022 Appendix 1)
- ✓ Green Loan Principles, LMA/LSTA/APLMA, 2023
- ✓ Sustainability Bond Guidelines ICMA, 2021

See [Alignment Assessment](#) for more detail.

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Strengths

The framework includes environmental projects that aim to increase Rwanda's resilience to physical climate risks. Rwanda is notably exposed to physical climate risks including heat waves, wildfires, and floods. Under its Paris Agreement nationally determined contributions (NDCs), Rwanda identifies 24 adaptation measures requiring US\$5.3 billion through to 2030. Specific adaptation measures including, positively, some nature-based solutions will be financed under the framework.

Renewable energy and grid energy improvements are particularly beneficial. Renewable electrification will help take pressure off ecosystems with the potential to reduce biomass use.

The framework's social project categories address some of the country's most pressing issues. Ensuring food security, for example, is especially important given the large proportion of the country's population that relies on agriculture as a primary source of income.

Weaknesses

Some project categories are broadly defined in the framework and may include a wide range of projects. The framework clearly lays out eligible project categories and the issuer has provided clarifications upon request, but some examples of eligible projects do not have descriptions, which may allow for a range of possible technologies to be financed. Our shading assessment partly reflects this lack of information.

The framework provides limited detail on the environmental and social impact assessment (ESIA) process, which we view as especially material given the wide range of project categories. This may lead to questions around how some environmental and social risks will be managed. The framework mentions the country's ESIA but does outline what this process will entail for specific project categories. As such, sustainability benefits and safeguards will rely on the robustness of ESIA application and mitigation measures.

Areas to watch

Liquefied petroleum gas (LPG) for cooking may be financed under the framework. LPG is a fossil fuel and has associated climate emissions. For Rwanda, however, we view it as a transitional fuel in the short-term, given its emissions and pollution reduction benefits and thus assign a light green shading.

Eligible Green Projects Assessment Summary

We assess eligible projects under the issuer's green finance framework based on their environmental benefits and risks, using Shades of Green methodology.

Climate adaptation and mitigation Medium green

Landscape management, rainwater harvesting systems, climate resilient seeds, agroforestry, and small irrigation schemes.

Mitigation projects, including renewable energy (off-grid solar and small and run-of-the-river hydro)

Disaster risk reduction and management Medium green

Storm water management, installing early warning systems, watershed management, soil erosion control, implementing afforestation and agroforestry practices

Renewable energy Medium to Light green

Investments and expenditures in solar, hydro power (small and medium), and LPG for cooking

Energy efficiency Light green

Improvements or retrofit of infrastructure and assets for energy efficiency. A reduction of at least 20% of baseline energy consumption needs to be achieved

Forestry Medium green

Agroforestry, afforestation, land husbandry practices (construction of radical and progressive terraces)

Integrated water resource management Medium to Light green

Catchment restoration, protection of buffer zones, sustainable management of water resources

Biodiversity conservation Medium to Light green

Mobilize resources to support nature-based projects, which include afforestation and reforestation, improved forest management, land scape restoration, capacity building initiatives strengthened on landscape restoration and management

See [Analysis Of Eligible Projects](#) for more detail.

Issuer Sustainability Context

This section provides an analysis of the issuer's sustainability management and the embeddedness of the financing framework within its overall strategy.

Entity Description

Rwanda is a land-locked country in east-central Africa. It is one of the smallest countries on the continent, covering approximately 26,338km². Rwanda's population is about 13.6 million as of December 2023, making it one of the most densely populated countries in the world, with most Rwandans living in rural areas. It has a low human development index (HDI) of 0.534 (2021) and is low-income, with GDP per capita of around US\$1040 (2023), according to the World Bank. The country aspires to be a middle-income country by 2035 and reach high-income status by 2050.

Agriculture is a key sector, employing about 70% of the workforce. Around 50% of the land is considered arable. Furthermore, around 30% of the country is covered in forests. Main exports include minerals, tea, and coffee.

Material Sustainability Factors

Climate transition risk

Policymakers have a key role to play in bringing about the drastic GHG emissions cuts needed to address climate change. While the breadth of existing country signatories to the 2015 Paris Agreement provides a basis for global action, current climate pledges fall significantly short of the reductions needed to reach net zero by 2050. A lack of policies to support climate pledges exacerbates the challenge, making it likely that +1.5°C warming--compared with pre-industrial levels--could be exceeded in the near future given past emissions and current (increasing) emissions trends. Indeed, current commitments are expected to result in a broadly constant level of global emissions of about 60 Gt CO₂e per annum, resulting in warming likely exceeding 3°C by the end of the century.

Regulations, incentives, and various price signals--including (but not limited to) broad and material carbon taxes, subsidies, and penalties--are ways for governments to stimulate climate action from public and private, personal, and industrial actors. Countries also have widely different contributions to past, current, and future global emissions, both on an absolute and per capita basis, with historical economic development closely linked to the use of fossil fuels and resulting emissions. Policymakers' incentives to act on climate vary widely and can change rapidly with the level of public support for action, international agreements, tangible evidence of climate change in the region, short-term economic costs of the transition, social acceptance, competitive pressures, the perceived impact a country or region can have on global emissions, and the perceived imbalance between local and global risks from climate change.

Rwanda's total emissions contribute 0.003% to global greenhouse gas emissions but are expected to double under a business-as-usual scenario (BAU) by 2030. As part of its NDC, Rwanda has committed to an unconditional (that is, without international support) emissions reduction of 16% and a conditional reduction of an additional 22% by 2030. To achieve these reductions, it will focus on energy, waste, agriculture and industrial production and process use, and may in the future include emissions from forestry, subject to the availability of data. Challenges could arise from aligning economic growth ambitions with mitigating additional climate transition risks.

Physical climate risk

Physical climate risks can affect many economic activities and increasing (unabated) GHG emissions will drive more frequent and severe climate hazards, absent adaptation. However, while the physical impacts from climate change and extreme weather events will continue to play out globally, the direct impacts of climate hazards--including (but not limited to) heat waves, flooding and wildfires--are typically localized. However, the indirect impacts associated with such events may precipitate through

different channels (such as the volume and pricing of traded goods and services), extend beyond administrative borders and cascade through multiple sectors.

Rwanda's geographic location and diverse climate regions (plains, highlands, and areas around Lake Kivu), coupled with urbanization, render it vulnerable to physical climate risks including heat waves, droughts, floods, landslides, storms, and wildfires. According to the World Bank, since the early 2000s the frequency and severity of these events has increased significantly due to changes in temperature and precipitation. Between 1971 and 2016 the mean temperature increased by 1.4-2.7C and the government expects precipitation to increase by 5%-10% in the coming years.

Other environmental risks

Governments play a key role in protecting biodiversity and containing land, air, and water pollution. Economic development goals may exert considerable pressure on natural ecosystems, locally and at trading partners. Environmental factors are often intertwined with other factors, such as climate transition and physical climate risks.

Rwanda's environmental exposures include water, land use, and biodiversity. Due to high precipitation, it has not experienced serious water scarcity. However, the distribution of drinkable water has remained inadequate, with only 57% of the population having access. Some water sources have been subjected to heavy and unchecked pollution as a result of untreated waste (both domestic and industrial) being dumped into water courses. Rwanda's forests are critical to its environmental sustainability and wider ecosystem health. Of the country's total forest area, 64% was deforested from 1960 to 2007, but reforestation efforts are aiming to reverse this. The country has also seen high rates of soil erosion, depleting topsoil in forests and riparian corridors. For example, the mountainous Gishwati ecosystem was made a protected area in 2015 to mitigate the vulnerability of the high number of reptiles and amphibians threatened by illegal mining and livestock farming.

Social risks

Governments play a crucial role in ensuring the development of society and economy. Depending on national and local socioeconomic circumstances, governments may prioritize issues of economic advancement, poverty, hunger, or inequality reduction, access to essential services or infrastructure, access to clean water and sanitation, or other social goals.

Rwanda is a lower-middle-income economy with a low HDI of 0.534 in 2021, ranking 165 out of 191 countries. Rwanda aims to attain middle-income status by meeting its 6.5% annual GDP growth target, which means infrastructure investments will need to reach 6.9% of GDP yearly from 2024 to 2040. The major social risks in Rwanda include its growing population, exposure to regional conflicts, and shortfalls in infrastructure, education, health, and social protection. According to the United Nations Development Program (UNDP) Human Development Report for Rwanda, using the Multidimensional Poverty Index estimation (the percentage of households deprived along three aspects, namely monetary poverty, education, and basic infrastructure services), 48.8% of Rwanda's population (6,572,000 in 2021) is multidimensionally poor, while an additional 22.7% is classified as vulnerable to multidimensional poverty (3,055,000 in 2021).

Issuer And Context Analysis

The eligible project categories seek to address some of Rwanda's most material sustainability factors. Expenditures included in the climate adaptation and mitigation, renewable energy, and energy efficiency categories will aim to address climate transition risk. Disaster risk reduction and management, forestry, integrated water management and biodiversity conservation will address physical climate risk, water and biodiversity, and resource use. These projects are in line with the country's Green Growth and Climate Resilience Strategy (GGCRS). Eligible activities listed as social projects will contribute to addressing access and affordability and impacts on communities. We see risks associated with the projects' implementation that could result in adverse environmental and social impacts.

Rwanda's government has prioritized climate adaption measures in its medium- and long-term national strategies to reduce substantial exposure to physical climate risk. Rwanda ranks 124 of 182 on the NG-GAIN vulnerability index (lower numbers indicate higher vulnerability to climate change). Changes in temperature and precipitation patterns have had important socio-economic consequences given Rwandans' reliance on natural resources for rain-fed agriculture and hydropower for electricity generation. According to the World Bank, climate change could reduce Rwanda's GDP 5%-7% by 2050 against a 2020 baseline. To mitigate this exposure, the government has included climate resilience in its medium-term National Transformation Strategy (NST-1) for 2017-2024, its 2011 GGCRS, its long-term Vision 2050, and its NDC (updated in 2020).

The overarching objective is climate-resilient economic growth focusing on agriculture, water resource management, land use management, conservation, agroforestry, disaster and disease prevention, and improvements in climate data. In its NDC, the government identified 24 adaptation measures that will require US\$5.3 billion through 2030. To support these investments, Rwanda has launched Ireme Invest, a scheme to enable private sector access to finance for green and climate-resilient projects, and Intego, which aims to fund public sector adaption and mitigation projects including disaster risk management (DRM) and integrated-water management. That said, further efforts will be required to obtain the skills and the expertise needed across public and private sectors to realize these objectives. Between 2019-2024, the country implemented its National Adaptation Plan to build institutional capacity on climate resilient technologies.

Rwanda's integration of climate transition risk in its national development strategy will it move toward a low carbon economy, although increasing population, industrialization, and access to energy remain key challenges. In 2015, its NDC baseline year, the heaviest emitting activities (excluding forestry) were agriculture (55% of total emissions), energy (31%), and waste (12%). In a business as usual scenario, we would expect total emissions to more than double from 5.3 million tCO₂ in 2015 to 12.1 million tCO₂ in 2030. This will mainly be driven by increased fossil fuel use for power generation, road transport, and other energy uses. According to International Energy Association (IEA) data, in 2021, biofuels and waste accounted for 89.1% of Rwanda's total energy supply, 8.1% came from oil, 1.0% from hydro, and the remainder from coal and natural gas. It also relies on fossil fuels for 42.1% of its electricity generation, with 55.9% from hydropower and 1.7% from solar PV.

Access to electricity is a key issue. IEA data shows that only 50% of the population had access to electricity and less than 5% of the population had access to clean cooking fuel in 2020 (more than 80% use wood as a primary cooking fuel). To address these issues, Rwanda identified 30 unconditional and conditional mitigation measures in its NDC, focused on increased renewable energy and electricity generation (mainly solar and hydropower), and reducing emissions from industries, households, agriculture, and waste. With these measures in place, it plans to achieve goals in its GGCRS to reduce emissions by 38% by 2030 against its 2020 baseline, as well as its Vision 2050 target to have a 60% share of renewable energy and 100% access to electricity by 2035.

We believe that if adequate safeguards are not implemented, certain measures could have negative environmental effects, including ecosystem disruptions from hydropower production

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and air pollution from waste-to-energy facilities. The government has also implemented several measures to increase the focus on climate change action, such as Climate Budget Tagging to track climate finance (separate to tracking proceeds under this framework) and integrating climate and environmental performance indicators into national budgeting. In addition, in 2023 Rwanda started receiving additional funding (US\$319 million) from the International Monetary Fund (IMF) under its resilience and sustainability facility.

The country faces significant environmental issues including soil erosion, waste generation, and air and water pollution. Agriculture has played a major role in the severe loss of biodiversity in Rwanda. Many agricultural practices, particularly intensive farming, prioritize increasing production over conserving natural resources, potentially leading to further reduction in biodiversity. Furthermore, Rwanda's heavy dependence on wood and other biomass for its energy needs poses a major threat to biodiversity and ecosystem sustainability.

To address these issues, Rwanda developed a legal and institutional framework primarily encompassing the National Biodiversity Policy (2011) and the revised National Biodiversity Strategy and Action Plan (2016). Hazardous and solid waste in Rwanda is a widespread environmental problem, with its largest environmental impacts in Kigali and Rwanda's secondary cities. Waste management remains insufficient, with most industries lacking waste treatment facilities and discharging effluent directly into watercourses.

The government is addressing access and affordability through Vision 2050, focusing on infrastructure development. Rwanda is rapidly urbanizing, with towns and cities offering greater market access, skills development, and job creation. Through Vision 2050, the country aims to increase access to electricity to all by 2035, access to water to 100% by 2024, sanitation to 86.2%, and the percentage of rural households settled in integrated planned settlements from 67.2% (EICV5 2016/17) to 80% by 2024 and 100% by 2035.

Rwanda aims to develop modern and efficient transportation, cutting the average working commute to 45 minutes by 2035 and 25 minutes by 2050. It also aims to provide convenient public transportation to at least 90% of the population, with services available within 500 meters of any given location. The three main pillars in its NST 1 are economic transformation, social transformation, and governance transformation. Aims include job creation (214,000 new jobs per year), improving health care facilities, eradicating malnutrition, improving access to quality education, ensuring universal access to affordable and adequate infrastructure and services, and ensuring citizens' and property security. However, we note the projects included in the framework will result in the displacement of local communities. The government of Rwanda provides temporary settlement assistance and food to affected communities through national reserve stores.

Alignment Assessment

This section provides an analysis of the framework's alignment with the Social and Green Bond/Loan principles and the Sustainability Bond Guidelines.

Alignment With Principles

Aligned = ✓ Conceptually aligned = ○ Not aligned = ✗

- ✓ Social Bond Principles, ICMA, 2023
- ✓ Social Loan Principles, LMA/LSTA/APLMA, 2023
- ✓ Green Bond Principles, ICMA, 2021 (with June 2022 Appendix 1)
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- ✓ Sustainability Bond Guidelines ICMA, 2021

✓ Use of proceeds

We shade all the framework green project categories in green and consider all social project categories aligned. The issuer will allocate the net proceeds issued under the framework exclusively to eligible green and social projects, which will include eligible projects and expenditures in the national budget for the following fiscal year and up to two years prior. Please refer to the Analysis of Eligible Projects section for more information on our analysis of the environmental and social benefits of the expected use of proceeds. The issuer commits to allocate the proceeds to finance assets, investments, capital, and operational expenditures. Though they meet the requirements for alignment, some of the definitions of eligible projects are vague, which affects visibility into what will be financed.

✓ Process for project evaluation and selection

Project proposals are approved by line ministries and submitted to the Ministry of Finance and Economic Planning (MINECOFIN). Within the latter, the Public Investment Committee (includes seven members delegated from Ministries, departments, and agencies, and chaired by a representative from MINECOFIN) is responsible for selecting and monitoring projects that are eligible under this framework. Projects are either approved, put on hold, or not accepted. As part of the selection process, and in compliance with the National Investment Policy (2023), an ESIA must be conducted for each new project. The ESIA includes the direct and indirect effects of the project on humans and the environment and factors the costs of these impacts into the project's economic and financial viability. It also includes adaptation, mitigation, and climate change interventions under the Environment and Social Management Plans (ESMP). The Rwanda Management Authority (REMA), under the Ministry of the Environment, monitors mitigation measures during the implementation of the projects. The framework defines projects' target populations in line with government programs, the environmental and social benefits for each eligible project and lists the types of activities that will be excluded from the scope of the financing, including, for example, fossil fuel production and landfill projects.

✓ Management of proceeds

Proceeds issued under this framework will be placed in a separate bank account with the National Bank of Rwanda and allocated annually to individual projects following the national budget approval process through the Rwandan Cabinet and Parliament. The department of the National Budget in MINECOFIN will be responsible for overseeing the allocation of proceeds to eligible projects through the latter's internal tracking tool Integrated Finance Management Information System (IFMIS), within four years post-issuance. Unallocated proceeds will be managed in line with the National Treasury liquidity management policies and with the exclusion list outlined in the framework. If projects no longer meet the eligibility criteria of the framework, the issuer commits to replacing them with eligible ones within 24 months. The Auditor General's office will perform independent audits of the allocation of proceeds, which we view positively.

✓ Reporting

The Government of Rwanda, through MINECOFIN, will evaluate and report on the allocation, impact, and outcomes of the projects financed under this framework. The reports will be published annually on the MINECOFIN public website until full allocation. Allocation reports will include details and descriptions of the financed projects, the balance of unallocated proceeds, the breakdown between financing and refinancing, and any reallocation of funds. The issuer commits to obtain limited assurance reports by an external reviewer for its allocation reports starting one year after issuance and until full allocation, which we view as a strength. Although not a requirement for alignment, we note that the potential impact reporting indicators for some of the green projects are social in nature, which could affect a reader's understanding of the environmental benefits.

Analysis Of Eligible Projects

This section provides details of our analysis of eligible projects, based on their environmental benefits and risks, using the "[Analytical Approach: Shades Of Green Assessments](#)," as well as our analysis of eligible projects considered to have clear social benefits and to address or mitigate a key social issue.

Under this framework, the issuer will finance the project categories listed below. According to the issuer, it expects that proceeds will be allocated primarily to social projects, with a smaller share to green projects in the first issuance. The mix of green versus social projects in future issuances is unknown.

Green project categories

Climate adaptation and mitigation

Assessment

 **Medium green**

Description

Investment and expenditures on adaptation: land scape management; rainwater harvesting systems; climate resilient seeds; agroforestry; and small irrigation schemes.

Mitigation projects: renewable energy (off- grid solar energy and small and run-off the river hydropower).

Analytical considerations

- Climate adaptation projects will help improve Rwanda's resilience against physical climate risks, particularly heat waves, wildfires, and floods. Climate scientists have been clear that some level of climate change will take place, even in the most optimistic scenarios, making it crucial to plan for and mitigate the potential risks to reduce the financial and environmental impact of such events. Meanwhile renewable energy, such as solar and hydropower, is a key element in efforts to limit global warming to well below 2 degrees Celsius provided the impacts on the local environment are sufficiently mitigated. However, some projects financed under this category, such as irrigation, have less clear environmental benefits. Furthermore, some of the projects financed could pose biodiversity risks. To reflect the range in environmental benefits of the underlying projects in this category, which range from light to dark green, we assign a medium green shade overall.
- We believe Rwanda's consideration of nature-based solutions to achieve its adaptation goals is positive because they could also benefit biodiversity. We understand landscape management could include measures such as radical and progressive terraces, among others. Such terraces can have environmental benefits, such as providing protection against soil erosion and stormwater management. However, such projects could pose risks to biodiversity if not undertaken sustainably, particularly if agriculture is significantly expanded and there are resulting land use changes. Rwanda will identify and manage environmental risks for all projects through its ESIA.
- Rainwater harvesting systems provide an additional source of water, reducing stress on other sources. Systems financed under the framework are small scale and involve collecting rainwater from the roofs of houses. Furthermore, climate resilient seeds help promote crop resilience through adaptation to the effects of global warming. It is a positive that seeds financed will not require additional inorganic fertilizer, reducing the impact on local pollution and biodiversity.
- Agroforestry can have climate and biodiversity benefits if undertaken sustainably. Such projects can help protect the ground from risk of soil erosion and flooding, in addition to sequestering CO2 from the atmosphere. We note there is some uncertainty around land use change risk mitigation and no additional criteria outlined in the framework, such as expected pesticide, fertilizer, and water use.
- Irrigation projects can have some climate adaptation benefits. However, there are no specific eligibility criteria outlined in the framework for additional green aspects such as water or energy efficiency gains, renewable energy use, comprehensive watershed biodiversity considerations. As such, the environmental impact of such projects may be limited, and we would also consider these projects light green. Rwanda's ESIA process has the potential to mitigate some ecosystem risks, as do additional measures noted in the framework such as a high-level commitment to wetlands

protection. Robust implementation of these safeguards is critical to ensure full sustainability benefits of eligible irrigation projects.

- The issuer informed us that hydropower projects will be run-of-river and will not include large projects involving reservoirs, which limits the environmental risks associated with such projects, including impacts to local biodiversity. Furthermore run-of-river projects do not have the same significant climate emissions from decomposition of organic matter in reservoirs. On the other hand, there are no specific eligibility criteria for these projects, such as limits on lifecycle emissions, which could reduce the full achieved environmental benefit of hydropower projects financed in practice. Even so, the project will undergo screening for environmental risks in line with Rwanda's ESIA framework, like all other projects being financed.

Disaster risk reduction and management

Assessment

 **Medium green**

Description

Storm water management, installing early warning systems, watershed management, soil erosion control, implementing afforestation and agroforestry practices

Analytical considerations

- Disaster and risk reduction management aimed at adaptation to physical climate risks is an important component of a low-carbon climate resilient (LCCR) future, particularly given Rwanda's high exposure to physical climate risks (heat waves, wildfires, and floods). Although activities such as early warning systems are consistent with an LCCR future, supporting a darker shading, some activities financed could increase exposure to biodiversity risks. Although these may be addressed through ESIA's, the specific measures are unknown and therefore introduce lighter shading. To reflect the range in environmental benefits of the underlying projects in this category, which range from light to dark green, we assign a medium green shade overall.
- We consider it a positive that Rwanda favors nature-based solutions that can benefit biodiversity. For example, soil erosion techniques include constructing radical and progressive terraces to reduce downstream siltation. Furthermore, storm water management may be controlled through investments in terraces to reduce water runoff. Additionally, nature-based solutions to enhance resilience offer avoided emissions unlike those that require construction, which can have significant embodied emissions.
- Early warning systems as well as the remote sensing and GIS investments the issuer informs us are eligible under this category can be part of a helpful climate adaptation strategy with very limited GHG emissions.
- Watershed management activities could help conserve soil, plant, and water resources of catchments, with Rwanda aiming to invest in projects including those related to erosion control, sediment management, reforestation, and habitat restoration. However, the framework contains no criteria or examples of specific practices that could be financed, which could pose a risk to the environmental benefits achieved from financing such activities.
- Agroforestry and afforestation can have climate and biodiversity benefits if undertaken sustainably. Both can help protect the ground from risk of soil erosion and flooding, in addition to sequestering CO2 from the atmosphere. The issuer informed us that projects will not involve nonnative species, such as eucalyptus, which have lower biodiversity and climate resilience benefits, which we view positively. On the other hand, they may come with associated environmental risks such as reduced benefits to biodiversity and negative impact on the ecosystem. There is uncertainty around land use change risk mitigation and no additional criteria such as expected pesticide, fertilizer, and water use outlined in the framework.

Renewable energy

Assessment

 **Medium to Light green**

Description

Solar, hydropower (small and medium), and liquefied petroleum gas (LPG) for cooking

Analytical considerations

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- Renewable energy such as solar and hydropower, provided the impacts on the local environment are sufficiently mitigated, is a key element in efforts to limit global warming to well below 2 degrees Celsius. Such investments will help contribute to Rwanda's renewable energy targets, which include aiming for at least a 60% share of renewable energy by 2035. On the other hand, although LPG for cooking offers environmental benefits compared with existing cooking practices. We shade this specific project light green given it is a transitional step. Given the range of shades included in this project category, the overall assessment of this category is medium to light green.
- Using LPG for cooking offers a cleaner alternative compared with solid biomass fuels typically used in Rwanda, such as wood and charcoal, and results in lower local air pollution and GHG emissions. Most Rwandans currently use biomass fuels for cooking, which results in deforestation and associated GHG emissions. The switch to LPG is in line with Rwanda's NST-1 target whereby use of LPG is to increase to 40% in 2024 from 6% in 2020. LPG is a fossil fuel and would not be considered a green solution in many countries due to associated climate emissions. In Rwanda's specific context, however, we view it as a transitional fuel in the short-term given its emissions and pollution reduction benefits.
- The issuer informed us that hydropower projects will be run-of-river and will not include large projects involving reservoirs. Specific environmental considerations for hydropower projects are outlined under the "climate adaptation and mitigation" category.

Energy efficiency

Assessment

 Light green

Description

Improvements or retrofit of infrastructure and assets for energy efficiency. A reduction of at least 20% of baseline energy consumption needs to be achieved.

Analytical considerations

- Improvements in energy efficiency are important across all sectors, with the potential to reduce GHG emissions through reduced energy used, improving alignment with an LCCR future. Investments are expected to be related to improving the energy efficiency of the Rwanda Energy Group's electricity distribution network, who currently loses 19% of power to technical losses. However, the criteria outlined in the framework are broad and do not prevent Rwanda from investing in other energy efficiency measures across other sectors that could be associated with high environmental risks and emissions. As such, we assign a light green shade to this project category.
- It is a positive that the framework specifies an energy efficiency improvement threshold (20%). When improving energy efficiency there is the risk of rebound effects where improved efficiency can lead to cheaper energy costs and increased demand, resulting in additional GHG emissions.
- The issuer confirmed that improvements in energy efficiency will not be applied to fossil fuel generation assets, which we would not consider green.

Forestry

Assessment

 Medium green

Description

Agroforestry, afforestation, land husbandry practices (construction of radical and progressive terraces)

Analytical considerations

- Forestry and land management can have important carbon sequestration, soil erosion control, and biodiversity benefits if undertaken sustainably. Uncertain forestry and agricultural management practices and land use change risks lead to a medium green shading.

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- Agroforestry systems can have both climate and biodiversity benefits if undertaken sustainably. There is some uncertainty around land use change risk mitigation and no additional criteria for agroforestry practices, such as expected pesticide, fertilizer, and water use.
- Afforestation can generate benefits such as carbon sequestration and soil erosion control and associated water quality improvements. The issuer informed us that afforestation projects will only involve native tree species, which we view positively due to higher potential biodiversity and climate resilience benefits. However, ongoing forestry management practices are less clear.
- Land husbandry practices focused on constructing radical and progressive terraces can reduce soil erosion in hillside agriculture, potentially generating positive co-benefits such as improved water quality and higher crop yields without additional chemical inputs. See “Disaster risk reduction and management” for additional considerations.
- There are risks of ecosystem conversion and other adverse impacts on terrestrial biodiversity and ecosystems in this project category. Successfully avoiding such risks will depend heavily on Rwanda’s commitment to safeguarding natural capital and biodiversity during the ESIA process and the uniform implementation and enforcement of identified mitigation measures.

Integrated water resource management

Assessment



Medium to Light green

Description

Catchment restoration, protection of buffer zones, sustainable management of water resources

Analytical considerations

- Watershed restoration, buffer zone protection, and water management are important to ensuring long-term water quality and quantity for ecosystems and communities. The broad nature of the category and environmental risks related to bamboo lead to the medium to light green shading.
- The issuer informed us that catchment restoration measures include reforestation and afforestation with native species. We consider these activities medium green as they reduce soil erosion and improve water quality, but forest management practices are uncertain. See “Forestry” above for additional considerations.
- Protection of vegetation in riparian areas (land along the edges of rivers, streams, and lakes) is critical to water quality aspects such as sedimentation control and temperature regulation. The issuer intends to use bamboo for this purpose. While bamboo has positive features, such as an ability to grow on degraded land and rapidly sequester and store carbon, if not managed properly, bamboo may become an invasive species with detrimental impacts on local ecosystems. These factors lead to a light green shade for this element.
- The issuer informs us that sustainable management of water resources includes the other elements in this category as well as radical and progressive terraces. As noted in the “Climate adaptation and mitigation” considerations above, terraces can contribute to soil erosion control, improved water quality, and productivity increases without additional chemical inputs, leading to a Medium green shading in the absence of visibility on the sustainability of agricultural practices.

Biodiversity conservation

Assessment



Medium to Light green

Description

Nature-based projects, including afforestation and reforestation, improved forest management, landscape restoration, capacity building initiatives strengthened on landscape restoration and management

Analytical considerations







- Forestry and landscape restoration projects can have benefits for carbon sequestration, water quality, and biodiversity but must be implemented with careful consideration for sustainable forestry management practices and land use change

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risks. The broad nature of this category and indirect benefits of capacity building initiatives are reflected in the medium to light green shading.

- As noted in the considerations for project categories above, afforestation projects will not involve nonnative species, leading to higher biodiversity and climate resilience benefits while sequestering carbon and reducing erosion. We assign a medium green shading for these activities due to uncertainty on ongoing sustainable forestry management practices.
- Reforestation measures are similarly beneficial from a climate and water quality perspective, though future forestry management sustainability measures are unclear. We view the issuer's indication that they will only use native species positively, as this will have greater biodiversity benefits, leading to a medium green shading of this element.
- We understand from the issuer that landscape restoration measures include the other elements of the category.
- The issuer informs us that capacity-building will involve providing skills and training for alternative livelihoods, such as handicraft production, to members of communities near natural areas that are under pressure from overexploitation due to limited employment opportunities. We believe these measures have positive potential to reduce unsustainable natural resource use driven by economic necessity in the Rwandan context, but note the indirect nature of the possible benefit and uncertainty of ultimate outcomes, leading to a light green shading.

S&P Global Ratings' Shades of Green

Assessments					
Dark green	Medium green	Light green	Yellow	Orange	Red
Description					
Activities that correspond to the long-term vision of an LCCR future.	Activities that represent significant steps toward an LCCR future but will require further improvements to be long-term LCCR solutions.	Activities representing transition steps in the near-term that avoid emissions lock-in but do not represent long-term LCCR solutions.	Activities that do not have a material impact on the transition to an LCCR future, or, Activities that have some potential inconsistency with the transition to an LCCR future, albeit tempered by existing transition measures.	Activities that are not currently consistent with the transition to an LCCR future. These include activities with moderate potential for emissions lock-in and risk of stranded assets.	Activities that are inconsistent with, and likely to impede, the transition required to achieve the long-term LCCR future. These activities have the highest emissions intensity, with the most potential for emissions lock-in and risk of stranded assets.
Example projects					
 Solar power plants	 Energy efficient buildings	 Hybrid road vehicles	 Health care services	 Conventional steel production	 New oil exploration

Note: For us to consider use of proceeds aligned with ICMA Principles for a green project, we require project categories directly funded by the financing to be assigned one of the three green Shades.

LCCR--Low-carbon climate resilient. An LCCR future is a future aligned with the Paris Agreement; where the global average temperature increase is held below 2 degrees Celsius (2 C), with efforts to limit it to 1.5 C, above pre-industrial levels, while building resilience to the adverse impact of climate change and achieving sustainable outcomes across both climate and non-climate environmental objectives. Long term and near term--For the purpose of this analysis, we consider the long term to be beyond the middle of the 21st century and the near term to be within the next decade. Emissions lock-in--Where an activity delays or prevents the transition to low-carbon alternatives by perpetuating assets or processes (often fossil fuel use and its corresponding greenhouse gas emissions) that are not aligned with, or cannot adapt to, an LCCR future. Stranded assets--Assets that have suffered from unanticipated or premature write-downs, devaluations, or conversion to liabilities (as defined by the University of Oxford).

Social project categories

Nutrition and food security

Investments and expenditures include:

- Increased food production through improved agriculture practices (i.e., soil erosion control, application of climate resilient seeds, irrigation schemes);
- Interventions to fight malnutrition, including growing of fruits;
- Circular economy; and
- Investing in innovating value chain through agribusiness, post-harvest management.

Analytical considerations

- Agriculture projects, especially in developing and emerging countries, have the potential to improve living standards, reduce poverty, and raise incomes for rural populations. In Rwanda, more than 70% of the population relies on agriculture as a primary source of income. Declines in staple crop production and continued overreliance on rain-fed agriculture present risks to the country's goals of ensuring food security and addressing malnutrition for the poorest and most vulnerable, who reside primarily in rural areas.
- Through these projects, the Government of Rwanda aims to increase food production and resilience, thereby increasing food security and combatting malnutrition. These projects will also increase the incomes of local farmers by allowing them to sell their agricultural outputs.
- Agricultural projects also carry significant environmental risks, such as increased carbon emissions from fertilizer production and pollution as well as livestock and rice production, biodiversity losses from direct and indirect land-use changes, local pollution from fertilizers and pesticides, water overuse, and transportation and equipment fossil fuel use. Agricultural projects are also significantly exposed to acute and chronic physical climate risks such as increased droughts or flooding. Resilience measures will typically strengthen project planning, but this framework does not show any evidence of doing this beyond ESIA's. It is not clear, in the framework, if the issuer has addressed risks related to ecosystem, biodiversity, and hydrological impacts.
- The issuer states that no agricultural projects will include the application of inorganic manures that may be harmful to the environment, which we view positively from an environmental standpoint.

Health and wellbeing

- Support programs to improve health care, i.e., capacity building to health works
- Investment in health care facilities and programs

Analytical considerations

- While national capacity to address health emergencies has increased following the COVID-19 pandemic, Rwanda still faces challenges around subnational capacities to provide quality healthcare in some areas, especially in maternal and child health.
- According to the World Health Organization, a challenge for the Rwandan health sector is the long distances that patients may have to travel for hospitals or local clinics. By supporting investment in the health care sector, the Government of Rwanda aims to increase access to health care, which will eventually increase the life expectancy of all Rwandans, a national target under the medium and long-term vision of the country. Capacity building programs are also crucial to ensuring that health care workers have sufficient training to provide high-quality care to patients.

Human capital development

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- Support for review of national curriculum to match with existing job requirements;
- Training and mentorship, and skill-building programs, and career development initiatives; and
- Investment in research and development.

Analytical considerations

- According to the Rwandan Ministry of Education and the World Bank, the country's Human Capital Index (HCI) is 0.38, which is slightly below the Sub-Saharan African average of 0.4. The HCI compares the country's performance to other countries globally based on health, survival, and education.
- Through this project category, the Government of Rwanda aims to increase the country's HCI by addressing supporting education and building a knowledge-based economy, with the goal of helping Rwanda become a middle-income country by 2035. Social benefits for these projects will include capacity building for staff and students in the healthcare, education, biodiversity conservation, and landscape management sectors.

Infrastructure, housing, and access to social services

- Low-cost affordable housing;
- Access to clean water;
- Access to electricity; and
- Road construction.

Analytical considerations

- Housing projects center around the construction of settlement sites for people from high-risk zones. These projects can help improve social cohesion, increase economic opportunities, and promote local development for both settled populations and host communities., as well as provide access to social amenities such as water, energy, and health care facilities.
- Road infrastructure in developing countries is key to economic development, as it can improve access to services, allow more efficient transport of goods, and link producers to markets, thereby lifting populations out of poverty. Some of the above-listed road projects connect peri-urban or rural areas to urban areas, facilitating transportation and providing increased economic opportunities for those living outside of Rwanda's urban centers. The objective of many of these road infrastructure projects is to increase rural interconnectedness to promote the free movement of people across the country.
- While roads have positive social benefits, they entail environmental risks. Until lower-emission transportation options are phased in, roads will convey mostly fossil-fuel powered vehicles with associated climate impacts and local pollution concerns. Roads can also cause ecosystem and biodiversity degradation from habitat fragmentation and direct or indirect land-use change driven by increased adjacent economic activities. Construction materials such as asphalt have links to fossil fuel inputs, while others such as cement have high embodied carbon. Construction may also involve the use of fossil-fuel-dependent equipment and can cause local pollution.
- Climate and environmental risks associated with social projects that require construction of infrastructure can stem from the use of materials with high embodied emissions such as steel and cement, local pollution, the use of fossil-fuel-powered equipment during construction, and land use change and biodiversity impacts from urban expansion. Long-lived infrastructure that's exposed to increasingly frequent extreme weather might call for climate-adaptation measures. The issuer has stated that each project in this category will undergo environmental and social assessments with robust environment management plans implemented. The issuer has also committed to using materials that are durable, recyclable, renewable, and low in carbon and energy consumption where possible.
- New power lines and associated substations will serve the Rwandan economy and increase access to power, improving social development. As of 2020, only 50% of Rwanda's population has access to electricity. From an environmental perspective, electrification is positive for climate goals as grids will transition to cleaner power in the long term and might alleviate pressure on energy alternatives such as forest biomass, which carries high biodiversity risks, or burning waste with its local pollution implications. However, in the near term, lines might transmit electricity generated from nonrenewable sources, resulting in


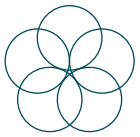


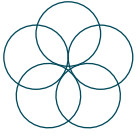
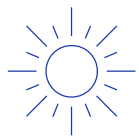
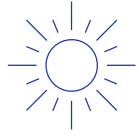
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associated greenhouse gas emissions. We do not know the source of the power that the new lines will transmit, but Rwanda's grid is increasing its share of hydropower according to the IEA, with around 56% of electricity coming from hydropower, 2% from solar, and the remainder from fossil fuel sources.

Mapping To The U.N.'s Sustainable Development Goals

Where the Financing documentation references the Sustainable Development Goals (SDGs), we consider which SDGs it contributes to. We compare the activities funded by the Financing to the International Capital Markets Association (ICMA) SDG mapping and outline the intended linkages within our SPO analysis. Our assessment of SDG mapping does not impact our alignment opinion.

This framework intends to contribute to the following SDGs:

Use of proceeds	SDGs		
Climate adaptation and mitigation			
	13. Climate action*	17. Partnerships for the goals	
Disaster risk reduction and management			
	13. Climate action*	4. Quality education	17. Partnerships for the goals
Renewable energy			
	7. Affordable and clean energy*		
Energy efficiency			
	7. Affordable and clean energy*		

Forestry



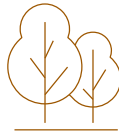
13. Climate action **15. Life on land***

Integrated water resource management



13. Climate action **15. Life on land***

Biodiversity conservation



13. Climate action **15. Life on land***

Nutrition and food security



1. No poverty

2. Zero hunger*

3. Good health and well-being

Health and wellbeing



6. Clean water and sanitation

Human capital development



4. Quality education*

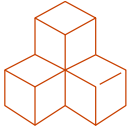
Infrastructure, housing, and access to social services



6. Clean water and sanitation*



7. Affordable and clean energy*



9. Industry, innovation and infrastructure*



11. Sustainable cities and communities*

*The eligible project categories link to these SDGs in the ICMA mapping.

Related Research

- [Analytical Approach: Second Party Opinions: Use of Proceeds](#), July 27, 2023
- [FAQ: Applying Our Integrated Analytical Approach for Use-of-Proceeds Second Party Opinions](#), July 27, 2023
- [Analytical Approach: Shades of Green Assessments](#), July 27, 2023

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