



RWANDA GREEN FUND

An Introduction



Rwanda is Africa's green 'capital' ... and an international success story

“

As we look forward to development, we are not making a choice between environment and prosperity. We are rather looking at how we combine both, because one supports the other...

”

Paul Kagame

President of Rwanda

- Rwanda is a global model for green, sustainable development, pursuing a clear national vision of becoming a low-carbon, climate resilient economy by 2050
- Prioritizing climate-compatible development, Rwanda has achieved high economic growth over the last two decades.
- Acknowledging there is still much to do, the Government of Rwanda is committed to expanding on these accomplishments

7.7%

avg. GDP growth 1998-2017¹

Ranked³ best country in Africa for:

- ⊙ Business Environment
- ⊙ Transparency & Accountability
- ⊙ Gender Participation



A fast growing domestic market of

12M

Consumers...

>

132M

People

...in an expanding middle class, and access to the East African Community

1 World Bank
2 Ibrahim Index of African Governance (adjusted for base)
3 Ibrahim Index of African Governance

The Rwanda Green Fund is the country's leading promoter of green investment...

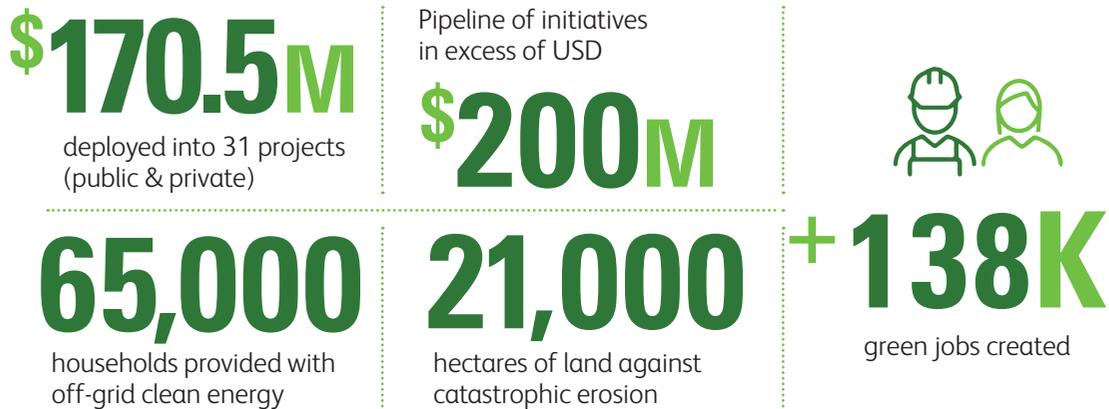
Who we are

- **Green Africa** - a ground-breaking environment & climate change investment fund established by the Rwandan Government in 2012
- **Recognised globally** - as a leader in attracting climate investment, providing an important example of what's possible - in Africa and around the world
- **An engine for green growth** - operating with a mandate to mobilise, blend, and co-ordinate finance to support delivery of a green economy

What we do

- **Invest in public and private projects** - with the potential to stimulate transformative change in Rwanda and the East African region
- **Proactively create an ecosystem** - of institutions, companies, and financing vehicles to incubate, accelerate and provide growth capital to high-impact green ventures
- **Provide expert technical assistance** - to ensure the success of our investments

Our impact to-date



Our Ambition

The Fund has made a significant contribution to mitigation and adaption efforts and bettering livelihoods, but there is still so much more to be done. We seek new and like-minded partners and investors to collaborate with us, as we continue to support Rwanda's ambitious transition to a green growth economy

Some of Our Partners

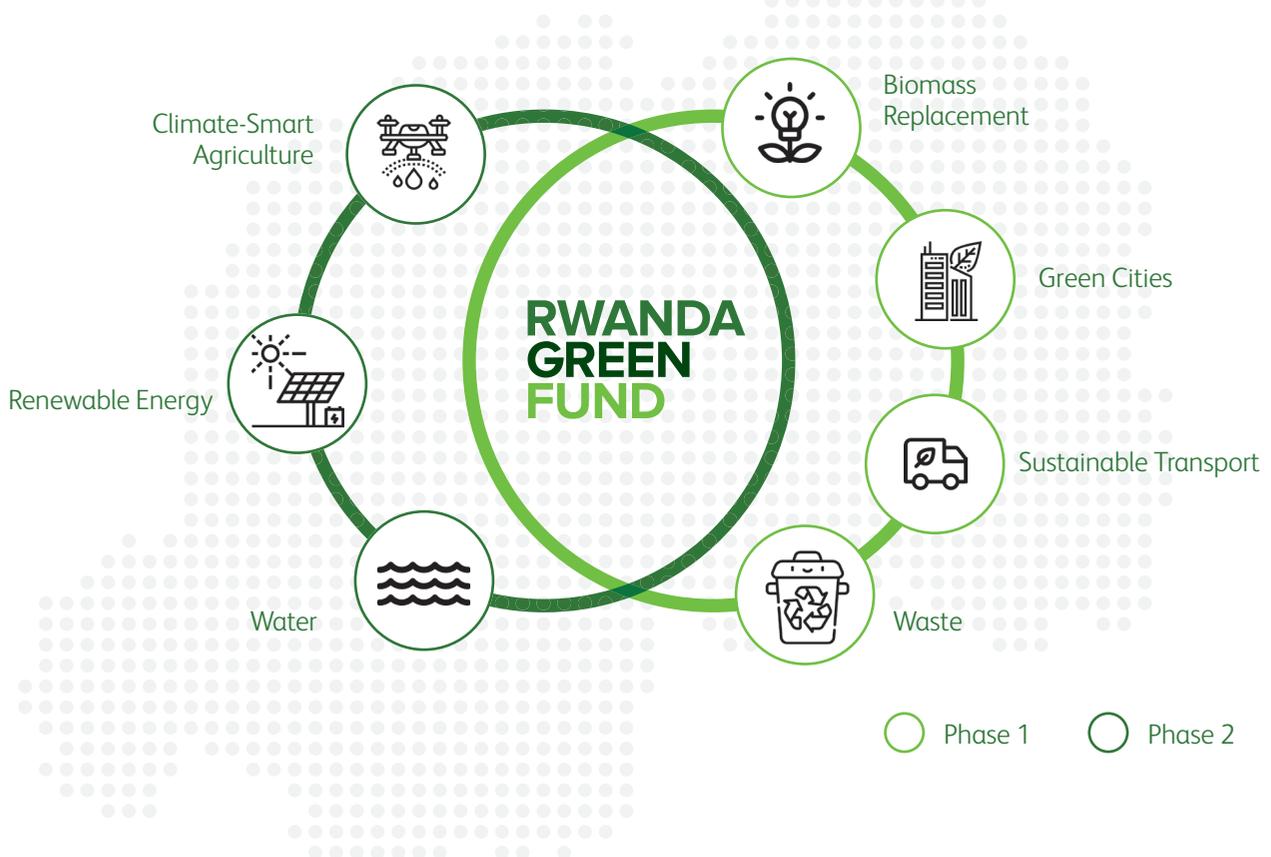




Rwanda Green Fund

...catalysing the country's green growth for the next 50 years

- The Fund is ambitiously scaling up its global mobilisation of financing for sustainable initiatives in Rwanda
- Building on the country's strategy for climate development, the Fund is deploying investment and resources across several key sectors.



Biomass Replacement

Catalysing Rwanda's transition to sustainable biomass usage...



- The Green Fund will originate and invest in programmes, projects and companies that can catalyze a transition to sustainable biomass value chains. This will directly support Rwanda's national energy strategy and help unlock the market opportunity associated with shifting to cleaner more efficient fuel sources.
- Currently ~85 % of all energy consumed in Rwanda comes from biomass. Domestic energy consumption is particularly dependent, with over 90 % of households using wood for domestic cooking. This dependence has resulted in a range of negative health impacts for consumers and has caused environmental deforestation and degradation. For example, Rwanda has seen sustained deforestation as a result of increasing demand for firewood and without a transition its forests and the economic and ecosystem services they provide will continue to be undermined.
- Rwanda is now advocating a range of measures to transition away from traditional biomass and support investment in alternative technologies and more sustainable biomass value chains. The Fund will support this transition and prioritize investments according to their ability to increase access to clean fuel, improve consumer safety and support decarbonization.



Key Programmes

CNG/LPG for domestic cooking

Identifying opportunities to stimulate and support Compressed Natural Gas (CNG) or Liquid Petroleum Gas value chain development to support domestic use.

Waste to energy and bio-digestors

Support companies to scale or enable new-market entry to boost use of waste to energy technology and support access to rural/urban bio-digester technologies.

Alternative fuel value-chains

Support development of alternative and sustainable biomass fuels for cooking (i.e wood pellets or briquettes from agricultural and other waste products)

Initiatives*

Supporting investments in gas transportation & storage infrastructure

Investment in distribution, B2C enterprises and consumer finance solutions

Development of Lake Kivu CNG production site

Support access to capital for high-growth SME's offering bio-digester solutions

Support investment in commercial waste to energy plants (from dumpsites or agricultural processing) including bio-methane heat and power plant in Kigali

Invest in production & processing facilities for alternative fuels

Investment in sustainable forestry & plantations

Provide growth capital to businesses offering Pay-as-you-go cooking solutions that utilise alternative fuel

* Initiatives listed are indicative

Biomass Replacement



A growing sector with substantial investment needs

The sector is forecast to require \$240m of investment between 2018-2024 with demand growing by 52% to \$365m between 2024-2030¹



Example projects seeking funding & finance



A nationwide program to increase access to LPG and reduce dependence on biomass

\$49M

Sought in grant co-financing

Delivering benefits to over

1.1M

Households



Clean Cooking Company of Rwanda Ltd.

Scaling a proven clean-cookstoves enterprise based on lower-environmental impact wood pellets

Seeking debt and equity investors

Scaling to provide services to

100K

Households

Market sizing estimates

Forecasts based on the national strategy of reducing dependency on woody biomass for energy to 42% by 2024. Estimates provided by the Rwanda SE4ALL Investment Prospectus, 2017 & quoted in the National Biomass Strategy, 2019

Sustainable Transport



Underpinning Rwanda's commitment to green mobility...

- The Green Fund will invest in programmes, projects and businesses that stimulate development of sustainable mobility & connectivity across Rwanda.
- As a developing country, Rwanda faces particular transport challenges impacting economic and social accessibility. These include:
 - High-density urban areas, contributing to congestion and emissions (7% increase per annum) with growing private vehicle use;
 - High costs of transport (fuel), impacting commuter mobility and the costs of doing business;
 - Mountainous terrain, necessitating complex infrastructure to transverse and ensure resilience against extreme weather events; and
 - Land-locked geography, creating dependence on reliable connectivity with neighbours.
- The Fund will prioritise low-carbon and climate-resilient transport initiatives, with a focus on smart and electric mobility, that contribute to addressing the challenges faced; while also seeking to improve the availability, affordability, inclusivity, and safety of transport in Rwanda.



Key Programmes

Electric Mobility

Promotion of electric vehicle usage for public and freight transport, scaling up from 2025 - 2030

Resilient Road Network

Investing in climate resilient roads and associated infrastructure

Smart Mobility

Deploying technology to improve efficacy and efficiency, including mobility-as-a-service

Alternative Mobility

Exploring and investing in innovative and alternative modes well-suited to local context

Initiatives*

Electric fleet for Kigali BRT, bus services (20% share by 2030), and motorcycle (33%) operations

Electric car-sharing fleet

Charging infrastructure network

Upgrade of unpaved and feeder roads

Rehabilitation and upgrade of paved roads (and associated infrastructure), including through toll-road mechanisms

On-demand and shared mobility technology in Rwanda

Supporting road-based public transport services (buses, minibuses, motorcycles, e-scooters & bicycles)

Integrated cable-way network

Shared bicycles and e-scooters scheme in Kigali and secondary cities

Innovative transport technologies- eg TransitX, Vuba PRT

* Initiatives listed are indicative

Sustainable Transport



A foundational sector pioneering world-class development

Rwanda’s transport sector and associated investment needs are broad, considering road, rail, water, air, non-motorized transport, and innovative mobility modes. Estimated development in some key areas provide an indication of overall scale...



Rwanda has 38,800km of road, of which 4 % is currently paved

\$2.2⁺BN

to upgrade elements of the road network to be more climate resilient and improve connectivity



Rwanda has 170,000 personal motor vehicles, increasing by 12 % pa

\$1⁺BN

to convert 20 % of fleet to electric vehicles by 2030 (including supporting infrastructure)



Rwanda has 1,500 buses, with more to be added for Kigali BRT and demand

\$150M

to convert 20 % of fleet to electric vehicles by 2030 (including supporting infrastructure)



Rwanda’s unique context requires innovative mobility solutions

\$1.3BN

to develop advanced transport technology, infrastructure, and mobility services

Example projects seeking funding & finance



Utilising electric motorcycles and innovative ‘mobility-as-a-service’ technology to transform the public transport sector in Rwanda

\$10M

in financing for Phase 1, placing 2,500 electric motorcycles (and associated systems) on Kigali’s roads by 2020



A personal rapid transit (PRT) system utilising driverless electric vehicles serving the most densely populated areas of Kigali

\$1M

Sought for a detailed feasibility study, preceding a \$1.3b PPP deploying 144km guideway network and 2,500 vehicles by 2024

Market sizing estimates

Indicative figures developed internally, based off data from several sources including National Transport Policy, Strategic Programme for Climate Resilience, Sustainable Mobility and Rapid Transport SMART Report, draft Electric Mobility in Rwanda Feasibility Report, and Rwanda 2018 Statistical Year Book

Alternative Waste

Enabling sustainable waste futures...



- The Green Fund will support the Government's strategic vision of maximising the value of solid and liquid wastes using alternative waste treatment (AWT) technologies. This will drastically reduce waste-to-landfill, mitigate harmful carbon emission, and boost economic development.
- Currently +90% of all waste that is generated in Rwanda is transported at significant cost to landfills and unlicensed dumpsites. In many instances, waste makes its way into rivers, watercourses, and onto landscapes and crops. This results in contaminated drinking-water, harmful toxins being released near residential areas and schools, and fires that cause thick plumes of smoke to stretch over Rwanda's towns and cities.
- Rwanda is analyzing multiple, alternative waste options to transition away from waste dumping to sustainable waste futures, which address the social and environmental impacts of waste. The GFF will create opportunities to fast-track implementation by identifying opportunities for investment and technical support.



Key Programmes

Separation @ Source

Creating programmes that drive waste separation and unlock alternative management options and business opportunities across the value chain

Nutrient Upcycling

Extracting organic-rich wastes to upcycle high-nutrient content for use in smart agri-business

Composting

Processing clean green waste to enhance the use of high grade organic products over urban greenbelts.

Material Recovery

Recycling packaging waste to boost local economic development and boost cross-border trade opportunities

Initiatives*

Residential and commercial source-separation of waste in Kigali

Decentralised waste pre-treatment and transfer stations

Alternative waste collection and transportation

Centralised nutrient extraction and upcycling facility in Kigali

Agri-processing products facility

Decentralised green waste drop-off and chipping areas in Kigali

Centralised green waste composting and bagging plant

Green waste torrefaction plant for eco-fuels

Mobile Buy-Back Centres (BBCs) in Kigali's peri-urban

Centralised material recovery facility (MRF) for recyclables

Refuse derived fuels (RDF) processing facility

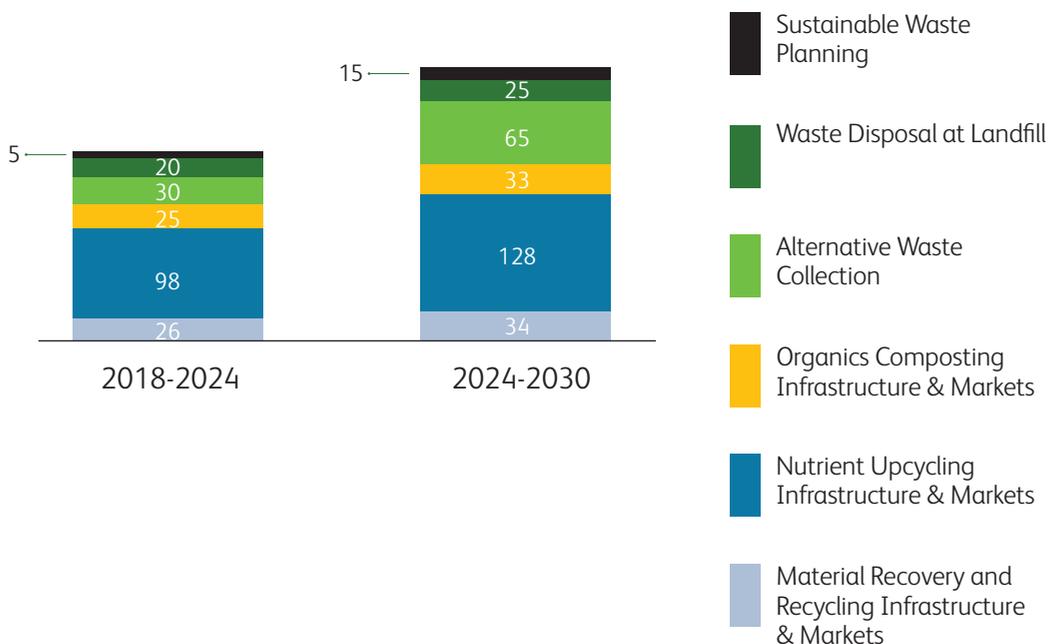
* Initiatives listed are indicative

Alternative Waste



A sector poised to offer significant economic value

The sector is forecast to require \$204m of investment between 2018-2024 with an increase of 47% to \$300m between 2024-2030¹



Example projects seeking funding & finance

AgriProtein

An innovative solution that turns organic waste into a high-protein source for agriculture

\$20M + **5K**

financing required to establish a large facility and market

Tonnes of Kigali's organic waste can be turned into high-protein agricultural meal



Containerised composters provide at-source processing of food waste into compost

400

Households in Kigali can be served by a tonne of food processed by a single unit

Requires equity partners to seed establishment in Kigali

Market sizing estimates

Forecasts based on the capital costs of infrastructure estimated by the World Bank in the Rapid Assessment & Options Analysis Report (June, 2019), and market multiples assumed for each of organic waste composting, organic nutrient upcycling and material recovery and recycling.

Green Cities

Investing in and leveraging sustainable urban growth...



- The Green Fund will support a national paradigm shift in approaches to urbanization by investing in major flagship urban initiatives and projects.
- Rwanda is urbanising rapidly with 35% of the population due to live in cities by 2024. Current growth rates are expected to accelerate rapidly as the country transitions to a modern urban and service led economy. This is creating new pressures on existing urban infrastructure as well as demand for new services.
- Simultaneously, there is a strong drive from government under the 2020 Vision to prioritise the development of sustainable cities, with growth decoupled from environmental impact. A clear roadmap for urban development in Kigali and the six main secondary cities has also been developed and is actively guiding urban infrastructure development and planning
- The Fund is supporting the development of a 620ha pilot green city in Kigali to develop a blueprint that can be replicated across the country, as well as identifying a range of bankable urban projects in water services, mobility, energy, ICT, waste, and commercial infrastructure (where applicable, linked to other sector proposals identified in this document). This is now at the advanced stages of planning with a full feasibility study expected to be delivered in the 2nd half of 2019



Green Buildings

Invest in both flagship commercial/industrial green buildings and in the development of a scalable green housing sector



Financing green home ownership

Develop new financial products and services to enable consumers to purchase affordable green housing



Nurturing sustainable construction

Support development of a dynamic local sustainable construction industry to enable delivery of the national green city agenda²

Key Programmes

Initiatives*

Investment in expansion of Kigali's Kinyinya Hill green city, currently in feasibility phase and receiving support from RSSB and IFC

Investment in eco-estates and high specification green buildings for high end markets

Invest in affordable & lower cost green housing

Investment in development of deferred payment financing products to support access to affordable homes (possibly through 'help-to-own' schemes)

Investments in high-growth companies producing sustainable construction materials

Investment in new domestic material technologies (i.e low-carbon bricks, glue laminated timber)

* Initiatives listed are indicative

Green Cities

Cross-cutting needs provide significant opportunities



Green Urbanisation
in the next 5 years

+\$250M

towards sustainable urban development in Kigali and major secondary cities over next 5 years



Green City Delivery
in the Next Decade

+\$5BN

towards multi-faceted development of the Green City site over the next decade

Example projects seeking funding & finance



Green City Kigali pilot project providing a template for sustainable urban development

\$19M

Sought for 3,700 residential units in Phase 1 (18ha)

\$1.8BN

Sought for 73,000 residential units and urban infrastructure. Grant, debt and equity investment options Phase 2+ (620ha)



Development of a local sustainable materials industry

\$5M

Sought to support growth of early stage enterprises to provide sustainable building materials.

Initial scoping studies being developed by FONERWA

Market sizing estimates

Example Project information - provided by the Green City Pilot team and Green City Pilot Mid-Term Feasibility Report. \$m estimates for the 'development of a local sustainable materials industry are based on the construction costs of brick and glue laminated timber beam factories (\$3m) & technical assistance and training (\$1m)

The Green Fund is seeking investment partners

...with a desire to be a part of Rwanda's green growth success

The Fund provides a range of prospects for partners looking to support, co-finance, and invest directly in Rwanda's continuing transition to a sustainable economy.

We offer opportunities to invest in sectors, programmes and specific transactions across the public-private spectrum through a number of bespoke instruments, mechanisms, and platforms, including:

'Hybrid' Fund

Traditional grants, concessional loans and credit lines

Guarantee Fund

Credit guarantees and similar products

Leasing and Securitisation Vehicles

Covering assets including solar, energy efficiency, irrigation, and others

Green Bonds

Bespoke for the application

Business Incubator and Accelerator Programs

Grants, seed equity, crowd investing, and other appropriate instruments

Medium and Large Enterprise Facilities

Loans, bridging/gap finance, and guarantees



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