Sustainable Development Verified Impact Standard

RWANDA RIPARIAN RESTORATION PROJECT

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Project Proponent(s)	EcoPlanet Bamboo Group, LLC Camille Rebelo: crebelo@ecoplanetbamboo.com
Assessor Contact	KBS Certification Services Limited/ director@kbscertification.com
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1 SUMMARY OF SDG CONTRIBUTIONS

Table 1: Summary of Project SDG Contributions

Row number	Estimated Project Contribution by the End of Project Lifetime	SDG Target	SDG Indicator	Net Impact on SDG Indicator	Section Reference	Claim, Asset or Label
1)	The project delivers training to a minimum of 500 individuals from local communities listed in the Government's Sustainable Graduation Database[1]. This training focuses on sustainable production and food security, strengthening their resilience to both economic and climate-related shocks. Baseline – Participants have not received training on sustainable production or gardening. Individuals listed in the Government's sustainable graduation database are living below the poverty line.	1.5 12.2	Project specific indicator - Number of community members trained in sustainable production and food security.	Increase	Section 3.2, #1, Section 4.2., #3	Claim
2)	The project supports the establishment of household vegetable gardens for beneficiaries listed in the Government's Sustainable Graduation Database, alongside grow houses at selected Early Childhood Development (ECD) centers. At least 1,000 individuals benefit from increased fresh vegetable production. In addition,	2.1. 2.2	Project specific indicator - Number of individuals benefiting from increased vegetable and fruit production.	Increase	Section 3.2, #1	Claim

[1] Republic of Rwanda., 2022. Ministry of Local Government. National Strategy for Sustainable Graduation.

	the project provides a minimum of 10,000 fruit seedlings to individuals. Baseline – individuals listed in the Government's sustainable graduation database are living below the poverty line. Identified ECDs have insufficient fresh vegetables to meet the needs of the school meal program.					
3)	Although there is nominal use of chemicals at the project nursery, the project ensures responsible use of chemicals within project activities by providing training to 100% of project workers involved in chemical handling. Baseline – workers do not have the required knowledge on the responsible use of chemicals.	3.9	Project specific indicator - Percentage of workers involved in chemical handling who have received training.	Increase	Section 3.2., #2	Claim
4)	The project supports the further education and technical/vocational skills development of at least 50 individuals from local communities and/or project staff. Baseline – Participants are from households listed in the Rwanda National Sustainable Graduation Database, living below the poverty line.	4.4	Project specific indicator - Number of individuals trained or educated in higher education, technical, or vocational skills.	Increase	Section 3.2, #3	Claim
5)	The project implements a train-the-trainer model to integrate sustainable development education into primary schools, ensuring long-term knowledge transfer. At least 40 teachers in rural schools receive training on sustainable gardening and climate education. Baseline – Primary school curriculum does not sufficiently integrate climate education and	4.7.	Project specific indicator - Number of teachers provided with training.	Increase	Section 3.2, #4	Claim

	sustainable gardening practices. 0 teachers providing lessons.					
6)	The project ensures the participation of females in training and socio-economic projects, with a minimum of 35% of female participation. Baseline – female participants are from households listed in the Government's sustainable graduation database, living below the poverty line.	5.1.	Project specific indicator - The percentage of females included in training and economic development project activities.	Increase	Section 3.2, #1 #5	Claim
7)	The project implements water taps, water purifiers and rainwater harvesting systems in local communities, increasing access to safe water for at least 1,000 individuals. Baseline – No piped water within 1 km of school or households. Only 81.6% of schools have access to piped water. Only 57% of the Rwandan population has access safe drinking water that is within 30 minutes of their home.	6.1.	Project specific indicator - Number of individuals benefiting from increased access to safe and affordable water.	Increase	Section 3.2, #6	Claim
8)	The project restores a minimum of 5.000 ha of degraded riparian areas, stabilizing riverbanks, reducing sedimentation into adjacent rivers and improving watershed health.	6.6 15.1	Project specific indicator - Total hectares planted with Bamboo species.	Increase	Section 3.2.,#7 Section 4.2, 2	Claim
9)	The project installs solar lights and provides access to renewable energy sources across rural communities, benefitting a minimum of 500 individuals. Baseline - An estimated 80.9% of all schools were connected to the electricity grid, while only 57,9% of the rural population has access to electricity.	7.1	Project specific indicator – Number of individuals benefiting from increased access to sources of renewable energy.	Increase	Section 3.2, #8	Claim

10)	The project generates an average of 300 jobs annually starting in 2023, ensuring 100% of employees receive equal pay for equal work, regardless of age, gender, or disability status.	8.5.	Project specific indicator - The average number of jobs created annually and the percentage of workers receiving equal pay for equal work performed.	Increase	Section 3.2, #7, #9 ,#10	Claim
11)	The project supports the establishment of computer laboratories in rural schools, benefitting a minimum of 1000 students. Baseline – Schools do not have access to computers and/or internet. In 2019, 83.4% of primary schools and 85.4% of secondary schools had computers with 61.1% of the latter had 4G broadband connectivity.	9c	Project specific indicator – Number of individuals benefiting from increased access to computers and internet.	Increase	Section 3.2, #11	Claim
12)	The project supports the establishment of micro-enterprises to stimulate the local economy, benefitting a minimum of 100 individuals. Baseline – 0 micro-enterprises established within selected villages.	2.4 8.3 12.2	Project specific indicator - Number of individuals trained in responsible production practices and business skills.	Increase	Section 3.2 #12 Section 4.2, #3	Claim
13)	A minimum of 2,645,000 tCO2e is stored and sequestered over the project lifetime from the project area.	13.0	Tonnes of greenhouse gas emissions removed	Decrease	VCS validation report, Section 4.2. #1	SD VISta-labeled VCU
14)	The project establishes a minimum of eight partnerships, local and international, to enhance the implementation of nature-based solutions in Rwanda. These partnerships foster collaborative	17.0	Project specific indicator - Number of partnerships established to mobilize financial, technical, and institutional resources for	Increase	Section 3.2, #13	Claim

	efforts to support social and environmental objectives. Baseline – 0 partnerships covering the scope of activities in the project area.		nature-based solutions and sustainable development.			

2 PROJECT DESIGN

2.1 Project Objectives, Context and Long-term Viability

2.1.1 Summary of Project Sustainable Development Objective(s)

The Rwanda Riparian Restoration Project is an AFOLU project, aimed at restoring key watershed areas in the landlocked hilly nation of Rwanda, through the planting of select species of sympodial (clumping) bamboos as riparian buffers. This carbon-financed project is located on land that is legally classified as riparian buffer zones. Specifically, the project is a revegetation project, targeting the planting and management of select species of giant clumping bamboo in a linear manner along rivers and lakes as chosen by the Rwanda Water Resources Board. Such riparian buffer zones represent state owned land, under the jurisdiction of the Rwanda Water Resources Board, a government entity that reports directly to the Prime Minister.

The project builds upon a successful grant financed pilot project (not under Verra's VCS certification scheme) carried out between 2019 - 2021 with the Rwanda Water Resources Board which has provided positive impacts on the surrounding ecosystems and served as the framework to design the VCS project (ID 3072). The current project includes the planting of bamboo clumps in riparian areas across eight districts, Ngororero, Karongi, Muhanga, Ruhango, Nyamagabe, Kamonyi, Nyaruguru and Gisagara. The project is a grouped project, with additional revegetation activities to occur specifically on riparian buffer zones, within the national boundaries of Rwanda representing the boundaries of the grouped project.

Additionally, socio-economic project activities will be implemented in designated areas within a maximum radius of 7 kilometers from the revegetation project sites. These activities are designed to benefit local communities residing near the riparian buffer zones. The socio-economic initiatives will address critical needs such as access to employment, clean water, food security, job creation, and the promotion of sustainable agricultural practices, enhancing the overall well-being and resilience of the affected communities. General workers and social impact participants are selected from the Government's National Sustainable Graduation Database[1], which includes households living below the poverty line that have been assessed as having the potential to achieve economic self-reliance. By targeting these households, the project supports national poverty reduction goals.

The sustainable development objectives of the project are:

- Enhanced food security. By promoting sustainable agricultural practices, establishment of vegetable growhouses and technical support of household gardens, the project increases food production and security in rural communities. This aligns with SDG 2 (Zero Hunger) by ensuring reliable food sources and strengthening local food systems.
- Empowerment and Safety – Th eproject generates local employment and workers receive skills and knowledge on health and safety measures contributing to decent working conditions. This contributes to SDG 3 (Good Health and Well-being) and SDG 8 (Decent Work and Economic Growth).

- Empowerment of Marginalized Groups. The project ensures the inclusion of women and children in employment and training programs, promoting social equity. This supports SDG 2 (Zero Hunger), SDG 4 (Quality Education) and SDG 5 (Gender Equality).
- Capacity Building. Workers/Staff and Community members receive training in aspects such as sustainable land management, climate resilience, business skills and resource conservation, ensuring long-term impact and self-sufficiency. Opportunities for higher education and technical/vocational skills development is supported, contributing to SDG 4 (Quality Education).
- Access to clean water. The project includes the installation of piped water systems and rainwater harvesting infrastructure, improving community access to safe and reliable water sources. This directly contributes to SDG 6 (Clean Water and Sanitation).
- Restoration of degraded riparian buffer zones. The project focuses on rehabilitating degraded riparian buffer zones by replanting them with bamboo species. This helps minimize soil erosion and restore biodiversity, contributing to SDG 15 (Life on Land) and SDG 6 (Clean Water and Sanitation) by improving watershed health.
- Water resource protection. Bamboo's extensive root system stabilizes soil and reduces sedimentation. This directly supports SDG 6 (Clean Water and Sanitation) by improving water quality while preventing degradation of aquatic ecosystems.
- Improved access to sources of energy. The project includes the installation of renewable soures of energy and/or solar lights to improve the quality of life for rural communities, contributing to SDG 7 (Affordable and Clean Energy).
- Job creation and economic empowerment. The project generates employment opportunities for local communities, particularly through bamboo planting and maintenance, contributing to SDG 8 (Decent Work and Economic Growth).
- Enriched education. The project supports improved access to ICT education for rural schools, improving the access to employment and entrepreneurship for community residents. This contributed to SDG 9 (Industry, Innovation and Infrastructure).
- Support for micro-enterprises and regenerative agriculture. Through technical training and capacity-building programs, local farmers gain skills in regenerative agriculture, increasing productivity while restoring soil health. Additionally, the project promotes rural entrepreneurship by facilitating the development of micro-enterprises. These projects contribute to SDG 2 (Zero Hunger), SDG 12 (Responsible Production and Consumption) and SDG 15 (Life on Land).
- Community Engagement. The project integrates local communities in decision-making processes, ensuring their active involvement in the design and implementation of social impact projects.

The project supports the following Nationally Determined Contributions (NDCs) for Rwanda[2]:

[2] Government of Rwanda, 2020. Updated Nationally Determined Contribution.

- Enhance sustainable agricultural practices to improve food security and resilience to climate change.
- Improve water resource management to ensure availability and quality under changing climate conditions.
- Promote sustainable land use and forestry management to enhance carbon sequestration and reduce emissions.
- Develop sustainable economic opportunities to improve livelihoods and reduce vulnerability to climate change.

2.1.2 Description of the Project Activity

Project Activity	Description	SDG Targets
Revegetation of riparian buffer zones	This initiative relates to the planting of bamboo in degraded riparian areas to stabilize riverbanks, reduce soil erosion, reduce siltation into the rivers and enhance biodiversity. The project provides employment opportunities for local communities, with a focus on women and youth. Employment is non-discriminatory, with equal work for equal pay. The project utilizes select species of giant clumping bamboo planted at spacing intervals of 5m along the edges of rivers and / or lakes. Clumping bamboo species is an effective mechanism for biological carbon removals and represents a long-term carbon sink. The project proponent ensure decent working conditions and training of all workers involved in VCS project activities. The project proponent has partnered with Rwanda Water	

Project Activity	Description	SDG Targets
	Resources Board and ClimatePartner to achieve the project's objectives. Mitigation measures implemented include training of workers, planting slightly back from the riverbank in erosion-prone areas to stabilize the land without risking immediate loss, community sensitization sessions, implementation of stakeholder feedback systems and patrol systems to monitor planted areas.	
Enhancing food security	The project facilitates the establishment of vegetable grow houses, kitchen gardens, micro-enterprises, and the adoption of regenerative agricultural practices to enhance food security, entrepreneurship and diversify income sources for local farmers. Vegetable grow houses are specifically promoted at Early Childhood Development (ECD) centers to support the health and well-being of children under the age of five. Additionally, the project encourages women's participation in capacity-building and development activities, promoting gender inclusivity and empowering women within the community.	
Enhancing access to quality education and access to technology	The project enriches learning content on sustainable development, climate change and sustainable gardening. Workers and community	

Project Activity	Description	SDG Targets
	residents, inclusive of women and children, are provided with opportunities for higher education, technical or vocational skills development. The project also aims to provide increased access to ICT tools, supporting the long term educational and employment goals of learners.	
Enhancing access to water, Improving watershed health	By revegetating riparian zones, the project contributes to the improvement of water quality and the restoration of ecosystem health. These efforts help stabilize riverbanks, reduce soil erosion, and filter pollutants, enhancing the overall integrity of water resources. In addition, the project supports the implementation of piped water infrastructure in rural communities, significantly increasing access to safe and affordable water. This infrastructure development ensures a reliable water supply, improving the well-being of community residents.	
Enhancing access to clean energy	By installing sources of renewable energy in rural communities, the project decreases the use of kerosene or fire while improving the quality of life of community residents.	

2.1.3 Implementation Schedule

Date	Milestone(s) in the Project's Development and Implementation
04.2021 – 12.2025	Introductory meetings with stakeholders
10.2022	Project Start Date for VCS reforestation project activities. Planting bamboo and creating local employment.
10.2022 - 09.2042	GHG Accounting Period
09.2024 – 12.2030	Implementation of Annual Community Impact Activities
06.2025	Verification of VCS, Validation and Verification of SD VISTA
03.2027	Verification of VCS
03.2029	Verification of VCS
12.2029	End date for bamboo reforestation activities.
03.2031	Verification of VCS and SD VISTA
03.2033	Verification of VCS
03.2035	Verification of VCS
03.2037	Verification of VCS and SD VISTA
03.2039	Verification of VCS
03.2041	Verification of VCS
03.2043	Verification of VCS and SD VISTA
03.2045	Verification of VCS
03.2047	Verification of VCS
03.2049	Verification of VCS and SD VISTA
03.2051	Verification of VCS
03.2053	Verification of VCS
03.2055	Verification of VCS and SD VISTA
03.2057	Verification of VCS
03.2059	Verification of VCS
03.2062	Verification of VCS and SD VISTA

2.1.4 Project Proponent

Organization Name	EcoPlanet Bamboo Group, LLC
Role in the Project	Lead Organization
Contact Person	Camille Rebelo
Title	Chief Operating Officer
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2.1.5 Other Entities Involved in the Project

Organization Name	EcoPlanet Bamboo Rwanda, Ltd
Role in the Project	EcoPlanet Bamboo Rwanda Ltd. Is a wholly owned subsidiary of EcoPlanet Bamboo Group, LLC, registered in Rwanda. This entity holds the legal agreement with the Rwanda Water Resources Board, detailed in Section 1.7 below. This entity works under the organizational structure and management of the project proponent, to carry out all aspects associated with project implementation, on-site management and monitoring. This entity is responsible for employing all staff as required to fulfill the project activities.
Contact Person	Camille Rebelo
Title	Managing Director
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Telephone	+44.7801.999.862
Email	crebelo@ecoplanetbamboo.com

2.1.6 Project Type

The project is a grouped project that falls within sectoral scope 14, Agriculture, Forestry and Other Land Use (AFOLU), within the Afforestation, Revegetation and Revegetation (ARR) project category. The project meets the VCS definition of revegetation[3] – specifically it is a direct human-induced activity to increase carbon stocks of woody biomass on sites through the establishment of vegetation that covers a minimum area of 0.05 hectares and does not meet the definitions of afforestation or reforestation. The project manually plants species of sympodial (non-invasive, non-spreading) bamboos grown from seed within land designated as riparian buffer zones. Such land areas were cleared of primary forest and native ecosystems more than 10 years prior to the project start date. The land undergoing such planting activities is currently classified as non-forested land with the categorization of riparian buffer zones.

2.1.7 Project Location

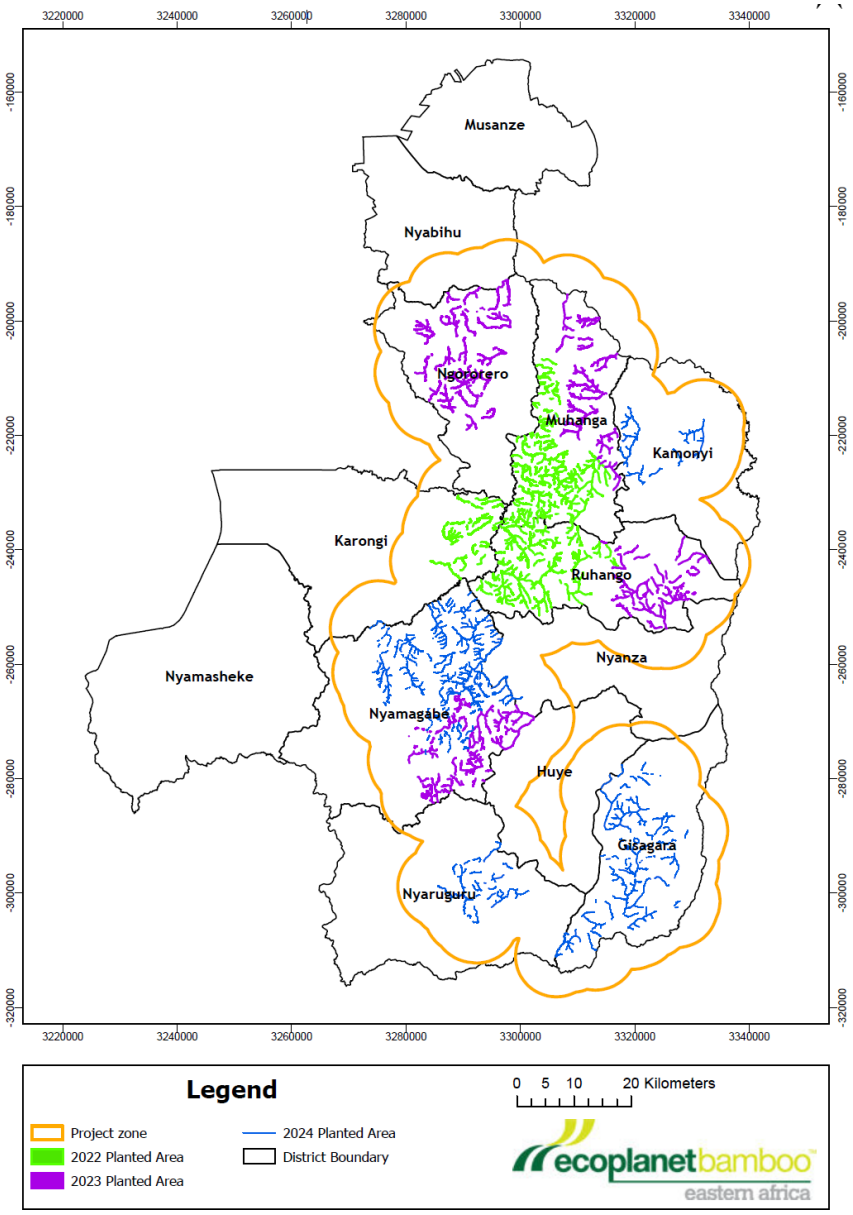
The project currently covers the planting of bamboo clumps in riparian areas and socio-economic project activities across eight districts, Ngororero, Karongi, Muhanga, Ruhango, Nyamagabe, Kamonyi, Nyaruguru and Gisagara. The project is a grouped project, with additional revegetation and socio-economic project activities, within the national boundaries of Rwanda representing the boundaries of the grouped project.

Table 2: Centroid coordinates across eight Districts

District	Longitude	Latitude	Coordinates
Gisagara	29.84350767	-2.617520292	29.84350767164176 -2.6175202918279865
Kamonyi	29.90240343	-2.009446356	29.902403432472454 -2.009446355964485
Muhanga	29.72272543	-1.954890666	29.722725434731103 -1.954890665771586
Nyamagabe	29.46987877	-2.411356116	29.469878765292833 -2.4113561158919765
Nyaruguru	29.51703503	-2.69443794	29.517035026145606 -2.6944379403586254
Ruhango	29.77176058	-2.193597689	29.771760584383514 -2.193597688582429
Karongi	29.39409601	-2.140975131	29.394096013520254 -2.1409751306976545
Ngororero	29.56946507	-1.877844811	29.56946506885788 -1.8778448107893269

[3] Verified Carbon Standard Program Definitions v4.1, January 2022

Figure 1: Map Reflecting the Project Area for Revegetation Plantings to Date



2.1.8 Baseline Scenario

The project covers the implementation of socio-economic project activities and the planting of bamboo clumps in riparian areas across eight districts, Ngororero, Karongi, Muhanga, Ruhango, Nyamagabe, Kamonyi, Nyaruguru and Gisagara. The project is a grouped project, within the boundaries of Rwanda.

Rwanda is a landlocked country of 26,338 km² bordered by Uganda to the north, Tanzania to the east, Burundi to the south, and the Democratic Republic of Congo to the west. With a population of 13,7 million residents[4], Rwanda is one of Africa's most densely populated countries.

[4] National Institute of Statistics Rwanda. https://www.statistics.gov.rw/statistical-publications/subject/population-size-and-population-characteristics

Social conditions: as of August 2022, Rwanda's population reached 13 million, with females making up 51.5% of the total. The urban-rural distribution shows that 27.9% of the population resides in urban areas, while 72.1% live in rural regions. Notably, 22.3% of the population has never attended school. Children account for 45% of the total population, and youth (ages 16-30) make up 27.1%, or approximately 3.6 million people[5]. Ethnic and indigenous communities have been previously estimated to be Hutus (84%), Tutsis (15%) and Twa (Batwa) (0.3 %)[6]. Following the 1994 Genocide, where an estimated 800,000 Tutsis and moderate Hutus were killed, Rwanda undertook extensive reconciliation programs such as the Gacaca courts and policies promoting national unity. These efforts have built a strong sense of community resilience. Rwanda's decentralized administrative structure empowers local governments at the district, sector, cell, and village levels, promoting grassroots participation in development and environmental management initiatives[7]. Post-genocide Rwanda has seen significant strides in gender equality, with 63% of parliamentary seats held by women, the highest globally[8]. This shift has improved women's participation in economic, political, and social spheres, although many households remain vulnerable, with 20% of homes headed by women[9]. Malaria, HIV/AIDS, and malnutrition remain significant health issues.

Economy: agriculture is a major economic sector for the people of Rwanda, employing about 64.5% of the total population. The industry contributes about 25% to GDP, and it stands out as one of the most strategic sectors in Rwanda's development[10]. Smallholder farmers account for 83% of Rwanda's agricultural output, producing crops such as coffee, tea, beans, and cassava. Tea and coffee are the major exports while plantains, cassava, potatoes, sweet potatoes, maize and beans are the most productive crops. Rwanda exports dry beans, potatoes, maize, rice, cassava flour, maize flour, poultry and live animals within Eastern Africa. Despite Rwanda's fertile ecosystem, food production struggles to keep pace with population growth, partly due to climatic challenges and soil degradation[11]. Rwanda has positioned itself as a leading eco-tourism destination, particularly through gorilla trekking in Volcanoes National Park.

Natural conditions: Rwanda's vegetation ranges from dense equatorial forests in the northwest to tropical savannahs in the east. The country is rich in biodiversity, with key protected areas. Rwanda experiences two rainy seasons (March–May and October–November), with average rainfall ranging from 110-200 mm per month. Average temperatures vary from 24.6°C to 27.6°C, with August and September being the hottest months[4]. Rwanda is a global leader in forest landscape restoration, with commitments to restore two million hectares of degraded land under the Bonn Challenge[12]. Soil erosion is one of Rwanda's most challenging environmental problems, affecting 45% of the country's land. Ngororero District has the highest erosion risk, with 85% of its land at risk, followed by Muhanga District (82%) and Rutsiro District (73%). Much of the high-risk land is used for seasonal agriculture, which exposes soils to splash erosion

[5] Republic of Rwanda, 2025. https://www.gov.rw/about
[6] Minority Rights Group, 2023. https://minorityrights.org/country/rwanda/
[7] Ministry of Local Government, Good Governance, Community Development and Social Affairs, 2007. Rwanda Decentralization Strategic Framework
[8] Government of the Republic of Rwanda, 2025. https://www.parliament.gov.rw/women-representation
[9] National Institute of Statistics Rwanda, 2022. 5th Rwanda Population and Housing Census (PHC)
[10] Rwanda Development Board, 2025. https://rdb.rw/investment-opportunities/agriculture/
[11] FAO, 2025. https://www.fao.org/rwanda/our-office-in-rwanda/rwanda-at-a-glance/en
[12] IUCN, 2025. https://iucn.org/news/forests/202003/how-rwanda-became-a-restoration-leader

and land degradation due to a lack of permanent vegetation cover. Droughts, erratic rainfall, and extreme weather events impose significant economic costs, particularly on rural communities[13].

Rwanda is home to several significant lakes. These water bodies are vital for fisheries, hydropower generation, and community livelihoods. There are currently 21 hydropower plants that are grid connected, contributing approx. 47% of the total installed capacity[14].

2.1.9 Causal Chain(s)

Refer to Appendix 1.

2.1.10 Threats to the Project

To ensure the long-term success and sustainability of the project, both natural and human-induced threats that could potentially undermine the expected sustainable development benefits have been identified:

1. Natural Threats and Mitigation Measures

- Extreme Weather Events - Increased frequency of droughts, flooding, or extreme weather events may affect the growth and survival of planted bamboo within the VCS project areas and disrupt agricultural productivity in the wider landscape in the SD VISta project area.

  Mitigation Measures: Use of drought-tolerant bamboo species within the VCS project area to ensure it can withstand climate extremes. Encourage crop diversification and regenerative agricultural practices within local communities in the wider landscape in the SD VISta project area to improve resilience against unpredictable weather patterns.

- Soil Erosion and Degradation: Severe soil erosion due to heavy rainfall or unstable riverbanks may hinder revegetation success in the VCS project area and reduce agricultural productivity in the wider landscape in the SD VISta project area.

  Mitigation Measures: Within the VCS project, training workers to plant bamboo within the allocated 5-meter riparian buffer zone, away from severely eroded riverbanks. Within the wider landscape in the SD VISta project area, introduce contour farming and regenerative agriculture to prevent soil loss and improve fertility.

2. Human-induced Threats and Mitigation Measures

- Illegal Farming and Resource Encroachment - Some community members may attempt to illegally farm within the riparian buffer zones, including the removal of bamboo to reclaim land for cultivation, threatening the environmental restoration objectives.

  Mitigation Measures: Conduct ongoing community sensitization and awareness campaigns with local government officials highlighting the long-term environmental and economic benefits of riparian restoration. Implement regular monitoring and security patrols to deter illegal activities and protect

[13] Republic of Rwanda, 2022. The State of Soil Erosion Control in Rwanda.
[14] Government of the Republic of Rwanda, 2025. https://www.mininfra.gov.rw/1/energy

revegetated areas. Provide employment opportunities and support for micro-enterprises to reduce dependence on illegal land use for income.

- Livestock Grazing and Crop Damage - Livestock grazing near water sources may damage bamboo plants, particularly during the early growth stages.

  Mitigation Measures: Install cages or fencing around young plants in high-livestock areas. Project staff work closely with local district officials, the Rwanda Water Resources Board, and agricultural extension officers to ensure that communities understand the environmental and economic benefits of the planted bamboo. Farmers are educated on the importance of protecting bamboo stands, with emphasis placed on the long-term advantages of riparian restoration for soil stabilization, water conservation.

2.1.11 Benefit Permanence

The expected project benefits will continue beyond the 40-year lifetime of the project. The following measures have been designed and implemented:

1. Capacity Building and Education - Facilitate practical training and capacity building in food security, sustainable land management, higher education and vocational/technical skills development and micro-enterprise startups to empower participants to independently implement these practices and achieve economic advancement. Promote environmental awareness and stewardship through educational programs, community workshops, and outreach campaigns for long-term stewardship and conservation management. The maintenance and management of educational infrastructure and assets is overseen by school management[15].

2. Community Empowerment and Ownership - Facilitate community-led initiatives and participatory decision-making processes to ensure local ownership and empowerment. Examples include establishing micro-enterprises selected by community members and led and managed by community residents[16].

3. Sustainability of Water and Energy Infrastructure – The maintenance of water and energy infrastructure is overseen by local government authorities, ensuring its continued functionality and reliability well beyond the project's duration[17].

4. Land Tenure - The VCS revegetation project operates on land owned by the Government of Rwanda and managed by the Rwanda Water Resources Board. It is anticipated that the ownership and management structures will be retained along with benefits for at least 60 years, after the crediting ends.

5. Species Management - Bamboo species selected for the project have a minimum lifespan of 60 years. Once mature, these bamboo clumps become resilient and challenging to remove due to their robust root systems. Thus, it's highly improbable that productive bamboo clumps will be removed until their natural end of life.

[15] MOU with St. Nicolas Secondary School
[16] Community and District Engagement Minutes
[17] MOU with Muhanga District, 2025.

6. Adaptive Management and Monitoring - Implement adaptive management practices integrating feedback mechanisms, regular monitoring, and evaluation to assess project effectiveness and adjust strategies as needed. Utilize technology and remote sensing tools for ongoing monitoring of vegetation cover and carbon sequestration rates.

2.2 Stakeholder Engagement

2.2.1 Stakeholder Identification

A stakeholder (excluding an interested stakeholder) as defined in the Sustainable Development Verified Impact Program Guide v1.0 is any person who can potentially be affected by the project.

Directly Affected Stakeholders have been identified based on the following criteria:

- Proximity to EcoPlanet Bamboo's Planted Areas: Individuals and communities located near the VCS project area are considered primary stakeholders due to their close geographic relationship with project activities.
- Potential Positive and Negative Impacts: Stakeholders participating in project activities whose interests may be positively or negatively impacted by the project.
- Local government database of most vulnerable citizens is utilized to support recruitment and inclusion within project activities.
- Partners: Institutions that collaborate with EcoPlanet Bamboo at the project level or national, district and local level (sector, village or cell).

2.2.2 Stakeholder Description

Stakeholders can be categorized as either external (people outside of the organization or project) or internal (people within the organization or project).

1. External Stakeholders

a) Government of Rwanda

Due to Rwanda's decentralized administrative structure, several government bodies at different levels are involved in the project:

- The Rwanda Environment Management Authority (REMA): The Authority holds the legal mandate for national environmental protection, conservation, promotion, and overall environmental management. It also serves as the government's principal advisor on environmental and climate change matters. REMA is responsible for ensuring the integration of environmental considerations and climate change adaptation into Rwanda's national development agenda. Its core mandates include mainstreaming environmental and climate change concerns across all sectors to enhance performance and productivity; reducing Rwanda's vulnerability to climate change impacts; and controlling pollution and enforcing compliance with environmental regulations to support sustainable development. In addition, REMA is the designated authority responsible for reviewing, approving, and issuing the Environmental Letter of Approval (ELOA) for stakeholder carbon

projects in Rwanda. They ensure that carbon projects comply with national environmental and climate policies and contribute to sustainable development objectives.

- Rwanda Water Resources Board (RWB): This agency, under the Ministry of Environment, ensures the availability and quality of water resources across Rwanda. The Board plays a critical role in catchment restoration and protection, directly aligning with the project's goals of riparian buffer zone rehabilitation. Land tenure of the VCS project area is under the management of the Rwanda Water Resources Board.
- District Government: District authorities oversee sustainable development within their administrative boundaries, promoting environmental protection and community well-being. As custodians of riparian protection projects, their support is essential for ensuring the project's compliance with local regulations and development objectives.
- Sector, Cell, and Village Governments: These local government units work directly with community members to implement project activities. They facilitate community engagement and ensure that revegetation project mandates are aligned with local development plans. The local government maintains a database of vulnerable citizens eligible for employment or social initiatives, which is utilized within the project. In addition, governmental staff employed within schools, clinics and other governmental institutions are engaged, where socio-economic project activities may impact their interests.

Figure 2 : Organizational Structure of Government Entities

b) Communities within the Catchment Area

While the Government of Rwanda holds legal ownership of the land within the VCS Project Area, local communities have socio-economic connections to these lands. Though not formal landholders, they are key stakeholders due to their proximity to the revegetation project activities and potential socio-economic impacts, such as access to water resources, employment and social impact project activities. Within this group of stakeholders, women are identified as a stakeholder sub-group to ensure gender equity in training and capacitation.

c) ClimatePartner Gmbh

ClimatePartner is responsible for securing carbon financing for the initial 1,000 hectares of the VCS revegtation project. Their involvement provides financial support to the project and supports compliance with Verra's VCS standard, contributing to the project's credibility.

2. Internal Stakeholders

The project's internal stakeholders consist of employees/ workers, who have a vested interest in the project's success due to their reliance on continued employment and income. This group of stakeholders contribute to the project's outcomes through their roles in management, fieldwork, and administrative support, and they are directly affected by project performance and workplace conditions. Within this group of stakeholders, women are identified as a stakeholder sub-group to ensure gender equity in employment, training and capacitation.

2.2.3 Stakeholder Consultation

1. Consultation Process: the stakeholder consultation process for the project is designed to be inclusive, transparent, and responsive, ensuring that all relevant parties are informed and actively engaged throughout the project lifecycle[18]. This process follows existing structures used across Rwanda to implement riparian restoration projects and is tailored to meet the needs of different stakeholder groups, with special attention given to women in rural communities and within the workforce.

a) Government Entities: the consultation process with government stakeholders leverages Rwanda's decentralized administrative structure and existing frameworks for riparian restoration:

i. Rwanda Environmental Management Authority (REMA):

The Rwanda Environment Management Authority (REMA) is responsible for ensuring that environmental issues and climate change are effectively integrated into Rwanda's national development agenda. REMA frequently collaborates with the Rwanda Water Resources Board (RWB) on projects related to wetland conservation, water resource management, and broader environmental health. As a key partner, RWB plays a role in supporting REMA's mandate to promote environmental protection and sustainable natural resource management. Furthermore, Rwanda's Carbon Market Framework was commissioned by REMA, which also serves as the designated regulator of the national carbon market.

ii. Rwanda Water Resources Board (RWB):

As the government agency mandated to protect riparian areas, the Rwanda Water Resources Board provides the technical framework and funding for watershed management projects. Since bamboo planting has been a key program for riparian restoration in Rwanda since 2010, the Board has already established agreements with District Governments in the Southern and Eastern Provinces, where the project area is located. The Rwanda Water Resources Board consults with District leadership on the location, scale, and timeline of the restoration efforts and integrates the project into district-level planning.

iii. District Governments:

Once the revegetation project is integrated into the district work plan, the District Government assumes oversight responsibilities, ensuring project completion and the survival of the plantings to

[18] EcoPlanet Bamboo Stakeholder Engagement Plan.

maintain their social and environmental benefits. Districts typically contract out these projects, and in this case, the project proponent acts as the implementing partner, working directly with the District Government.

In addition, project proponent staff engage with district governments when considering the implementation of project activities that may have potential socio-economic or environmental impacts. District officials are consulted to assess the needs of constituents across the sectors, cells, and villages within their jurisdiction. Discussions include the potential costs, risks, and benefits associated with the proposed project activities.

iv. Sector, Cell, and Village Governments:

District Governments coordinate with Sector Governments, who are responsible for community engagement. The Sector Governments work closely with Cell and Village Governments, which are tasked with communicating the revegetation or socio-economic project activities to local communities. Monthly village meetings are used to disseminate information, with participation from the project's dedicated Community Development Officer and technical teams. Government representatives from local schools, clinics, etc. are engaged when potential activities are identified. Discussions include the potential costs, risks, and benefits associated with the proposed project activities.

b) Local Communities within 7km of the VCS Project Area: The Cell and Village Governments organize monthly meetings where community members are informed about the revegetation and/or socio-economic project goals, activities, and timelines. These meetings cover:

- The importance of protecting riparian buffer zones.
- The need to cease illegal farming activities in the buffer areas.
- Employment opportunities available through the project.
- Potential costs, risks and benefits.

Separate focus groups are held with women to provide platforms for specific concerns to be discussed. The Sector Governments, in collaboration with EcoPlanet Bamboo, conduct community sensitization campaigns to educate residents on the environmental and social benefits of the bamboo plantings. These campaigns emphasize the project's role in improving water quality, soil stability, and local livelihoods.

c) ClimatePartner: is consulted monthly in order to ensure compliance with project deliverables and to align project activities with sustainability goals. Regular reporting and updates are provided to ClimatePartner on the project's progress, environmental impacts, and community benefits.

2. Project Design:

The revegetation project was designed in close collaboration with the Rwanda Water Resources Board and informed by a pilot project that provided valuable insights into community engagement and environmental challenges. The consultation process included:

- Multiple meetings were held with representatives from the Rwanda Water Resources Board, District Governments, and local administrative units (sectors, cells, and villages). These discussions focused on aligning the project with national development strategies and ensuring compliance with regulations. The design of the revegetation project was based on the results of the pilot project with RWB.
- Consultations with local communities and women were conducted through monthly village meetings facilitated by Cell and Village Governments. The project's Community Development Officer and technical teams participated in these meetings to provide information about project activities, address community concerns, and gather feedback.
- Discussions with workers and sub-groups of women, provided feedback on the effectiveness of revegetation project activities.

  A comprehensive summary of all stakeholder meetings[19], including photographic evidence, was provided to the Validation and Verification Body (VVB).

Stakeholder Feedback and Influence on Project Design: Stakeholders identified several potential risks and provided recommendations that were incorporated into the project design and implementation strategies.

- Loss of bamboo due to extreme erosion in the VCS project area: Community members and government officials raised concerns about severe riverbank erosion making bamboo planting ineffective, especially where banks were at risk of collapse. To mitigate this, bamboo was planted further from the riverbank within the 5-meter riparian buffer zone.
- Food Security: District input highlighted key priorities, such as malnutrition affecting children and food security among vulnerable households, leading to the development of targeted interventions. Projects such as growhouses at early childhoods development centers and household gardens were designed to support long-term food security but also educate community members on sustainable gardening practices.
- Access to Water: Feedback from a rural school highlighted the lack of water as a barrier to maintaining hygiene. In response, the project was redesigned to include the installation of water points near the school toilets.
- Damage by Community Livestock: Communities identified the risk of livestock grazing on young bamboo near the rivers. To address this, community sensitization campaigns were conducted, and protective fencing were installed in high-livestock areas to safeguard young plants.
- Illegal Farming in the VCS Project Area: Some farmers expressed reluctance to cease illegal farming activities within the buffer zones and were concerned about losing access to this land. There was also a risk that some individuals might attempt to remove bamboo to continue farming. The project mitigated this through security patrols and ongoing community sensitization, which, as shown in the pilot project, significantly reduced bamboo destruction.

[19] Overview of Stakeholder Meetings Held between 2022 -2025

- Risks to Stakeholder Resources: The Government of Rwanda holds legal rights to the land within the VCS project area, with no other stakeholders possessing property rights. Potential indirect impacts from reducing illegal activities were acknowledged, but no additional mitigation measures were required.
- No concerns were raised specific to females within communities or within the workforce.

2.2.4 Continued Consultation and Adaptive Management

The communication and consultation between the project proponent and communities and other stakeholders will be continuous throughout the lifecycle of the project[18].

The project proponent will conduct stakeholder meetings, providing a platform for open dialogue where participants can share insights and offer feedback on project plans and activities. These meetings will ensure stakeholders have the opportunity to voice concerns and suggestions, fostering transparent communication. Additionally, the meetings will highlight project achievements and improvements, while feedback gathered will be used to enhance project objectives. The meetings help identify community needs and align community expectations.

The project will create an Annual Impact Plan based on the multi-year investment that is driven by the findings of the socio-economic baseline assessment and yearly community engagement activities. This plan will integrate stakeholder input into the project's decision-making processes, ensuring that local perspectives are actively considered throughout all stages of the project lifecycle. The full-time employed Community Development Officer leads this process by facilitating ongoing communication between the project team and the community. This officer gathers feedback through meetings, interviews, and surveys, capturing the community's concerns, suggestions, and needs. By conveying this feedback, the Community Development Officer helps shape the Annual Impact Plan and design of project activities, ensuring it reflects community priorities and addresses any potential issues. The Community Development Officer monitors the implementation of the plan, continually engaging with the community to ensure their participation and assess the effectiveness of the actions taken.

EcoPlanet Bamboo is committed to engaging workers and employees, consulting experts, referencing relevant literature, and analyzing data to inform project management decisions. Best available information and results from monitoring and stakeholder consultations are used to increase knowledge of bamboo revegetation practices and to improve socio-economic project practices. Updates are included within the integrated management system, including management plans and standard operating procedures[20].

2.2.5 Anti-Discrimination

The project proponent is committed to providing a work environment free from discrimination and sexual harassment. The project proponent's Anti-Discrimination and Sexual Harassment Procedure, Human and Labor Rights Policy and Code of Ethics outlines measures designed to ensure that all entities involved in and with the company are not involved in, or complicit in any form of discrimination or sexual harassment based on gender, race, religion, sexual orientation, or other characteristics. Contractors sign

[20] EcoPlanet Bamboo Adaptive Management Policy

a commitment to responsible practices. All levels of staff are provided with awareness training on the company policies and relevant procedures. The policies will be made available to the auditor.

2.2.6 Worker Training

The project proponent directly hires workers from the local communities, bordering the riparian areas, within the project area to support revegetation project activities and employs strategies to build valuable skills and knowledge within the project area:

- Provide training on occupational health and safety (OHS) related to their tasks, and other relevant skills necessary for their roles.
- Local staff lead training sessions, ensuring cultural relevance and the integration of local knowledge.
- Female participation in all training is encouraged, and mandatory for all workers in the VCS revegetation project activities.

For participants in socio-economic project activities in the community, all participants (inclusive of women) will be provided with specialized training to meet the project activity objectives. Examples include training on the development and maintenance of household gardens, where groups of women were trained on utilizing local materials in the project[21].

2.2.7 Equal Work Opportunities

The project proponent provides equal employment opportunities to all stakeholders, ensuring that hiring practices are transparent, non-discriminatory, and inclusive. This commitment is guided by the project proponent's Anti-Discrimination Procedure, Recruitment Procedure, and Human and Labour Rights Procedure, which promotes fairness in all aspects of employment, from recruitment of general workers to management level positions. All stakeholders are given equal opportunities to apply for and fill available work positions, including management roles, provided they meet the job requirements. The selection process is based on merit, qualifications, and the ability to perform the tasks, without any form of discrimination related to race, religion, gender, gender identity or expression, sexual orientation, disability, age, or any other characteristic protected by Rwanda labor legislation.

Casual workers are primarily selected from local communities bordering the VCS project area, ensuring that the project directly benefits surrounding communities. The project selects candidates from the Government of Rwanda's Sustainable Graduation Database[1] in accordance with the project proponent's Recruitment Procedure. The project proponent conducts stakeholder meetings to inform community members about the project's objectives, potential risks, costs, and benefits, including available employment opportunities. The project strives to ensure that a minimum of 35% of the workforce, averaged on an annual basis, is female. Candidates are evaluated based on clear criteria related to qualifications, skills, and experience for management level positions. The selection process is designed to be objective, ensuring that all applicants are considered fairly.

All workers, regardless of their prior experience, are provided with training to equip them with the necessary skills to perform their roles safely and effectively[21].

[21] EcoPlanet Bamboo, Training Registers 2025.

2.2.8 Workers' Rights

Rwanda has ratified all eight of the International Labour Organization's (ILO) fundamental conventions, which cover core labor standards such as freedom of association, the right to collective bargaining, the elimination of forced and child labor, and the prohibition of discrimination in employment. These ratifications are reflected in Rwanda's labor laws.

Measures Utilized for Communicating and Overseeing Worker Rights:

- Permanent workers are provided with training upon onboarding, which includes information on their rights under labor legislation along with awareness training on company policies and procedures.
- Regular communication channels, such as quarterly meetings, are utilized to reinforce workers' awareness of their rights and obligations.
- Project proponent staff are employed to address enquiries and concerns regarding workers' rights and to ensure compliance with legal requirements.
- As detailed in the project proponent's Conflict Resolution Procedure and Whistleblower Policy, grievance mechanisms are in place to allow workers to raise concerns or complaints related to their rights, with the assurance of prompt and fair resolution.

2.2.9 Occupational Safety Assessment

The project proponent has assessed the potential risks to workers or other stakeholder groups that could arise during project implementation, along with corresponding measures to inform workers of these risks and minimize them. This risk assessment was reviewed and agreed upon by the project proponent's occupational, health and safety committee, which is comprised of management level employees and workers from each section of the project proponent's operations. Refer to Appendix 2.

Workers are provided with training upon onboarding, which includes information on risks and associated mitigation measures. Where required, external stakeholders are provided with awareness talks detailing risks and mitigation measures, should project activities pose a risk to their safety or assets[21].

2.2.10 Feedback and Grievance Redress Procedure

The project proponent's Conflict Resolution Procedure can be accessed by the public upon request at the project proponent's offices in Kigali, Rwanda. Upon joining the company, workers and employees are introduced to the policies and procedures during their onboarding process and undergo an annual refresher on the procedures. Contractors receive awareness training on the policies. Additionally, stakeholders are informed about the procedure during annual stakeholder engagement sessions or community meetings facilitated by the community officers or general manager. All grievances received through various channels are documented in a central database. Each grievance is recorded with details such as the nature of the grievance, date of submission, individuals involved, and description of the issue. Project responses to grievances are documented alongside the corresponding grievance entry. Each response includes the date and details of the closure evidence. Dependent on the nature of the grievance and preference of stakeholders, grievances or conflicts may be resolved legally through the courts or traditional systems.

2.2.11 Feedback and Grievance Redress Procedure Accessibility

The Conflict Resolution Procedure can be obtained upon request from the project proponent's offices in Kigali, Rwanda, or electronically via the contact form on the project proponent's website. All stakeholders are also informed about the procedure and the methods available for accessing it.

2.2.12 Stakeholder Access to Project Documentation

Summaries of project documentation, including the project description and the results of the monitoring plan, will be made available to stakeholders and communities in the following ways:

1. All project documentation will be available online via Verra's registry portal.
2. Copies of the documentation are available at the project proponent's offices. Assistance will be available to assist community members or other stakeholders who are unable to read or understand the documents in English.
3. Copies can be requested via email by emailing info@ecoplanetbamboo.com

The project proponent informs stakeholders of where and how the documentation can be accessed during annual stakeholder meetings and/or informational letters providing them with a summary of the project description, monitoring plan and results.

2.2.13 Information to Stakeholders on Assessment Process

The project proponent utilizes the following approaches to inform stakeholders of the assessment process and assessor's site visit:

1. Community Meetings: We conduct regular community meetings where the Community Development Officer provides updates on project activities, including information about the SD VISta validation and verification assessment process and how communication with the assessor may be facilitated.
2. Emails, Calls, and Messages: We utilize various communication channels, including email, phone calls, and text messages, to disseminate information about the validation and verification process and communication with the assessor.
3. Engagement with Local Leaders: We engage with local leaders, such as village heads, to ensure that they understand the validation and verification process, communication with the assessor and can help communicate this information to their communities effectively.
4. Engagement with Workers: Contractor and own workers are engaged via toolbox talks on the validation and verification process to ensure their understanding of their roles and responsibilities within the process and how their communication with the assessor may be arranged.
5. Advance Notification: Communities and stakeholders will receive advance notification of the auditor's site visit through multiple channels, such as community meetings, emails, and phone calls. This notification will include the date, time, and purpose of the site visit, as well as contact information for the project team in case stakeholders have any questions or concerns.

6. Community Representatives: Community representatives or liaisons who serve as points of contact between the community and the project proponent will be made available during the audit. These representatives are responsible for facilitating communication, ensuring that community members are informed and involved throughout the audit process.

7. Scheduled Meetings with the Assessors: Meetings between community representatives and the assessors may be scheduled to ensure that community concerns are heard and addressed. These meetings may take place during the site visit or virtually, depending on the preferences and availability of the stakeholders involved.

2.3 Project Management

2.3.1 Avoidance of Corruption

The project proponent is a morally sound company with the highest ethical standards. Bribery, extortion, fraud, collusion and any other corrupt behaviors are prohibited in any operation conducted by the Company or any individual within the Company. This is contained within the project proponent's Anti-Corruption Policy and Code of Ethics which will be made available to the auditor. All contractors sign the project proponent's Responsible Contractor Agreement which stipulates adherence to Company Policies and procedures.

2.3.2 Statutory and Customary Rights

Within the VCS Project Area: All land within the VCS project area (Figure 1) is defined as public property under the jurisdiction of the Rwanda Water Resources Board. There are no areas within the VCS project area to which any other local stakeholders own or to which they have customary access.

Outside the VCS Project Area: Adjacent to the VCS project area, as per the map displayed in Figure 1, are villages that have customary access to the farmlands adjacent to the riparian buffer zones on which the revegetation project activities are located. Such adjacent farmlands are outside of the VCS project area and there is no direct impact of the revegetation project activities on adjacent farmlands. In addition to the adjacent farmlands, although local stakeholders are prohibited from law from carrying out activities within the project area, they have access to the water within the adjacent rivers. The project does not interfere with, prohibit or in any way change such access.

Following the 2005 Land Law reforms, Rwanda implemented a land tenure regularization program that granted individuals, including rural farmers, legal rights to land through registration and titling. This system allows farmers to have private ownership or long-term lease rights over their land, providing them with legal security and the ability to use land as collateral for loans. However, while the land is privately held, it remains under the overall authority of the state, which retains ownership of all land in Rwanda. The Rwandan government plays a central role in providing land and resources for schools, while private entities, religious organizations, and communities contribute significantly to the development and management of educational institutions. Tenure, use, access and management rights linked to infrastructure such as schools, are held by the Government of Rwanda.

2.3.3 Recognition of Property Rights

The project proponent is committed to ensuring that all property rights, both statutory and customary, are recognized, respected, and supported throughout project planning and implementation. This commitment aligns with national laws and the project proponent's Code of Ethics and commitment to international standards.

Within the VCS Project Area: The project proponent is committed to the public- private partnership with the Rwanda Water Resources Board.

Outside the VCS Project Area: In rural areas where customary land tenure systems exist, the project acknowledges these rights through consultations with traditional leaders and community members, even where formal documentation may be absent. The project follows Free, Prior and Informed Consent (FPIC) principles to guarantee that all affected communities are fully informed and voluntarily consent to any activities impacting their land and resources. Regular consultations with landowners, local authorities, and community representatives ensure that any concerns about property rights are addressed transparently[22].

2.3.4 Free, Prior and Informed Consent

Within the VCS Reforestation Project Area:

The GHG emissions removal project is occurring on government land managed by the Rwanda Water Resources Board. There are no people living within the project area. Therefore, no FPIC processes are required for the VCS Revegetation project area.

Outside the VCS Reforestation Project Area:

The project proponent employs the following measures:

1. Consultations are held with affected parties, including community members and landowners, to obtain their free, prior, and informed consent before implementing project activities within community areas. Examples include where land in the local community is required for the establishment of project activities such as micro-enterprises.

2. The project engages in transparent and participatory processes, providing stakeholders with comprehensive information about the project's objectives, potential impacts, and proposed activities.

3. The project team collaborates closely with Community Village Heads and usufruct rights holders, to facilitate consultations and ensure that project activities are conducted in accordance with local customs, laws, and regulations.

4. Records of consultations, meetings, and agreements are documented to demonstrate the process of obtaining FPIC. These records include meeting minutes, signed agreements, and any correspondence exchanged with stakeholders.

2.3.5 Restitution and/or Compensation for Affected Resources

[22] EcoPlanet Bamboo Community Engagement Records and Records of Free, Prior and Informed Consent.

The project proponent is committed to ensuring that no stakeholders experience negative impacts from project activities within or outside the VCS project area. This is achieved through thorough stakeholder consultations and adherence to legislation.

Within the VCS Project Area: The project operates on government-owned land, with sufficient buffer zones established to separate project activities from adjacent farmland and communities. This strategic planning minimizes the risk of unintended consequences on neighboring land users. Due to the nature of revegetation activities, no negative impacts on third-party stakeholders are anticipated within the VCS project area. As a result, no restitution or compensation measures are required.

Outside the VCS Project Area: All social and environmental projects beyond the VCS project boundaries are planned in collaboration with community members, local government, and other affected stakeholder groups. This participatory approach ensures that potential impacts are identified early on and mitigated proactively. Should any potential negative impacts be identified, they will be addressed through FPIC processes. Affected parties will have the opportunity to voice their concerns, and any necessary restitution or compensation will be discussed and agreed upon transparently. The process will be conducted in partnership with local government entities to ensure fairness and compliance with legal requirements.

2.3.6 Property Rights Removal/Relocation of Property Rights Holders

No removal or relocation of people occurs within the VCS project area.

Should there be a relocation of important activities occurring in the project area outside the VCS project area, these will occur within the terms of the agreement between the Government of Rwanda and the affected community members. The agreement will contain the free, prior, and informed consent of those concerned which includes provisions for just and fair compensation.

2.3.7 Identification of Illegal Activities

Potential illegal activities, both within and outside the VCS project area, have been identified, and measures have been designed to mitigate their impact on the project's outcomes.

Within the VCS Project Area:
There is a risk of illegal farming activities within the VCS project area. Some farmers may attempt to remove bamboo plants after planting to continue unauthorized farming activities. Regular patrols are conducted to monitor the VCS project area and prevent the unauthorized removal of bamboo and long term community representatives are engaged to ensure continual communication and monitoring. The project engages in continuous community sensitization efforts to educate local farmers about the long-term environmental and economic benefits of bamboo revegetation project activities. By fostering community buy-in and awareness, the project reduces resistance and promotes cooperation. Experiences from the initial pilot project, where community engagement significantly reduced bamboo destruction, are applied to the broader project implementation. These lessons guide ongoing strategies to prevent illegal farming.

Outside the VCS Project Area:

Illegal mining activities in surrounding areas could undermine the environmental benefits of the project by contributing to soil degradation and water pollution. Any illegal mining activities observed outside the VCS project area are promptly reported to local government authorities for appropriate legal action.

2.3.8 Ongoing Conflicts or Disputes

At the project's inception, no conflicts over legal access to land or resources were observed or noted with communities or with the Government of Rwanda in the last 20 years.

2.3.9 National and Local Laws and Regulations

The following laws, statutes and other regulatory frameworks are relevant to the project. EcoPlanet Bamboo Rwanda, Ltd operates in full compliance with the legal framework of Rwanda, which can be verified through interviews with key government entities and representatives or via the review of relevant compliance records.

Table 3 : Applicable Legislation

National Legislation	General Provision	Compliance
Constitution of Rwanda	Provides the overarching legal framework for Rwanda, including key Articles: a. Article 49: each Person has the right to a healthy and satisfying environment. Each person is responsible for protecting, conserving and promoting the environment. The state ensures environmental protection. b. Article 29: every person has a right to property and that property shall not be interfered with except in public interest and after fair and prior compensation.	The project proponent and implementing partner operates within the parameters of all laws of the Government of Rwanda.
Law Governing Land n° 27/2021 of 10/06/2021	Articles 30 and 31 indicate that lands on the banks of rivers are state lands in the public domain and are inalienable.	The VCS project area is located on the banks of the rivers and therefore is public domain.
The Ministerial Order Determining the Length of Land on Shores of Lakes and Rivers Transferred to Public Property n°007/16.01	Determines the length of land on shores of lakes and rivers transferred to public property: a. In its article 4 states that “Public land referred to in this Order shall be a protected area. Authorities are not allowed to issue this land as private property. No activities or buildings are	The project plants on the buffer zones of the rivers, which is determined within this legislation to be 5 meters or 10 meters depending on the size of the rivers. The Rwanda Water Resources Board has

of 15/07/2010	authorized on the said land except activities aiming at protecting lakes, rivers, shores or activities authorized by the Minister in charge of environment and when such activities are deemed not destructive to the environment on condition that a prior environmental impact assessment study has been done" b. In Article 5 about Safeguarding and restoring shores of lakes and rivers, it is well stated that ''the land within a distance of fifty (50) meters from the lakeshore and the land on the river shore within the distance referred to in Article 3 (the land within a distance of ten (10) and five (5) meters from the shore of big rivers and small rivers respectively is public property) are reserved as natural vegetation. Artificial vegetation can be grown on this land in case of restoring damaged land or if that vegetation is responsible for protecting the environment by stopping soil erosion, being habitats for living organisms'	actively promoted the planting of select species of sympodial bamboo, such as those that the project proponent is planting, as a specific recommended activity for the safeguarding and restoring of lakes and rivers. The project operates under a framework that is approved by the Rwanda Water Board, with such documentation available to auditors.
Law Establishing Rwanda Water Resources Board N° 71/2019 of 29/01/2020	This law established Rwanda Water Resources Board and provided its legal framework granting administrative and financial autonomy. It falls within the category of non- commercial public institutions.	The project proponent partners with this institution and it is a key stakeholder of the project.
Law Governing Biodiversity in Rwanda N° 70/2013 of 02/09/2013	This law defines protected areas, rules on protected species and invasive species. This law also requires import permits when bringing in plant material to Rwanda, whether native or non-native species.	No bamboo species is included on the list of protected species. The species being planted by the project are sympodial (clumping) bamboo species that are not invasive, nor have any potential to become invasive.
Environmental Organic Law N° 04/2005 OF 08/04/2005	Creates the precedent for environmental impact assessments (EIAs).	The planting of bamboo for riparian protection does not include any activities that trigger an EIA. It is an activity that is promoted by the Rwanda Water Resources

		Board, the government entity that manages the riparian areas, and as a result an EIA is not required for the proposed project activities[23].
Law Governing Labor in Rwanda N° 66/2018 of 30/08/2018:	Provides a framework for labour relations and employment in Rwanda.	The implementing partner under the project proponent operates within this Act. Records of employment contracts, training, payroll, etc. are available to the assessor.
Ministerial Order on Occupational Health and Safety Nº 02/MIFOTRA/22 OF 30/08/2022	Provides the framework for occupational, health and safety in the workplace for workers as well as stipulations for leave.	The implementing partner under the project proponent operates within this Order. Records of meeting minutes, training, issuance of PPE, etc. is available to the assessor.
Presidential order n°25/01 of 09/07/2012 Law N° 59/2011 of 31/12/2011 Article 18, 43) Law No 37/2012 of 09/11/2012 Law Nº02/2015 of 25/02/2015 Law n° 37/2012 of 09/11/2012	Taxes and Fees Establishing the list of fees and other charges levied by decentralized entities and determining their thresholds (Article 23)	The implementing partner under the project proponent operates within this legislation. Records of payments and good standing are available to the auditor.
Law N° 007/2021 of 05/02/2021 Governing Companies	This law outlines the procedures for incorporating, managing, and dissolving companies in Rwanda.	The implementing partner under the project proponent operates within this Act. Records of company registration are available to the assessor.
Law N° 009/2021 of 16/02/2021 Establishing Rwanda Social Security Board (RSSB).	This law outlines the process requiring Company registration with the RSSB.	The implementing partner under the project proponent operates within this Act. Records are available to the assessor.

2.3.10 Project Ownership

[23] Interview with Rwanda Water Resources Board

Within the VCS Project Area:

The project proponent meets the ownership requirements of the VCS Program specifications as detailed in section 3.6 of the VCS Standard v4.3 Specifically, the project proponent has the legal right to control and operate all project activities for the duration of the crediting period.

Specifically, ownership is demonstrated according to Clause 4 of the VCS Program Standard:

“Project ownership arising by virtue of a statutory, property or contractual right in the land, vegetation or conservational or management process that generated GHG emission reductions and/or removals (where the project proponent has not been divested of such project ownership).”

The project proponent, EcoPlanet Bamboo, through the subsidiary detailed in Section 1.6 above holds the contractual right to the implement the proposed project activities, along with the associated ownership of the GHG emission removals. This contractual right is evidenced by a Letter of Authorization issued by the Rwanda Environment Management Authority.

EcoPlanet Bamboo holds the right to utilize carbon financing to implement and operate the program activities, as well as to all and any GHG emission removals generated by the project during the crediting period.

Outside the VCS Project Area, within the Project Zone:

The project proponent has agreements in place to support the establishment or implementation of project activities, after which the management is transferred to stakeholders[24].

2.3.11 Grouped Projects

Within the VCS Project Area:

The project is a grouped project. The current VCS project area covers 5,000 hectares. Additional areas are limited to those lands legally classified as riparian buffer zones, that meet the same baseline criteria.

By their nature, such areas will be identical to those already included, and will adhere to the same eligibility criteria, defined as:

All new project activity instances will meet the applicability conditions as defined by the methodology used by the project, AR-ACM0003 “Afforestation and revegetation of lands except wetlands” version 2.0.

1. No project activities will be implemented on any land designated as a wetland – all project activities are limited to land defined as riparian buffer zones;
2. Soil disturbance as the result of project activities will not cover more than 10% of the area on either of the following types of land:
    a) Lands containing organic soils;
    b) Croplands or grasslands as defined by the methodology.

[24] Memorandum of Understanding with Muhanga District, 2025.

3. All future project activity instances will follow the same technologies for land preparation, planting, maintenance and monitoring as detailed within this project document.
4. All future project instances will use similar or identical species of sympodial bamboo.
5. The baseline for all future project activity instances will undertake a baseline approach identical to the approach taken in this project document, described as the pre-project scenario of gradual deforestation, forest degradation and conversion to agriculture.
6. All future project activity instances face identical barriers to implementation.
7. Furthermore, prior to the inclusion of any new areas, such areas will be formally included into the agreements between the project proponent and the Rwanda Water Resources Board.

Outside the VCS Project Area:

Areas will be included based on the boundaries of the VCS Project Area, along with an additional 7 km radius around the VCS revegetation activities, which will also fall within the project scope.

3 BENEFITS FOR PEOPLE AND PROSPERITY

3.1 Condition of Stakeholders at Project Start

The project has four categories of stakeholders:

- Government (national, district, sector, village and cell)
- Communities within 7km of the VCS project area, with sub-groups of stakeholders consisting of women and children.
- ClimatePartner
- Workers, with sub-groups of stakeholders consisting of women.

The stakeholder groups come from a diverse range of social and economic backgrounds. Outside of interactions between local government and community members, interactions between stakeholder groups are minimal or non-existent. No changes have occurred in the make-up of these stakeholder groups in the recent past.

i. Government:

Since the project inception (2022), the Government of Rwanda operated through a decentralized administrative structure, involving national, district, and sector government officials. Each level has distinct roles in governance, socio-economic development, and community engagement. The Rwanda Water Resources Board is responsible for implementing national policies, laws, and strategies related to water resources. It advises the government on matters concerning the utilization and management of water resources[25]. The Ministry of Local Government (MINALOC) oversees the local authorities, which are structured in four tiers: 30 districts (akarere), 416 sectors (imerenge), 2,148 cells (utugari) and 14,837 villages (imudungu)[7].

District councils, composed of democratically elected representatives, are tasked with formulating policies and overseeing service delivery within their jurisdictions. They ensure that national policies are effectively implemented at the district level, tailoring them to meet local needs. They identify community priorities, select development projects, and allocate resources accordingly. Sector officials serve as the first point of contact for citizens, addressing day-to-day administrative matters and coordinating community development projects. They play a crucial role in social welfare, ensuring vulnerable populations receive government support[7]. Cell (utugari) councils are elected for a five-year term to identify, discuss and prioritise issues and take decisions on behalf of their electorate. In Rwanda, the village represents the lowest administrative unit, with authority members elected by community residents. The village authority is composed of a five-member committee, responsible for both administration and community development. Their duties include managing the day-to-day operations of the village and implementing decisions made by the village council on behalf of all residents[7].

[25] Rwanda Water Resources Board, 2025. https://www.rwb.rw/about-us/overview

The Rwandan government has implemented the "Ndi Umunyarwanda" program, which translates to "I am Rwandan," to foster national unity and reconciliation in the aftermath of the 1994 Genocide against the Tutsi. This initiative encourages citizens to embrace a unified national identity, transcending historical ethnic divisions among the Hutu, Tutsi, and Twa groups. By promoting open dialogue about the nation's history and collective identity, the program aims to heal past wounds and build a cohesive society. As a result, only estimates exist regarding the ethnic groups in Rwanda, as this information is not collected through the national census. Through "Ndi Umunyarwanda," Rwandans are encouraged to prioritize their shared identity over ethnic affiliations, reflecting the country's commitment to solidarity and mutual respect among its people[26]. The government promotes traditional practices such as "Umuganda" (community service), “Ubudehe” (community work) and "Gacaca" (community courts) to foster unity and reconciliation post-genocide[27].

Rwanda emerged as a global leader in gender equality, especially in parliamentary representation, where women held 61% of seats[8].

Over the decade from 2013 to 2023, Rwanda has seen minimal structural transformation in its economy, with sectoral contributions to GDP remaining largely stable. The services sector experienced a slight decline, decreasing from 49.8% to 47.9% of GDP. Agriculture remained almost unchanged, shifting marginally from 24.9% to 24.8%, while industry showed modest growth, increasing from 17.6% to 18.9%. Inflationary pressures persisted, with headline inflation rising from 13.9% in 2022 to 14.3% in 2023. This increase reflects the pass-through effects of rising import costs and reduced domestic food production. On the social front, extreme poverty decreased from 47% in 2019 to 45% in 2021, and the unemployment rate fell from 43.4% in August 2022 to 40.2% in August 2023. However, a significant skills mismatch in the labor market remains a key driver of unemployment. In terms of food security, approximately 20.6% of Rwanda's population is food insecure, with 18.8% experiencing moderate food insecurity and 1.8% facing severe food insecurity[28].

In 2022, Rwanda had 9,594 schools (pre-primary, primary and secondary schools), supporting 2,742,551 primary school learners and 540,634 secondary school learners[29]. The 2021/2022 educational statistical yearbook report indicated fair enrolment rates (50.7%) from female students. The schools were supported with an estimated 107,460 staff. An estimated 80.9% of all schools were connected to the electricity grid, with 81.6% of schools having access to piped water. UNICEF states that only 57 per cent of the Rwandan population has access safe drinking water that is within 30 minutes of their home[30]. The World Bank has indicated that 63.9% of the Rwandan population has access to electricity, with only 57.9% of the rural population having access[31]. The average pupil-to-toilet ratio stands at 26 students. While 83% of schools provide meals to students, and 67,7% of schools have gardens, further investment in the school feeding program is needed to sustain and enhance its impact. As of 2019, 83.4% of primary schools and 85.4% of secondary schools in Rwanda were equipped with computers, with 61.1% of secondary schools having access to 4G broadband connectivity. According to the Competence-Based Curriculum (CBC) adopted in 2015, laptops are designated for use in upper primary levels, specifically from Primary Four (P4) to

[26] Socio-Economic Baseline Assessment Report, Nyamagabe District
[27] Republic of Rwanda, National Unity and Reconciliation Commission, 2016. Unity And Reconciliation Process in Rwanda.
[28] African Development Bank, 2024. African Economic Outlook 2024.
[29] Republic of Rwanda, Ministry of Education, 2023. 2021/22 Education Statistical Yearbook
[30] UNICEF Rwanda. https://www.unicef.org/rwanda/water-sanitation-and-hygiene
[31] World Bank Group. https://data.worldbank.org/indicator/

Primary Six (P6). These laptops are primarily used in science and elementary technology subjects, with the goal of equipping learners with ICT competencies that can be applied across the broader curriculum[32].

The 2015 National Curriculum Framework (NCF) serves as the cornerstone of Rwanda's climate change and sustainability education policy from pre-primary through upper secondary levels. Complementing the NCF, the 2019–2024 Education Sector Strategic Plan (ESSP) reinforces the importance of integrating climate-related content throughout the education system. Both documents align with Rwanda's broader sustainable development agenda and international education for sustainable development (ESD) frameworks[33]. However, the current curriculum implementation focuses heavily on cognitive development, emphasizing theoretical knowledge rather than practical, experiential learning. The Competency-Based Curriculum (CBC) encourages integration of environmental topics, yet practical application in classrooms is weak. Teachers often default to traditional instruction methods, with limited capacity or training to deliver experiential, sustainability-focused learning[34]. Audit interviews with government school representatives revealed that although vegetable gardens are present, they are generally treated as extracurricular activities, not linked to formal lessons on climate change or sustainable agriculture. Teachers lack clear guidance or resources to connect these activities to learning outcomes[26,29]. The current lack of practical, hands-on learning impedes the development of climate-resilient communities. These gaps contribute to persistent challenges such as child malnutrition and food insecurity.

ii. Local Communities:

The project currently covers the planting of bamboo clumps in riparian areas and socio-economic project activities across eight districts, Ngororero, Karongi, Muhanga, Ruhango, Nyamagabe, Kamonyi, Nyaruguru and Gisagara.

The results of the 2022 Rwanda Population and Housing Census[9] revealed that the country's population is predominantly rural, with 72.1% of residents living in rural areas, while 27.9% reside in urban areas.

Rwandans, sharing a common language and culture, embrace a unified identity under the banner of "NDUMUNYARWANDA," which translates to "I AM RWANDAN." This phrase symbolizes a collective commitment to unity and serves as a protective umbrella for all citizens, irrespective of their historical tribal affiliations. This approach has been instrumental in the country's healing and rebuilding process after the genocide in 1994, guiding Rwanda towards a future marked by solidarity and mutual respect among its people[35].

While Rwanda no longer has traditional chiefs, the principles of traditional leadership are incorporated into the modern local governance and justice system. Village leaders, known as Umukuru w'Umudugudu, operate within a modern governance framework and are elected by their communities rather than inheriting their positions. This transition from hereditary leadership to an electoral system is a key aspect of Rwanda's decentralization efforts aimed at promoting good governance and citizen participation[7].

[32] International Labor Organization, 2023. Teaching and the Teaching Professional in a Digital World – Rwanda.
[33] UNESCO, 2024. Education for Sustainable Development country profile Rwanda (2024).
[34] Copsey, Olivia & Kubwimana, Jean & Kanyamibwa, Sam & Nshimiyimana, Bosco & Maniraho, Jean & Ishimwe, Marie. (2024). Climate action to enable quality education: exploring the potential of Eco-Schools to reverse the triple education crises in Rwanda. Global Social Challenges Journal. 3. 1-23. 10.1332/27523349Y2024D000000016.
[35] Government of Rwanda (2017). National Strategy for Transformation (NST1) 2017-2024.

The following districts are located in Southern and Western Rwanda and share a common Rwandan cultural identity. While each district has slight variations in traditions, historical influences, and economic activities, there are no cultural conflicts or significant differences in culture between them. With regard to social cohesion, the level of trust, positive interactions and solidarity among Rwandans is rated at 96.1%[36].

1. Ngororero:

Ngororero District, located in the Western Province of Rwanda, covers an area of 679 km² and has a population of 397,051 inhabitants, 52% females and 48% males. Children constitute 47% of the population, and 66% of residents are under 30 years, reflecting a predominantly youthful demographic. The youth population (aged 16 to 30) accounts for 25.5% of the district's residents, while elderly persons (aged 60 and above) make up 7.2% of the population. The disability prevalence rate stands at 3.2%. An estimated 51% of residents aged 12 and older are living in union, either through marriage or cohabitation. Female-headed households represent 32% of all households in the district[37].

In Ngororero District, 75.3% of children aged 3 to 5 attend pre-primary school, while 91.6% of children aged 6 to 11 are enrolled in primary school. Among youth aged 12 to 17, 67.9% are currently in school, though 27.9% have dropped out. Overall, 18.8% of the population has never attended school, while 65.6% have completed primary education. Only 7.1% have attended lower secondary, 4.1% upper secondary, and 1.3% hold a university degree[37]. Within the socio-economic baseline survey, results indicated the majority of respondents within the project area have primary school level education only[38].

The district has a high poverty rate, with 49.6% of the population living below the poverty line, and 23.5% experiencing extreme poverty[39]. As of 2020, approximately 50.5% of children under five in the district were stunted, indicating chronic malnutrition[40]. The socio-economic baseline survey[38] revealed that 85.2% of respondents are struggling to access sufficient food. The high prevalence of malnutrition is linked to factors such as food insecurity, limited dietary diversity, and poverty. The socio-economic baseline survey indicated that most households own small plots of land for subsistence farming. Livestock rearing is also a common practice, with many households participating in government-led initiatives such as the One Cow per Family (Girinka) program, designed to enhance food security through dairy production[38].

Ngororero district population is predominantly in rural areas 95.1% while urban area represents 4.9%. Most households in the district live in traditional homes, with 60.4% residing in Umudugudu (planned rural settlements) and 33.3% in isolated housing. Only 29% of rural households are connected to the national grid. The rest rely on firewood, flashlights, or phone lights for illumination. Firewood is the primary cooking fuel for 94.9% of households, followed by charcoal (4%) and gas (0.3%). An estimated 67.6% of rural households have access to improved water sources[35]. Water access varies across different sectors: Ngororero, Kabaya, and Sovu sectors report higher coverage of improved water sources. Muhanda, Ndaro, and Gatumba sectors have a higher percentage of households depending on unimproved water

36 National Unity and Reconciliation Commission (NURC), 2018. Unity and reconciliation in Rwanda
37 National Institute of Statistics of Rwanda (NISR); The Fifth Rwanda Population and Housing Census, District Profile: Ngororero, September 2023
38 Socio-Economic Baseline Report: Ngororero District
39 Ngororero District. Summary Of Ngororero District Development Strategy 2018-2024
40 Ngaruye, I., Nzabanita, J., Niragire, F. et al. Child stunting prevalence determination at sector level in Rwanda using small area estimation. BMC Nutr 9, 147 (2023). https://doi.org/10.1186/s40795-023-00806-w

sources. The baseline survey conducted across various communities highlights that protected springs and public standpipes are the main sources of water[38]. Regarding sanitation, most households in Ngororero District have access to basic sanitation facilities. The use of latrines is widespread, with an increasing number of households shifting to improved toilet facilities[37].

The average distance to healthcare facilities for surveyed community members is approximately 5 km, which is generally considered accessible for most residents[38]. However, there are ongoing issues with recruiting sufficient health workers and availability of medical equipment which impact the quality of service. Communities have trained health promoters who offer first aid in collaboration with health centres, but there are concerns about the lack of technical skills available within the health centres.

The employment-to-population ratio stands at 34.8%. The highest employment rate among males is 52.8% (ages 30-34), while for females, it is 38.2% in the same age group[37].

Agriculture dominates the district's economy, employing over 80% of the working population. 89.5% of households are engaged in agriculture, with 82.9% involved in crop farming and 73.9% in livestock husbandry. According to data from the Ngororero District Development Strategy (2018-2024), the average size of cultivated land per household in Ngororero is approximately 0.55 hectares, slightly below the national average of 0.59 hectares. Key crops include maize, sorghum, wheat, beans, soybeans, cassava, sweet potatoes, Irish potatoes, yams, taro, bananas, vegetables, and fruits. Despite agricultural activity, a significant portion of the population lives below the national poverty line, highlighting ongoing economic challenges[39].

The average daily income of surveyed community members working within the agricultural sector is approx. 1,000 Rwandan Francs with the reported monthly income in the range 15,000 to 35,000 Rwandan Francs, with majority of families having at least one member actively contributing to the household income[38].

2. Karongi

Karongi District, located in the Western Province of Rwanda, has a rich history shaped by its strategic location along Lake Kivu and its mountainous terrain. Karongi District has a population of 373,869, with women making up 52.3% and men 47.7%. The population is predominantly young, with 64.4% under 30 years and 45.4% being children (slightly more males than females). Elderly residents (65+) account for 7.9% of the population. The average household consists of 4.1 persons, and 31.8% of private households are female-headed[41].

In terms of socio-economic indicators, 48.4% of residents aged 12 and above live in union. Karongi ranks third in Rwanda for poverty levels, with 62% of the population classified as poor, including 40% categorized as extremely poor and 22% as poor. Only 38% of residents are considered non-poor. An estimated 35% of households are considered be food insecure[42]. The socio-economic baseline survey revealed that 100% of respondents reporting that can barely sustain their household and often face shortages[43].

[41] National Institute of Statistics of Rwanda (NISR); The Fifth Rwanda Population and Housing Census, District Profile: Karongi, September 2023
[42] USAID, 2018. Rwanda Nutrition Profile.
[43] Socio-Economic Baseline Assessment – Karongi District.

The employment-to-population ratio stands at 36.4%, with higher employment rates in urban areas (51.2%) compared to rural areas (34.9%). Men are more likely to be employed than women, particularly in rural regions where the employment rate for men is 39.7% compared to 30.9% for women[41]. According to survey data, all respondents reported joblessness, with agriculture remaining the primary source of income, often supplemented by wage labour. Despite farming being a critical income source, many households struggle economically, with average daily incomes around 1,100 Rwandan Francs[43].

Education levels show that 59.3% of children aged 3 to 5 attend pre-primary school, while 40.7% have never attended. Among those aged 12 to 17, 77.3% are currently attending school, 20.6% have dropped out, and 2.1% have never attended secondary school[41]. Access to healthcare remains a challenge, with most rural communities located over an hour's walk from the nearest healthcare facility[43].

The district's population is predominantly rural, with 91% living in rural areas. Of these, 56.5% reside in Umudugudu (planned rural settlements), while 35.3% live in dispersed or isolated housing. Housing in Karongi is largely rental-based, with 80.8% of housing units rented and only 10.7% occupied by their owners. Regarding infrastructure, 35.8% of households are connected to the power grid. Electricity is the main source of lighting for 50.3% of households, while 36.6% rely on flashlights or phone lights. Improved drinking water sources are used by 63.7% of households, though unimproved sources are largely utilised in rural areas. Sanitation facilities in rural areas are primarily private pit latrines with constructed slabs, used by 77.7% of households, while 11.8% share these facilities with other households[41].

Agriculture forms the backbone of livelihoods in Karongi, with 83.2% of households engaged in agricultural activities. Crop farming is practiced by 76.8% of households, focusing on beans, sweet potatoes, and maize as the main crops. Livestock husbandry is also significant, with 66.2% of households involved in raising animals[41].

Lake Kivu, one of Africa's Great Lakes, plays a central role in Karongi's cultural and economic life, supporting local fisheries, tourism, and recreational activities. Additionally, the Nyagatovu and Kirambo Forests are significant cultural landmarks, providing traditional herbal medicine and serving as sacred spaces for rituals and ceremonies.

3. Muhanga

Muhanga District, located in the Southern Province of Rwanda, is home to 358,433 residents, with women representing 51.6% of the population. The district is predominantly rural, as 72.1% of its inhabitants reside in rural areas, while 27.9% live in urban centres. The population is considerably youthful, with 55.2% of residents under the age of 25, and children making up 41.3% of the total population. In contrast, the elderly (aged 60 and above) constitute 8.2% of Muhanga's residents. Among those aged 12 and above, 50.3% are married, while the disability prevalence rate across the district stands at 3.7%[44].

Muhanga has an overall poverty incidence of 30.5%[45]. Almost a half (46.4%) of the population in Muhanga district is identified as non-poor; 26.2% are extremely poor and 27.4% are poor (excluding extreme-poor).

[44] National Institute of Statistics of Rwanda (NISR); The Fifth Rwanda Population and Housing Census, District Profile: Muhanga, September 2023
[45] Socio-Economic Baseline Assessment – Muhanga District.

Education remains a critical area of focus in Muhanga. Approximately 12.7% of the population has never attended formal schooling, while 2.6% have accessed nursery education. An estimated 63.4% of residents has completed primary education. Attendance declines at higher education levels, with 9.6% having attended lower secondary, 6.8% reaching upper secondary, and only 3.5% pursuing university studies[44]. Amongst the surveyed residents, primary education was the most common level of attainment[45].

The labour force participation rate highlights a clear disparity between urban and rural areas. In urban areas, 57% of the population is economically active, compared to 35.4% in rural areas. Gender disparities are also evident; in rural settings, 42.5% of men participate in the labour force compared to 29.4% of women[44]. The daily income of surveyed individuals averages around 1,000 Rwandan francs, which is below the international poverty line of 2.15 USD per day[45].

The average household size in Muhanga is 3.8 persons per household, and 29.1% of households are headed by women. Housing structures in the district are primarily Umudugudu (planned rural settlements), which account for 67.5% of residences. This is followed by dispersed/isolated housing and spontaneous/squatter settlements, each making up 14.3% of the housing stock. Homeownership is high, with 77.0% of households owning their homes, while 17.1% live in rented accommodations[44].

Access to utilities and infrastructure varies significantly between urban and rural areas. In urban settings, 87.7% of households are connected to the electricity grid, while only 34.9% of rural households have access. In rural areas, 48% of households use electricity as their primary source of lighting, while 44.3% rely on flashlights or phone lights, and 2.7% continue to use firewood. Cooking practices are dominated by traditional fuels, with 80.9% of households using firewood, 15.9% using charcoal, and just 1.8% relying on gas. Access to improved drinking water sources is established, with 98.6% of urban households and 80.7% of rural households benefiting from such sources. Sanitation infrastructure in rural areas predominantly consists of pit latrines with constructed floor slabs used by single households (87.3%), followed by shared latrines (8.4%) and pit latrines without slabs (3.2%)[44].

Agriculture plays a pivotal role in Muhanga's economy and livelihoods[44,45]. Approximately 79.5% of households are engaged in agricultural activities, with 74% involved in crop farming and 67.1% participating in livestock husbandry. According to the Muhanga District Development Strategy for 2018-2024, the average land size cultivated per household is 0.60 hectares, slightly above the national average of 0.59 hectares[46]. The limited land availability has led to over-exploitation and low agricultural productivity, exacerbated by high soil acidity and the risk of landslides in the district's high-altitude areas. Despite a robust agricultural sector, food insecurity remains a significant issue, with 95% of respondents reporting difficulties in accessing adequate food[45]. School nutritional programs fall short in delivering balanced meals to learners, with school vegetable gardens being underdeveloped and parental contributions frequently needed[45].

Muhanga's cultural heritage is reflective of the broader Rwandan customs. Muhanga is home to significant cultural landmarks, such as the Kabgayi Cathedral, one of the oldest and largest churches in Rwanda[45].

4. Ruhango

[46] Muhanga District Development Strategy 2018 – 2024.

Ruhango District, located in Rwanda's Southern Province, has a total population of 359,121 residents, with females comprising 52.1% (187,025 individuals). The district is predominantly rural, with 89.1% of the population residing in rural areas, while urban dwellers account for only 10.9%. The elderly population, aged 60 and above, makes up 8.4% of residents. Ruhango also has a significant youth demographic (aged 16 to 30) accounting for 22.7% of the district's population while children (under 17) representing 44.4% of the total population. The disability prevalence rate stands at 4.5% within the district[47].

Christianity is the dominant religion in Ruhango District, and among residents aged 12 and above, 48.2% are living in union (married or cohabiting). The district faces challenges in healthcare, with a shortage of doctors, nurses, and essential medical equipment, which limits the effectiveness of patient care[48].

In terms of education, 16.5% of the population has never attended school, while only 1.8% have attended nursery school. The majority (64.5%) have completed primary education. Vocational training attendance is low at 1.4%, while 8.9% have completed lower secondary education, 5.0% upper secondary, and only 1.9% have attained university-level education[47]. Amongst the surveyed residents, primary education was the most common level of attainment[48].

The employment-to-population ratio is 40.6%, with urban areas showing higher employment rates (48.4%) compared to rural areas (39.6%)[47].

Ruhango's average household size is 3.8 persons per household, with 32.7% of households are headed by women. The dominant settlement pattern is Umudugudu (planned rural settlements), accounting for 65.4% of homes overall and 60.6% in rural areas. Dispersed or isolated housing makes up 15.7% in urban areas and 33.6% in rural regions. Homeownership is high, with 77.0% of housing units owner-occupied and 16.2% rented[47].

Access to electricity and utilities varies across the district. In urban areas, 77.6% of households are connected to the electricity grid, compared to 47.0% in rural areas. Overall, 58.6% of households use electricity as their main source of lighting, with 55.9% of rural households relying on electricity and 36.5% using flashlights or phone flashlights. For cooking, rural households predominantly use firewood (95.1%), followed by charcoal (2.7%). Access to improved drinking water sources is relatively high, with 93.1% of urban households and 73.4% of rural households having access. In rural areas, the majority of households use pit latrines with constructed floor slabs, with 72.2% for single-household use and 13.3% shared among multiple households[47].

Agriculture is central to Ruhango's economy, with 78.9% of households engaged in agricultural activities. An estimated 71% of households are involved in crop farming, while 60% participate in livestock husbandry. The district's primary crops include beans, cassava, maize, sorghum, sweet potatoes, bananas, and various vegetables, reflecting a diverse agricultural landscape[47,48]. The daily income of community residents working as farmers averages 1,000 Rwandan francs which is below the international poverty line of 2,15 USD/day[48].

[47] National Institute of Statistics of Rwanda (NISR); The Fifth Rwanda Population and Housing Census, District Profile: Ruhango, September 2023
[48] Socio-economic Baseline Assessment – Ruhango District

According to the respondents interviewed during the socio-economic baseline assessment, the most pressing concerns expected over the next five years are school fees and poverty. These are followed by famine, medical insurance, illness, accommodation, and unemployment[48].

Residents of Ruhango engage in traditional crafts such as weaving, beekeeping, art, and crafts and share the broader Rwandan culture of peace, unity, patriotism and hard work.

5. Nyamagabe

Nyamagabe District, located in Rwanda's Southern Province, has a total population of 371,501 residents, with women making up 52.4% of the population. The district is predominantly rural, with 89.1% of the population residing in rural areas and only 10.9% living in urban centres. The population is relatively young, with children (aged 0 to 17) accounting for 43.7% of residents. The youth population (aged 16 to 30) represents 26.8% of the district's population. The elderly population (aged 60 and above) makes up 9.53% of the district's residents. The working-age population (aged 16 and above) constitutes 61.5% of the total population. Among residents aged 12 and above, 48.6% are living in union (married or cohabiting)[49]. Approximately 30.7% of private households in Nyamagabe district are female-headed.

Education in Nyamagabe presents some challenges, with 19.9% of the population having never attended school. The majority of residents (61.4%) have completed primary education. Participation in higher education levels remains low, with 1.0% attending vocational training, 8.6% attending lower secondary, 5.3% completing upper secondary, and 1.8% reaching university education[49]. Amongst the surveyed residents, primary education was the most common level of attainment[50].

The employment-to-population ratio in Nyamagabe stands at 45.7%, with rural areas showing slightly higher employment (46.3%) compared to urban areas (40.3%), indicating the high level of employment within the agricultural and informal employment in rural regions[49]. The socio-economic assessment revealed that women face challenges in securing employment or other income sources to support their families[50]. Despite the dominance of agriculture in the area, 95% of respondents indicated difficulties in obtaining food to meet their daily needs[50.]

Nyamagabe's housing is characterized by planned rural settlements and high homeownership. In rural areas, the predominant settlement type is Umudugudu (planned rural settlements), accounting for 69.1% of homes, followed by dispersed or isolated housing at 28.2%. A majority of households (83.8%) are owner-occupied, while 7.6% are rented. An estimated 30.7% of households are headed by women[49].

Access to electricity and utilities varies across the district. In urban areas, 65.5% of households are connected to the national grid, compared to 28% in rural areas. Electricity is the primary source of lighting for 43.9% of households, followed by flashlights or phone lights (37.7%) and firewood (1.9%) in rural areas. For cooking, rural households overwhelmingly rely on firewood (96.6%)[49].

Water and sanitation access differs between urban and rural areas. In urban areas, 87.3% of households have access to improved drinking water sources, while in rural areas, this figure drops to 55.9%. The baseline survey revealed that public taps and local boreholes are the primary sources of water across

[49] National Institute of Statistics of Rwanda (NISR); The Fifth Rwanda Population and Housing Census, District Profile: Nyamagabe, September 2023
[50] Socio-economic Baseline Assessment – Nyamagabe District.

the surveyed residents[50]. In rural regions, the most common sanitation facilities are private pit latrines with constructed floor slabs (77.4%) and shared pit latrines with constructed slabs (11.8%)[49].

An estimated 75% of Nyamagabe's population is covered by health insurance, which, although commendable, falls short of the national average of 90%. Maternal and child health, despite improvements, remains a pressing concern with ongoing efforts needed to reduce mortality rates and address malnutrition. An estimated 42% of households in the district were classified as being food insecure.

Agriculture is the cornerstone of Nyamagabe's economy, with 86.9% of households engaged in agricultural activities. 81.9% of households participate in crop farming, while 72.2% are involved in livestock husbandry[49]. According to the Nyamagabe Development Strategy survey for 2018-2024, the average cultivated land per household is 0.60 hectares. Subsistence agriculture is practiced on these small plots, primarily relying on rain-fed systems.[51]. While agriculture dominates as the primary occupation, the daily income of farmers surveyed averages around 1,000 Rwandan francs which is below the international poverty line of 2,15 USD/day[50]. The district has diverse agricultural production, with households cultivating crops such as maize, rice, sorghum, wheat, beans, soybeans, cassava, sweet potatoes, Irish potatoes, yams, taro, bananas, vegetables, and fruits.

6. Kamonyi

Kamonyi District is home to 450,849 residents as of 2022. The population is predominantly young, with 24.8% classified as youth (aged 16 to 30) and 43.7% being children under 17 years. Women make up 51.7% of the population, and 28.1% of households are female headed. The elderly population (aged 60 and above) constitutes 7.3%, while the disability prevalence rate stands at 3.2%[52]. While the average household size in the district is four people[52], the socio-economic baseline assessment found that surveyed households had an average of five members[53].

Kamonyi District has a predominantly rural population, with 68.4% of residents living in rural areas and 31.6% in urban centres. In rural areas, most households (69.6%) live in Umudugudu, which are planned rural settlements, while 25.3% reside in dispersed or isolated housing. About 33.1% of rural homes are connected to the national electricity grid, but many still rely on flashlights or phone lights (46.5%) for lighting. Firewood is the main cooking fuel for 92.2% of rural households, with charcoal used by 5.2%. Access to improved water sources is high, with 90.8% of urban and 83.2% of rural households having reliable water supply[52]. Within the socio-economic baseline survey, 21% of respondents still depend natural sources like rivers as their primary source of water[53]. While access to clean water is relatively high, the survey found that the average water collection distance is 0.88 km.

For sanitation, 79.5% of rural households use private pit latrines with constructed floor slabs, while 12.1% share latrines with other households[52]. While healthcare facilities are available within 3km for survey respondents, key challenges reported by surveyed residents include a shortage of healthcare workers, improved hygiene and sanitation, and the need for maintenance and upgrades in some older health centres to better accommodate people with disabilities[53].

[51] Nyamagabe Development Strategy 2018-2024
[52] National Institute of Statistics of Rwanda (NISR); The Fifth Rwanda Population and Housing Census, District Profile: Kamonyi, September 2023
[53] Socio-economic Baseline Assessment – Kamonyi District

An estimated 13.1% of the population has never attended formal schooling, while 62.6% have completed primary education. 9.9% have attained lower secondary, 6.7% have completed upper secondary, and 3.1% have achieved a university degree[52]. Amongst the surveyed residents in the socio-economic assessment, approximately 98.7% of respondents reported having access to schools, with primary school being the most common attainment, followed by 25% of respondents having received no formal education[53]. Financial constraints are a major barrier to education, preventing many families from affording school materials. Limited access to resources like textbooks and stationery affects student performance, while poverty forces some to leave school to meet basic needs. Additionally, household responsibilities, such as caregiving or work, contribute to early dropout rates[53].

According to the Fifth Integrated Household Living Conditions Survey[54], 22.3% of the population in Rwanda lives below the poverty line, while 8.7% of the population experiences extreme poverty. Poverty in the region is driven by several factors, including limited land ownership and low agricultural productivity due to traditional farming methods, lack of farmer cooperatives, poor soil management, and climate variability, all of which reduce yields. Limited market access, particularly in rural areas, is exacerbated by poor road infrastructure and long distances to markets, hindering trade and income generation. Additionally, a lack of diversified income sources and high unemployment further contribute to economic hardship[53].

Agriculture is the main economic activity within the district, with 74.3% of households engaged in agricultural activities. An estimated 68.1% of households are involved in crop farming, and 56.5% in livestock husbandry. Key crops include fruits, maize, cassava, beans, soybeans, sweet potatoes, bananas, and vegetables[52].

The employment to population ratio is 46.6 percent among people residing in Kamonyi districts, it is higher in urban areas of Kamonyi (52.6 percent) than in rural areas of Kamonyi (43.8 percent)[52]. The surveyed respondents have an average daily income of approximately 1,200 Rwandan Francs, with a reported monthly income ranging from 15,000 to 40,000 Rwandan Francs. Most families have at least one member actively contributing to the household income[53]. The survey revealed that 83% of respondents faced unemployment, while 46% of female respondents were engaged in economic activities[53].

7. Nyaruguru

Nyaruguru District, located in Rwanda's Southern Province, has a population of 318,126 residents as of 2022. The district is overwhelmingly rural, with 97.6% of the population living in rural areas, while only 2.4% reside in urban centers. The population is comprised of 52% females and 48% male and is notably young, with 47.4% being children and 25.3% (80,401 individuals) classified as youth aged 16-30. The elderly population (aged 60 and above) accounts for 8.2%, and the disability prevalence rate is 3.6%. Among residents aged 12 and above, 47.8% are living in union (married or cohabiting)[55].

The average household consists of 4.3 people, with 30.7% of households headed by women[55]. The most common housing type in rural areas is Umudugudu (planned rural settlements), which accounts for 83.4%

[54] National Institute of Statistics Rwanda. Integrated Household Living Conditions Survey 5 (EICV 5)
[55] National Institute of Statistics of Rwanda (NISR); The Fifth Rwanda Population and Housing Census, District Profile: Nyaruguru, September 2023

of homes, while 13.5% of residences are dispersed or isolated. A significant 86.7% of homes are owner-occupied, and 6.5% are rented[55].

An estimated 43.2% of rural households are connected to the national electricity grid. In Nyaruguru District, the main source of energy for lighting used by households is electricity (65.8%), with the main sources of energy for cooking used by the private households being firewood (95.4%) followed by charcoal (3.3%) and gas (0.3%)[55].

Access to improved drinking water is relatively high in the district, with 91.3% of urban households and 72.1% of households having access to safe water sources[55]. The survey indicated that 33.03% of respondents rely on natural water sources, mainly rivers, as their primary supply. Additionally, 36.60% (82 respondents) use piped water systems, though these systems are often unreliable due to irregular distribution.

Regarding sanitation, 81.2% of rural households use private pit latrines with constructed floor slabs, while 11.8% of households share these facilities with other homes. A smaller portion, 5.1%, still use pit latrines without constructed floor slabs[55]. Healthcare facilities are accessible within 4 km for surveyed respondents; however, financial constraints and labour shortages remain significant challenges[56].

Approximately 21.8% of the population has never attended school, while 60.2% have completed primary education. Participation in higher levels of education remains limited, with 8.6% attending lower secondary, 4.8% completing upper secondary, and only 1.4% holding a university degree. Vocational training (INGOBOKA) participation is minimal at 0.8%[55]. From the survey results, while 98.6% of respondents have access to schools, an estimated 53.5% of respondents have had no formal education, followed by 31.2% having attended primary school only[56]. Financial constraints are the most common barrier, preventing many families from affording school fees, payment of school feeding contributions, school materials, and other necessities.

The employment-to-population ratio is 36.2%, higher in urban areas (47.4%) compared to rural areas (35.9%), indicating opportunities for job creation, particularly in rural sectors[55]. As indicated in the socio-economic baseline assessment, most individuals engaged in agriculture are youth aged 16 to 35 years[56]. The socio-economic baseline survey revealed that the daily income of farmers is approx. 1,115 Rwandan Francs with the reported monthly income in the range 15,500 to 35,500 Rwandan Francs[56]. The survey also indicate that females are actively engaged in the agricultural sector, accounting for 43.7%.

Agriculture is the cornerstone of Nyaruguru's economy, with 84.5% of households participating in crop farming, and 73.6% are involved in livestock husbandry. The district produces a diverse range of crops, including beans, sweet potatoes, maize, cassava, Irish potatoes, bananas, vegetables, yams, taro, wheat, soybeans, and rice[53].

Although there are high levels of activity in the agricultural sector, 87.5% of surveyed families lack sufficient daily access to food, while only 12.9% have consistent food availability[56]. The poverty incidence is 47.9% of the district population under poverty line, with 20.1% who are in extreme poverty[55].

Nyungwe Forest, located in Nyaruguru District, is part of the district's cultural heritage. Nyungwe was a place of worship and spiritual connection for local communities.

[56] Socio-economic Baseline Assessment – Nyaruguru District

8. Gisagara

Gisagara District, located in Rwanda's Southern Province, has a population of 397,051 residents comprised of 52.4% females and 47.6% males. The district is predominantly rural, with 96.6% of the population living in rural areas, while only 3.4% reside in urban centers. The district has a young population, with 47.2% being children and 24.4% classified as youth (aged 16-30). The elderly population (aged 60 and above) makes up 7.6% of residents, while the disability prevalence rate stands at 3.4%. Among those aged 12 and above, 48.3% are living in union (married or cohabiting)[57].

An estimated 20.7% of the population has never attended school, while 63.8% have completed primary education. Participation in higher levels of education is limited, with 7.7% attending lower secondary, 3.7% completing upper secondary, and only 1.3% holding a university degree. Vocational training (INGOBOKA) accounts for 0.8% of educational participation[57]. The socio-economic baseline survey revealed that majority of respondents have completed primary school education, followed by 33% of respondents having never attended formal education[58].

The average household size in Gisagara District is 3.9 persons, and 35.2% of households are female-headed. Housing in both urban and rural areas predominantly consists of Umudugudu (planned rural settlements), accounting for 65.1% of urban homes and 77.7% of rural homes. Dispersed or isolated housing makes up 24% in urban areas and 17.5% in rural areas. A significant 81.4% of homes are owner-occupied, while 10% are rented[57].

An estimated 54.9% of urban households and 44.3% of rural households are connected to the national electricity grid. In rural areas, 52.4% of households use electricity as their primary source of lighting, while 37.8% rely on flashlights or phone lights, and 4.6% still use firewood. Firewood is the dominant cooking fuel, used by 84.7% of urban households and 94.5% of rural households. As indicated with the socio-economic baseline survey, 78.4% of private households use improved drinking water sources. However, reliance on unimproved water sources is notably higher in rural areas (22.0%) compared to urban areas (8.7%)[57]. Respondents indicated that healthcare facilities are available and accessible within an average distance of 5 km. However, these facilities face ongoing challenges in recruiting enough health workers to maintain quality service delivery[58].

The primary toilet facilities in both urban and rural areas are pit latrines with constructed floor slabs, used by 64% of urban households and 71.0% of rural households. Shared latrines are used by 17.2% in urban areas and 18.5% in rural areas. Pit latrines without constructed floor slabs are used by 13.1% of urban households and 7.3% of rural households[57].

The employment-to-population ratio in Gisagara stands at 43.5%, with a higher employment rate in urban areas (48.7%) compared to rural areas (43.3%), reflecting opportunities for job creation and economic development, particularly in rural sectors[57]. As indicated with the socio-economic baseline survey, 53% of the women interviewed are participating in economic actives and are able to generate income. Regarding income, survey respondents reported an estimated daily income of 1,000 Rwandan Francs[58].

[57] National Institute of Statistics of Rwanda (NISR); The Fifth Rwanda Population and Housing Census, District Profile: Gisagara, September 2023
[58] Socio-economic Baseline Assessment – Gisagara District

Agriculture is central to Gisagara's economy, with 86.4% of households engaged in agricultural activities. 82% of households are involved in crop farming, and 63.1% participate in livestock husbandry. The most commonly cultivated crops include beans, cassava, fruits, maize, sweet potatoes, bananas, and soybeans. Notably, wheat is not cultivated anywhere in the district[57].

While 86.2% of participants reported owning small plots of land for farming, 72% faced challenges in accessing sufficient food to meet their daily needs. Poverty was identified as the most significant challenge, followed by famine, lack of job opportunities, and post-harvest losses[58].

iii. Workers

Workers involved in the project are classified into two main categories: management-level employees and general workers. Their social, cultural, and economic conditions vary based on their roles and locations.

Management-level employees are primarily based in Kigali, Rwanda's capital, and reside in urban residential areas with access to modern infrastructure, services, and amenities. Their incomes are significantly above the national minimum wage and the international poverty line, with all staff receiving health insurance coverage[59]. The project proponent has established a minimum target of 35% female representation within the management team, promoting gender equality and inclusive leadership. Culturally, management workers share Rwanda's cultural values of respect, unity, and community participation. Like the broader urban population, they engage in Umuganda, a national day of community service where residents contribute to local development and public works. Their social interactions are mainly professional, with direct engagement with the rural communities and workforce, except where project coordination and supervision are required.

General workers are recruited from local communities within the project's implementation districts, described above. Their social and economic conditions align with those of the rural population in these areas, as described above. Workers live in traditional village settings, engaging in subsistence farming, small-scale trade, and informal labour markets. As part of their cultural and social fabric, general workers interact closely within their villages, maintaining strong community ties and social practices. Their work relationships extend to the management team, when necessary.

iv. Women

Women have been selected as a sub-group within the stakeholder groups of workers and local communities, therefore sharing majority of the characteristics of these groups.

Women in rural districts face limited access to formal employment, with 69% engaged in seasonal agricultural work, while others find opportunities in domestic labor or, where available, the education sector. Wage disparities remain prevalent, with women earning less than men for equivalent roles, further restricting their economic independence[60]. The 2019 Women's Empowerment in Agriculture Index (WEAI) baseline survey in Rwanda revealed that while women in rural households exhibit relatively positive levels of empowerment, significant disparities persist when compared to men. Women are notably less likely to access financial services, participate in the marketing of agricultural commodities, receive extension services, and allocate their time to productive work. Additionally, challenges related to

[59] EcoPlanet Bamboo Employment Records
[60] United Nations Women, 2023. Why Women Earn Less, Gender Pay Gap and Labour-Market Inequalities In Rwanda

voice and agency persist, as evidenced by their unequal roles in decision-making, work burdens, control over assets, and contributions to key community activities[61].

According to the 2022 Rwanda Population and Housing Census, approximately 20.1% of rural households in Rwanda were headed by females. Women play a crucial role in ensuring household food security. However, many lack formal training in agricultural best practices, market access, or financial literacy, which hinders their ability to maximize productivity and economic gains[62].

Cultural norms in rural communities often place domestic responsibilities on women, limiting their ability to participate in full-time employment. Women in rural areas are primarily responsible for water collection, child-rearing, and household chores, reducing their availability for economic participation. Physical and sexual violence against women is still high in the country, with 41.5% of women experiencing intimate partner violence in their lifetime[63].

v. Children

Children (below the age of 18 years) have been selected as a sub-group within the stakeholder groups of local communities, therefore sharing majority of the characteristics.

In 2022, Rwanda's population was 13,246,394, and approximately 45% of that population was under 18 years old. In Rwanda, child well-being remains a critical development challenge, particularly in rural and low-income communities. Out of every 1,000 live births, approximately 41 children die before their fifth birthday, with mortality rates significantly higher among rural and impoverished families. Despite near-universal immunisation coverage and the rapid introduction of new vaccines, many sick children do not receive adequate medical care, as caregivers often do not bring them to health facilities[64].

Chronic malnutrition remains high, with 33% of children under five stunted, a condition exacerbated by poor dietary diversity, frequent infections, and low birth weight. Stunting is more prevalent among children in rural areas and those from low-income households[64].

Access to early learning is limited: only 24.1% of young children are enrolled in formal early childhood education programmes, with stark disparities between urban and rural areas. Additionally, fewer than half of caregivers actively engage in early learning activities at home. While primary school net enrolment is 94.3%, learning outcomes remain a concern, about 47% of students fail to achieve foundational knowledge by the end of primary education. Secondary school participation is also low. Although children are expected to start secondary school at around age 13, only 18% of children in this age group are enrolled. Overall, just 22.3% of children aged 12 – 17 attends secondary school[64].

Many children grow up in poor and vulnerable households, and exposure to violence remains widespread: an estimated 42% of children and youth experience physical, emotional, or sexual violence before turning 18. Harsh discipline and domestic violence continue to be common across the country[64].

vi. ClimatePartner

[61] Rosenbach, Gracie; Benimana, Gilberthe; Ingabire, Chantal; Spielman, David J.; and Tumukunde, Ritha. 2023. Synopsis: Women's empowerment in Rwandan agriculture: A baseline assessment in the context of Rwanda's gender and youth mainstreaming strategy and the fourth strategic plan for agricultural transformation.
[62] United Nations in Rwanda, 2019. https://rwanda.un.org/en/22964-bringing-rural-women-fore-zero-hunger-fight
[63] Women for Women International, 2025. https://www.womenforwomen.org/where-we-work/rwanda
[64] UNICEF Rwanda. Situation of Children in Rwanda. https://www.unicef.org/rwanda/situation-children-rwanda

This entity supports the achievement of carbon financing[65] for the first project instance of the project's VCS project implementation. As a key financial partner, it plays a crucial role in mobilizing resources for nature-based solutions in Rwanda. The organization is Europe-based, with a business culture and a multinational team supporting project deliverables. Unlike other stakeholders, this entity has no direct interaction with the Rwandan government actors, local communities, or casual workers. Its engagement is limited to the project proponent's management team, ensuring that financial resources are secured through the sale of carbon credits.

3.2 Expected Impacts on Stakeholders

Impact #1	Reduced hunger and increased social and economic resilience among vulnerable people
Type of Impact	Positive, no risk to stakeholders, predicted, direct.
Affected Stakeholder Group(s)	Government, Local Communities, Women, Children
Resulting Change in Well-being	Technical knowledge in the establishment and maintenance of vegetable gardens is transferred to learners. Direct access to nutritious vegetables increases dietary diversity and reduces food scarcity in vulnerable households. Fresh vegetables from growhouses improve school meal programs, reducing malnutrition rates. Women are actively engaged in project activities, securing their inclusion.

Impact #2	Workers maintain good health and well-being whilst in employment
Type of Impact	Positive, risk, actual, direct.
Affected Stakeholder Group(s)	Workers
Resulting Change in Well-being	Although workers are exposed to only minimal or nominal amounts of hazardous chemicals at the project nurseries, 100% of those involved in chemical handling have maintained good health while employed by the project proponent. All workers receive appropriate training and are supervised to ensure that safe handling procedures are consistently applied in the workplace. Risk – direct skin or eye exposure to hazardous chemicals. Mitigation - Workers are provided with the required protective clothing and are capacitated in risks and mitigation measures.

[65] https://www.climatepartner.com/en/work-with-us/impact/impact-investing-and-carbon-finance

Impact #3	Increased pathways to employment and entrepreneurship
Type of Impact	Positive, no risk to stakeholders, actual, direct.
Affected Stakeholder Group(s)	Local communities, Staff/Workers, Women, Children
Resulting Change in Well-being	Learners obtain opportunities to pursue higher education, technical or vocational education and skills development, enabling economic advancement and resilience.

Impact #4	Learners are empowered with knowledge to promote sustainable development.
Type of Impact	Positive, no risk to stakeholders, actual, direct.
Affected Stakeholder Group(s)	Government, Local communities, Children
Resulting Change in Well-being	Teachers gain practical knowledge on sustainability topics, improving lesson quality. Learners in rural schools acquire foundational knowledge in climate education, sustainable gardening, and resource efficiency, empowering them to become environmental stewards within their communities.

Impact #5	Empowerment of females within rural communities.
Type of Impact	Positive, no risk to stakeholders, actual, direct.
Affected Stakeholder Group(s)	Local Communities, Women
Resulting Change in Well-being	Women gain skills in sustainable gardening and/or agriculture and/or micro-enterprise management and/or sustainable resource utilization, enabling them to contribute to household-level resilience, start businesses or access employment. With improved agricultural skills, women contribute to household food production, reducing malnutrition & hunger.

Impact #6	Improved hygiene and access to clean and affordable drinking water.
Type of Impact	Positive, no risk to stakeholders, actual, direct.
Affected Stakeholder Group(s)	Government, Local Communities, Women, Children
Resulting Change in Well-being	Clean drinking water improves hygiene, improving overall community health. Women and children spend less time collecting water, allowing them to focus on education, work, and family care.

Impact #7	Restoration of inland freshwater ecosystems for improved water quality and resilience to natural disasters
Type of Impact	Positive, no risk to stakeholders, actual, indirect.
Affected Stakeholder Group(s)	Local Communities, Government
Resulting Change in Well-being	Planted vegetation stabilizes riverbanks, reducing the risk of floods, droughts, and erosion. Reduced sedimentation enhances water quality, benefiting households and farms that depend on river water. Less sedimentation lowers maintenance costs for dams, reservoirs, and water treatment facilities. Negative impact for illegal community farmers – removal of farmers operating within the riparian buffer zone illegally. Risks – uprooting of planted bamboo, grazing of cattle will damage bamboo saplings. Mitigation – Community sensitization on legal land tenure belonging to the Government, benefits of the project and opportunities for employment. Patrol systems are implemented.

Impact #8	Improved quality of life
Type of Impact	Positive, no risk to stakeholders, actual, indirect.
Affected Stakeholder Group(s)	Local Communities

Resulting Change in Well-being	Solar power enables charging of electronic devices. Reduced reliance on open flames or kerosene lamps lowers fire risks and improves safety, especially for women and children walking at night. Households save money previously spent on kerosene, batteries, or candles.

Impact #9	Job creation
Type of Impact	Positive, no risk to stakeholders, actual, direct.
Affected Stakeholder Group(s)	Local communities, Workers, Women
Resulting Change in Well-being	Both casual and permanent jobs are created on an annual basis, contributing to improved livelihoods and economic empowerment within local communities.

Impact #10	Anti-discrimination employment practices
Type of Impact	Positive, no risk to stakeholders, actual, direct.
Affected Stakeholder Group(s)	Workers, Women
Resulting Change in Well-being	Women and men receive equal wages for the same job, reducing economic disparities. Equal pay fosters a motivated workforce, enhancing efficiency and job satisfaction.

Impact #11	Enriched learning experience
Type of Impact	Positive, no risk to stakeholders, actual, direct.
Affected Stakeholder Group(s)	Local communities, Children
Resulting Change in Well-being	The introduction of computer labs improves students' proficiency in using digital tools, preparing them for a technology-driven world. Digital literacy creates avenues for employment and entrepreneurship,

Impact #12	Micro-enterprises improve economic resilience
Type of Impact	Positive, risk, predicted, direct.
Affected Stakeholder Group(s)	Local Communities, Women
Resulting Change in Well-being	Micro-enterprises generate stable incomes, improving individual and household financial security. Trained individuals share skills and knowledge, enhancing long-term economic stability for entire villages. Risks – projects do not provide increased incomes as opposed to traditional methods of agriculture. Mitigation measures – technical extension services are provided to micro-enterprises to ensure techniques are understood and implemented to enable long-term productivity and year-round incomes.

Impact #13	Partnerships enable the implementation and expansion of nature-based solutions and sustainable development.
Type of Impact	Positive, no risk to stakeholders, actual, direct.
Affected Stakeholder Group(s)	Government, ClimatePartner
Resulting Change in Well-being	Partnerships attract financial support for restoration activities, reducing government expenditure on conservation programs. Partnerships support Rwanda's Vision 2050, promoting green economy initiatives, water conservation, and reforestation efforts. Access to technical expertise and knowledge-sharing enhances public sector capabilities in sustainable land management. The partnerships establish a replicable business model, attracting further investment in nature-based solutions across Rwanda.

3.3 Stakeholder Monitoring Plan

Stakeholder Group	SDG Target	Indicator/ Type of Measurement	Method	Frequency	Reporting
Local Communities, Women	SDG 1.5 SDG 2.4 SDG 12.2	Number of community members trained in sustainable	Quantitative - 100% of trainees verified	Annually	Annual Impact Report

Stakeholder Group	SDG Target	Indicator/ Type of Measurement	Method	Frequency	Reporting
		production and food security.			
Local Communities, Government	SDG 2.1	Number of beneficiaries with improved food security, implementing sustainable gardening practices	Quantitative - 100% of households and early childhood development centres with implemented projects	Annually	Annual Impact Report
Workers, Women	SDG 3.9	Percentage of workers involved in chemical handling who have received formal training	Quantitative - 100% of workers involved in chemical handling are trained	Annually	Annual Training Report
Local communities, Staff/Workers, Women, Children	SDG 4.4	Number of individuals trained or educated in higher education, technical, or vocational skills.	Quantitative - 100% of trainees verified	Annually	Annual Impact Report
Government	SDG 4.7	Number of teachers provided with training and integrating sustainability education into curriculums	Quantitative – tracking of participation numbers via attendance records	Annually	Implementation Report
Women	SDG 5.1	The percentage of female participation in social impact project activities	Quantitative - Participation tracking	Annually	Annual Impact Report
Government Local Communities	SDG 6.1	Number of individuals benefiting from improved access to water	Quantitative - Government survey	Every 5 years	Government Report
Government	SDG 6.6	Number of hectares planted with bamboo	Quantitative - Annual Planting Report	Every 5 years	Annual Operational Report
Local Communities	SDG 7.1	Number of individuals benefiting from increased access to sources of renewable energy.	Government survey	Every 5 years	Government Report

Stakeholder Group	SDG Target	Indicator/ Type of Measurement	Method	Frequency	Reporting
Workers (General & Management Staff)	SDG 8.5	Number of jobs per month; The percentage of workers receiving equal pay for equal work	Quantitative - Payroll analysis	Monthly	Payroll Reports
Local Communities, Children	SDG 9c	Number of individuals benefiting from increased access to computers and internet.	Quantitative - School Attendance Report	Annually	School Report
Government and ClimatePartner	SDG 17.17	Number of partnerships established to mobilize financial, technical, and institutional resources for nature-based solutions and sustainable development.	Quantitative - Document verification	Annually	Activity Reports

3.4 Net Positive Stakeholder Well-being Impacts

Out of the 13 impacts identified, 13 positive impacts were recognized that directly benefit local government, ClimatePartner, communities, workers, women and/or children resulting in a net positive impact on these stakeholder groups. Although 2 impacts may carry a risk, these are mitigated and are outweighed by the net positive impact.

4 BENEFITS FOR THE PLANET

4.1 Condition of Natural Capital and Ecosystem Services at Project Start

Climatic Conditions

Rwanda's climate is temperate, shaped by its diverse topography of mountains, hills, valleys, and lowlands. Rwanda has two rainy seasons: the long rains from March to May, and the short rains from September to December. Although located in the equatorial zone, the country's hilly terrain moderates' temperatures, resulting in cooler conditions than typical tropical climates. The western districts, such as Karongi, Ngororero, and Nyamagabe, are generally cooler and wetter due to higher elevations, while eastern and southern districts like Gisagara and Ruhango are warmer and drier due to lower altitudes[66].

The country is divided into four main climatic zones: the eastern plains, central plateau, highlands, and the Lake Kivu region. In the context of the current project area[66]:

- Gisagara, Ruhango, and Kamonyi fall primarily within the eastern plains and central plateau, with annual average temperatures between 20°C and 22°C, and rainfall ranging from 700 mm to 1,300 mm.
- Muhanga and Nyaruguru, located in the central plateau and lower highland zones, experience moderate temperatures (17.5°C to 20°C) and annual rainfall between 1,100 mm and 1,300 mm.
- Ngororero, Nyamagabe, and Karongi are situated in the highlands and Lake Kivu region, with cooler temperatures (10°C to 18°C) and higher rainfall between 1,200 mm and 1,600 mm.

The current project area, like much of the country, are vulnerable to climate variability and extremes. The western and northern highland areas frequently experience floods and landslides, while the eastern and southern regions are more prone to drought. These climate hazards have historically caused crop losses, infrastructure damage, and, in some cases, famine and loss of life[66].

Topography and Soils

Rwanda is characterized by a predominantly highland topography, with an estimated 90 percent of the country lying on slopes. These steep gradients, in combination with high rainfall heighten the risk of surface runoff and soil erosion, along with decreasing soil fertility particularly where vegetation cover is sparse or degraded[67]. Rwanda's topography makes it particularly prone to flash floods and landslides.

The most common soil types found across the project area are Oxisols, followed by Inceptisols, and Ultisols. Oxisols and Ultisols dominate in Gisagara, Ruhango, and parts of Karongi and Nyamagabe. These are highly weathered, acidic soils with low nutrient reserves. Inceptisols are common in highland districts like Ngororero, Nyamagabe, Kamonyi and Karongi, derived from volcanic and schist parent materials. These are young soils on steep terrain, making them highly prone to erosion, especially under

[66] Republic Of Rwanda, 2022. Revised Green Growth and Climate Resilience.
[67] Rwanda Environment Management Authority, 2022. State of Environment and Outlook Report 2021

rainfall and poor vegetation cover[68]. Soils derived from Micaceous Schist and Volcanic Ejecta, present in Nyaruguru, Muhanga, and Karongi, tend to be strongly acidic.

Figure 3: Soil map of Rwanda[69].

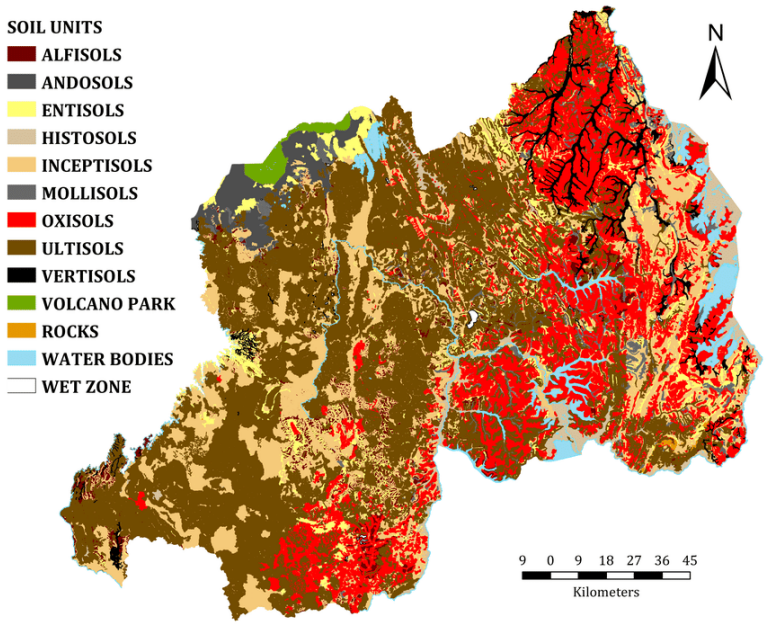
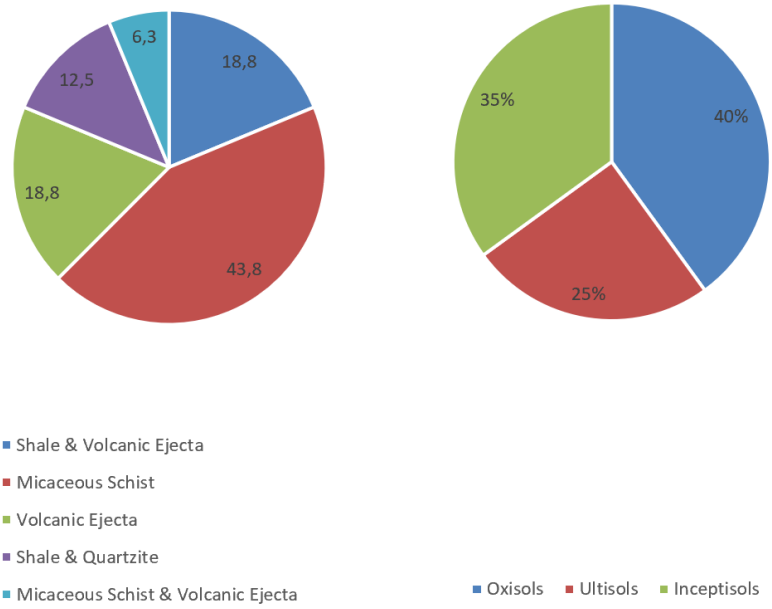


Figure 4: Soil Parent Material (L), and Soil Types (R) in the Project Area



[68] FAO. (1990). A Framework for Land Evaluation (FAO Soils Bulletin No. 54). Rome: Food and Agriculture Organization of the United Nations. Retrieved from https://www.fao.org/3/x5546e/x5546e04.htm
[69] MINAGRI. (2004). Soil Map of Rwanda. Kigali : Ministry of Agriculture and Animal Resources.

According to the Rwanda Water Resources Board[70], erosion poses a critical environmental and agricultural challenge, threatening the sustainability of land and water resources across the country. The report revealed that an estimated average of 27 million tons of topsoil is lost annually. The average soil loss rates exceeded the national tolerance threshold of 25 tonnes per hectare per year (t/ha/year) in nearly all districts, with the exception of Ruhango and Karongi. The most severe losses were recorded in Muhanga and Ngororero, which experienced average annual soil losses of 46 t/ha/year and 45 t/ha/year, respectively, nearly double the national threshold. Alarmingly, croplands account for 84% of all recorded erosion events nationwide[70].

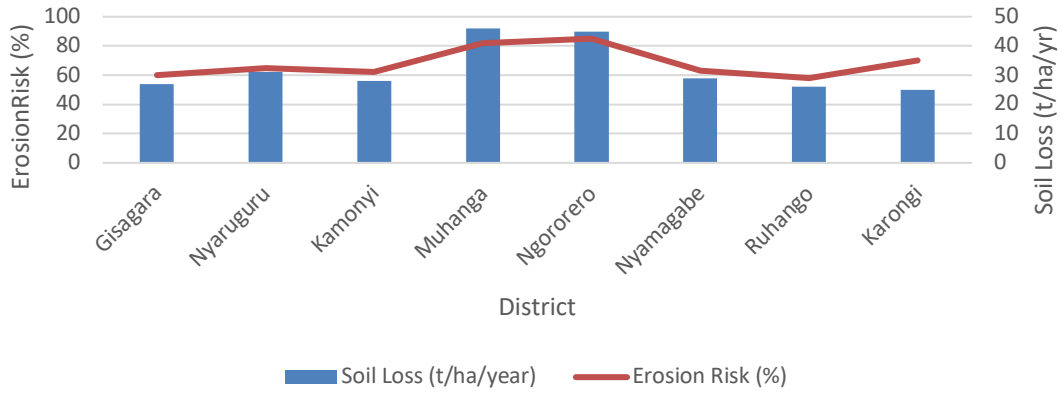
Erosion risk is spatially widespread, with between 60% and 85% of land in most districts classified as being under high or very high erosion risk. For instance:

- In Ngororero, 85% of the district's land area fell within high-risk erosion zones.
- In Muhanga, 82% of the land was similarly affected.

Although Ruhango and Karongi are exceptions where average soil loss remains below the national threshold, they still face localized erosion hotspots, particularly on unprotected slopes and degraded lands. There are several contributing factors to these erosion risks:

- Steep slopes and intensive cultivation without sufficient terracing or conservation practices.
- Insufficient vegetation cover, particularly during the rainy seasons.
- Unsustainable land-use practices, including the conversion of fragile ecosystems into farmland[67].

Figure 5: Soil Loss and Erosion Risk within the Project Area[70]



Catchment and Hydrology

Rwanda possesses a dense hydrographic network, comprising approximately 6,000 kilometers of rivers and numerous lakes that collectively cover nearly 8% of the country's total surface area[71]. Most of Rwanda's water resources are transboundary, with approximately 90% flowing into the Nile Basin and the remaining 10% into the Congo Basin. This transboundary nature raises significant concerns regarding

[70] Rwanda Water Resources Board, 2022. The State of Soil Erosion Control in Rwanda.
[71] Rwanda Water Resources Board. (2023). Water Resources Status Report.

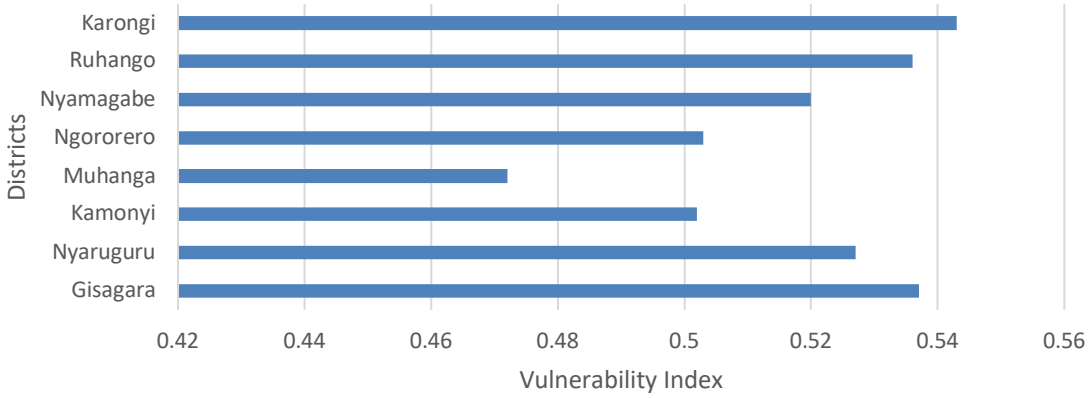
the sustainability and quality of water resources, as pollutants originating from upstream countries can negatively impact Rwanda's water availability, ecosystems, and human health[67].

Rwanda's rivers often display signs of channel migration, sediment accumulation, and riverbank erosion, primarily due to mining, agricultural activities, land and wastewater mismanagement. The Southern Province, particularly Gisagara and Ruhango Districts, has been identified by the Rwanda Environment Management Authority (REMA) as one of the most climate-vulnerable regions in the country. This heightened vulnerability is attributed to factors such as high population pressure on land, low forest cover, degraded watersheds, and limited adaptive capacity both at the household and institutional levels[67,72]

Additionally, rivers such as Akanyaru and Nyabarongo, especially in Nyaruguru and Kamonyi Districts, have recorded turbidity levels ranging from 27 NTU to over 2,400 NTU. These high turbidity values are associated with hillside erosion, sand mining, and runoff from cultivated slopes, which contribute to sediment transport and water quality deterioration[73],[74].

Karongi and Ngororero districts, which are part of the Upper Nyabarongo catchment, experience high exposure to river water level fluctuations and reduced forest cover, both of which contribute to degraded water quality and increased sedimentation. Pollution sources include agricultural activities on steep slopes, runoff, and wastewater discharge, all of which directly impact the Nyabarongo River system and associated aquatic habitats[75]. The districts show high sensitivity to environmental change, with Karongi scoring the highest vulnerability level nationally, indicating exposure to pollution, erosion, and declining water quality. The rating is based on a combined index of exposure, sensitivity, and adaptive capacity. Gisagara faces high exposure due to physical vulnerability of homes and farmland on steep slopes and perceived changes in river water levels[75].

Figure 6: Climate Change Vulnerability within the Project Area[75]



[72] MINIRENA (Ministry of Natural Resources). (2020). National Environment and Climate Change Policy.
[73] Rwanda Water Resources Board (RWB). (2022). National Water Quality Baseline Assessment Report.
[74] EcoPlanet Bamboo, 2025. Ecological Baseline Reports
[75] Rwanda Environment Management Authority (REMA). (2019). Rwanda Climate Change Vulnerability Report.

Figure 7 & 8: Sedimentation in Rivers within the Project Area[74]

Vegetation and Ecosystems

As of 2022, the landscape across the project area in Gisagara, Nyaruguru, Kamonyi, Muhanga, Ngororero, Nyamagabe, Ruhango, and Karongi districts were severely degraded, with widespread decline in native vegetation, fragmented habitats, and dominance of agroforestry systems with exotic species[74].

Decades of deforestation, driven by population growth, agricultural expansion, and reliance on biomass for energy, led to the near-total removal of natural vegetation, particularly along riverbanks and steep slopes[76]. As of 2021, forests occupy about 30.4 percent of the total land area of which 387,425 ha (53.5%) are plantations, 130,850 ha (18.1%) are natural mountain rainforests, 161,843 ha (22.3%) are wooded savannah, and 43,963 ha (6.1%) are shrubs. Land use changes have led to the emergence of secondary vegetation, dominated by grasses (Graminaceae) and seasonal or perennial species that often alternate with crops.

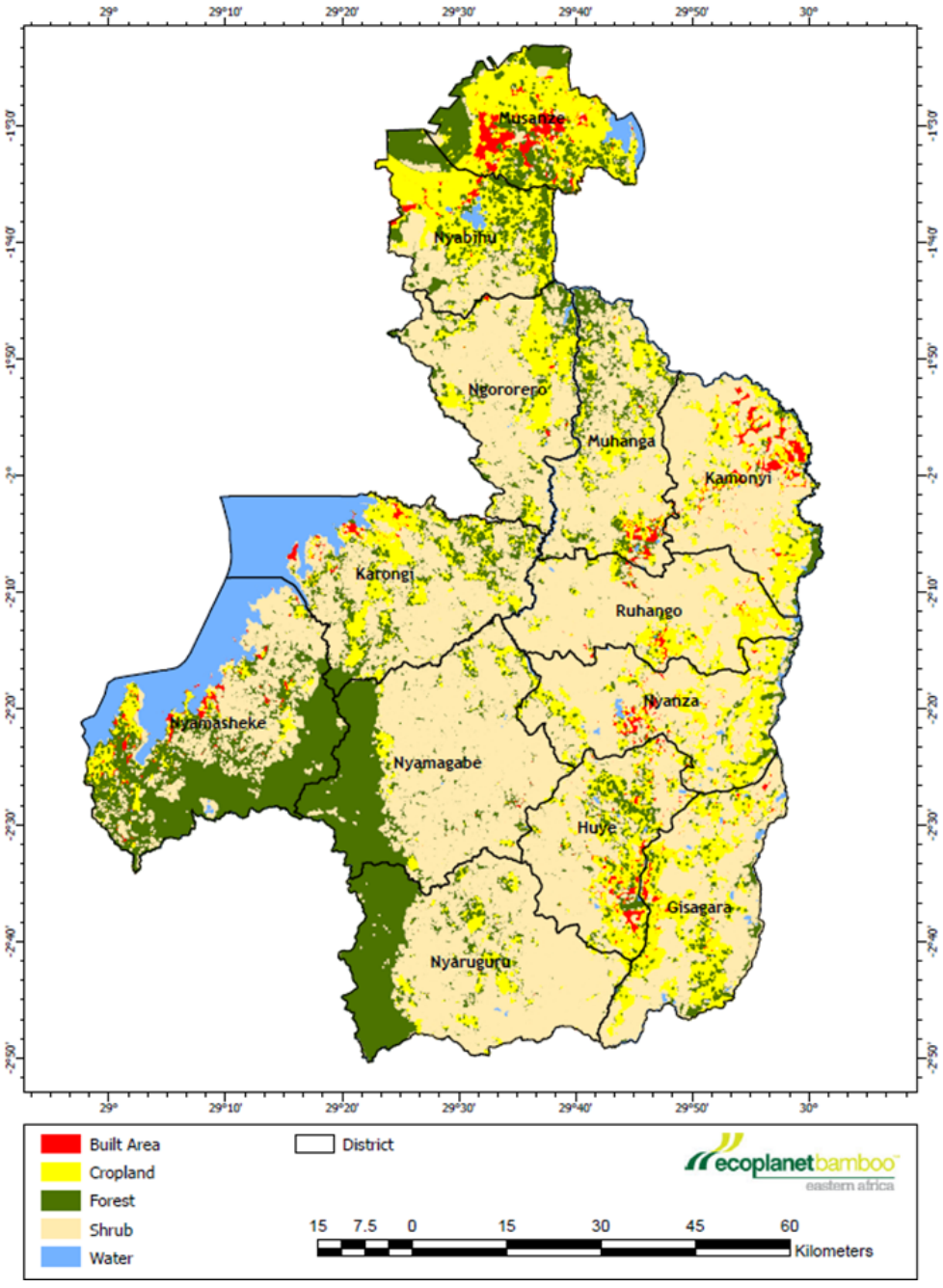
The intense human pressure on land in Rwanda is reflected in the high rural population densities observed across the project area. It is estimated that Rwandan households consume approximately 2.7 million tonnes of fuelwood annually, with charcoal production accounting for about 50% of this demand. In 2017, the wood supply–demand gap was estimated at 4.3 million tonnes and is projected to rise to 7.5 million tonnes by 2026 due to increasing demand for firewood and charcoal, further depleting forest resources[64]. The 2020 Agricultural Household Survey[77] found that 80.1% of households in Rwanda are considered agricultural households, meaning they derive at least part of their income from agriculture. Due to land scarcity and slope farming, agricultural systems are dominated by smallholder mixed cropping, averaging 0.76 ha[67]. Main crops produced within the project area include beans, cassava, maize, sorghum, sweet potatoes, bananas, and various vegetables.

[76] Vågen, T.-G., Winowiecki, L. A., Abegaz, A., & Hadgu, K. (2018). Towards ecosystem accounts for Rwanda: Tracking 25 years of change in flows and potential supply of ecosystem services. People and Nature, 1(1), 23–36. https://doi.org/10.1002/pan3.10062

[77] National Institute of Statistics of Rwanda (NISR). (2021). Rwanda Agricultural Household Survey 2020: Main Report.

By 2022, the remaining natural vegetation in these districts was minimal, highly fragmented, and mostly restricted to protected areas, isolated riparian zones, steep slopes, or protected areas[78]. Most areas were heavily transformed, with agroforestry systems dominating.

Figure 9: Land Use/Land Cover Map of the Eight Districts[74]



[78] Brown, C.F., Brumby, S.P., Guzder-Williams, B. et al. Dynamic World, Near real-time global 10 m land use land cover mapping. Sci Data 9, 251 (2022).

VCS Project Area:

Natural vegetation that once held the soil and stopped the rivers from migrating have been completely removed, which has negatively impacted the stability of the rivers. Agricultural or agroforestry cropping within the 5-meter riparian buffer zones is illegal, with the buffer zones under the custodianship of the Rwanda Water Resources Board. There is little, if any, native vegetation or ecosystems left within the project area.

Figure 10 &11: Vegetation within the VCS Project Area

Areas outside the VCS Project Area, within the Project Zone:

As documented during ecological baseline assessments[74], no dominant natural vegetation structure was observed in Gisagara, Kamonyi, and Nyaruguru districts. This is primarily attributed to long-term and ongoing land degradation, driven largely by intensive agricultural activity and unsustainable land-use practices. The landscape across these districts is heavily fragmented and characterized by a mosaic of smallholder crop systems, with cassava and maize being the most widespread crops in Gisagara and Kamonyi, while bananas and sweet potatoes are commonly cultivated in the riparian zones of Nyaruguru.

Agroforestry systems are present throughout the project zone; however, they are primarily composed of exotic tree species, particularly *Eucalyptus maidenii, Eucalyptus saligna,* and *Grevillea robusta*[74]. These fast-growing species are widely planted for fuelwood, timber, and shade, but are known to be invasive and may pose a threat to native biodiversity and soil health if unmanaged. In valley bottoms and on lower slopes, the vegetation is largely dominated by herbs and shrubs, reflecting both past disturbance and continuous cultivation pressure[74].

In contrast, the Tare sector of Nyamagabe District and parts of Ngororero are characterized by large-scale tea plantations, which have increasingly replaced traditional agroforestry systems. A similar land-use transition was observed in the Murundi sector of Karongi, where immature agroforestry stands are being cleared to make way for commercial tea cultivation[74].

The plant species identification conducted during the ecological assessment[74] revealed a total of approximately 73 species from 37 plant families. Notably, three families, *Myrtaceae, Asteraceae,* and *Poaceae,* accounted for the majority of all recorded observations.

In terms of life forms, shrubs were significantly more prevalent than trees and herbs. Many tree species were observed in their early developmental stages. A total of 46 native plant and tree species, 25 alien species, 22 invasive species and 2 endemic species were recorded in project zone[74]:

- The endemic species included *Harungana montana* and *Bothriocline rwandensis.*
- Identified invasive species included *Lantana camara, Tithonia diversifolia*, and *Solanum aculeostrum*, which are known for their aggressive spread and competitive displacement of native vegetation.

From a conservation perspective, species assessments based on the IUCN Red List revealed:

- *Euphorbia tirucalli* – Least Concern (LC)
- *Harungana montana* – Vulnerable (VU)

Fauna

Within the Project Zone:

A total of 17 bird species were recorded during the survey[74], the majority of which were IUCN Least Concern listed species such as *Cisticola cantans* (Singing Cisticola), *Bubulcus ibis* (Cattle Egret), and *Milvus migrans* (Black Kite). The Grey Crowned Crane (*Balearica regulorum*), a species classified as Endangered by the IUCN Red List, was occasionally sighted in Gisagara, Kamonyi, and Nyamagabe districts by community residents.

In terms of mammal biodiversity, reports from community interviews[74] confirmed the presence of two Vulnerable species: L'Hoest's Monkey (*Allochrocebus lhoesti*) and the African Golden Cat (*Caracal aurata*) in Ngororero and Nyamagabe, respectively. This may be attributed to the natural forest reserves in the vicinity of the project area.

The relatively low species richness observed across the study sites may be attributed to the uniformity of vegetation structure and the limited diversity of food resources, which are largely restricted to cultivated crops. The absence of a natural vegetation mosaic, especially in areas adjacent to streams and rivers, appears to limit habitat suitability for many species. Most riparian zones lacked wetland characteristics, particularly in terms of floral diversity, further contributing to the reduced bird species richness[74].

Ecosystem Services

Ecosystems in Southern and Western Rwanda, though degraded in many areas, continue to provide vital services to rural communities[77, 74]. These services are categorized into provisioning, regulating, cultural, and supporting services, as illustrated in Figure below.

Provisioning services refer to the direct goods provided by ecosystems, which support daily subsistence and rural livelihoods:

- Water for agriculture: Rivers such as Kayumbu (Kamonyi) and tributaries in Gisagara and Nyaruguru are commonly used for irrigation during the dry season, playing a critical role in household food production activities[74].
- Plant-based materials: In Gisagara, the native reed *Phragmites mauritianus* continues to be harvested for roof thatching and climbing bean supports, especially in low-lying areas[74].
- Fuelwood and timber: Across all eight districts, particularly in Kamonyi, Muhanga, and Ngororero, communities heavily rely on plantations and forests for fuelwood, fencing, and construction timber.

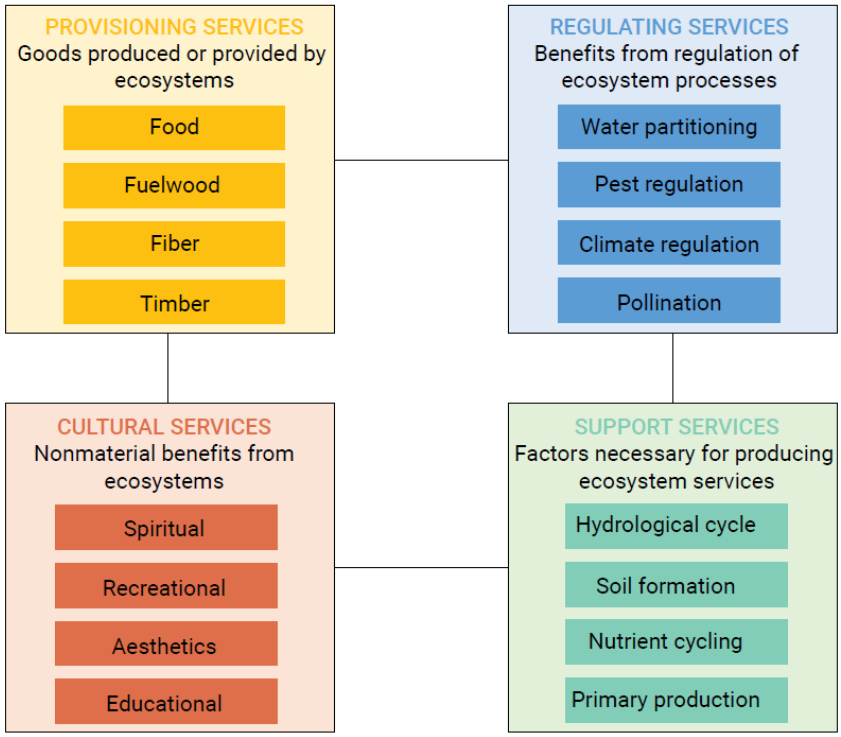
Regulating Services are benefits obtained from the natural regulation of ecosystem processes, such as water flow, erosion control, and climate stabilization. In most areas, these services are highly degraded[74,77]. The removal of riparian vegetation has diminished the capacity of riverside ecosystems to slow runoff, retain soil, or filter pollutants. In Kamonyi District, residents along the Kayumbu River reported a notable increase in flash flooding and farmland destruction following storm events, a result of weakened natural buffers and increased catchment runoff[74]. With little vegetation cover or natural wetland function in remaining riparian zones, the districts have experienced more frequent soil loss and sedimentation, as confirmed by the Rwanda Water Resources Board[67, 70].

Cultural Services refer to the nonmaterial benefits ecosystems provide, including medicinal, recreational, and spiritual value. Although natural vegetation has been largely replaced, some culturally significant species are still available. For example, *Tithonia diversifolia*, an invasive species, is still valued by local communities for its medicinal properties, particularly for treating fevers and inflammation, despite its ecological risks[74].

Supporting Services underpin all other ecosystem services by maintaining the conditions necessary for life, such as soil formation and nutrient cycling. In degraded landscapes of Gisagara, Muhanga, and Ruhango, supporting services have been severely compromised by the loss of natural vegetation, intensive farming on steep slopes, and continuous cultivation with little fallow. Soil fertility continues to decline, requiring increasing inputs of fertilizer for crop productivity. According to the EICV 5 Agricultural Report[79], over 60% of households reported declining yields due to poor soil health.

[79] National Institute of Statistics of Rwanda (NISR). (2018). EICV 5 Thematic Report: Agriculture.

Figure 12: Classification of Ecosystem Services[67]



Threats

Rwanda's natural capital is under increasing pressure from both direct and indirect drivers of land degradation, as well as broader socio-economic and environmental trends.

- Land Scarcity and Population Pressure: Rwanda is one of Africa's most densely populated countries, with districts like Muhanga and Gisagara exceeding 500 people per km². This intense population pressure has led to land fragmentation, encroachment on marginal lands, and cultivation on steep slopes, making ecosystems highly vulnerable to degradation[67,77].
- Soil Degradation and Erosion: Improper land use practices, including continuous cultivation without fallow, poor soil conservation measures, and limited fertilizer use, have accelerated soil degradation. Erosion-prone soils on Rwanda's steep terrain are particularly susceptible to landslides and flooding, especially in the absence of vegetative cover[70, 75].
- Climate Change and Natural Hazards: With rising temperatures and increasingly erratic rainfall, Rwanda faces growing exposure to climate-related hazards, including flash floods, prolonged droughts, and landslides. The degradation of natural buffers such as wetlands and forests further has weakened the landscape's capacity to regulate climate extremes and manage hydrological flows [67,70,75].
- Loss of Biodiversity and Habitat Conversion: The conversion of diverse natural ecosystems into croplands and monoculture tree plantations has resulted in significant biodiversity loss[67].
- Water Pollution and Limited Access: Water resources are increasingly threatened by agricultural runoff, wetland encroachment, and poor sanitation. Most riparian buffers have been degraded,

diminishing their ability to filter pollutants and regulate flows[64, 66]. The Kayumbu River in Kamonyi, for example, has seen frequent flooding and sedimentation, largely due to the loss of vegetation and upstream erosion[74].

4.2 Expected Impacts on Natural Capital and Ecosystem Services

Impact #1	Strengthened Climate Change Resilience
Type of Impact	Positive, Predicted, Direct
Affected Natural Capital and/or Ecosystem Service(s)	Atmosphere
Resulting Change in Condition	A minimum of 5,000 ha of riparian areas are revegetated with bamboo spp. resulting in 2,645,000 tCO2e stored and sequestered over the project lifetime.

Impact #2	Restoration of inland freshwater ecosystems
Type of Impact	Positive, predicted, indirect
Affected Natural Capital and/or Ecosystem Service(s)	Soil
Resulting Change in Condition	5,000 ha of planted areas contribute to reduced soil erosion into adjacent rivers. Root structure hold soil particles together, resulting in improved water quality through decreased erosion into adjacent rivers.

Impact #3	Sustainable use of natural resources
Type of Impact	positive, predicted, direct
Affected Natural Capital and/or Ecosystem Service(s)	Soil, Biodiversity
Resulting Change in Condition	Agricultural micro-enterprises have improved soil cover, reduced synthetic chemical use, improved diversity of crops and trees.

4.3 Natural Capital and Ecosystem Services Monitoring Plan

No.	Natural Capital/ Ecosystem Service	Type of Measurement	Sampling Method	Frequency of Monitoring	Frequency of Reporting
1	Atmosphere	Quantitative - Sequestration of GHG emissions	Permanent sampling plots	This parameter will be monitored under the VCS program for the referenced project. Only the results obtained during the corresponding SD VISta Monitoring Period (MP) will be considered in estimations. No separate sampling or monitoring activities will be conducted specifically under the SD VISta program.	Every 2 years, at the time of verification.
2	Soil stabilization	Quantitative – Number of hectares planted	100% area planted	Annually	Annually
4	Soil restoration	Quantitative- Application of regenerative farming practices in established agricultural micro-enterprises.	Permanent sample plots in agricultural projects	Annually	Annually
5	Biodiversity	Quantitative - Volume of synthetic chemicals utilized in socio-economic projects	Survey with project trainees	Annually	Annually

No.	Natural Capital/ Ecosystem Service	Type of Measurement	Sampling Method	Frequency of Monitoring	Frequency of Reporting
6	Biodiversity	Quantitative – Diversity of trees, vegetables and soil coverage	Permanent sample plots in agricultural micro-enterprise plots	Annually	Annually

4.4 Net Positive Natural Capital and Ecosystem Services Impacts

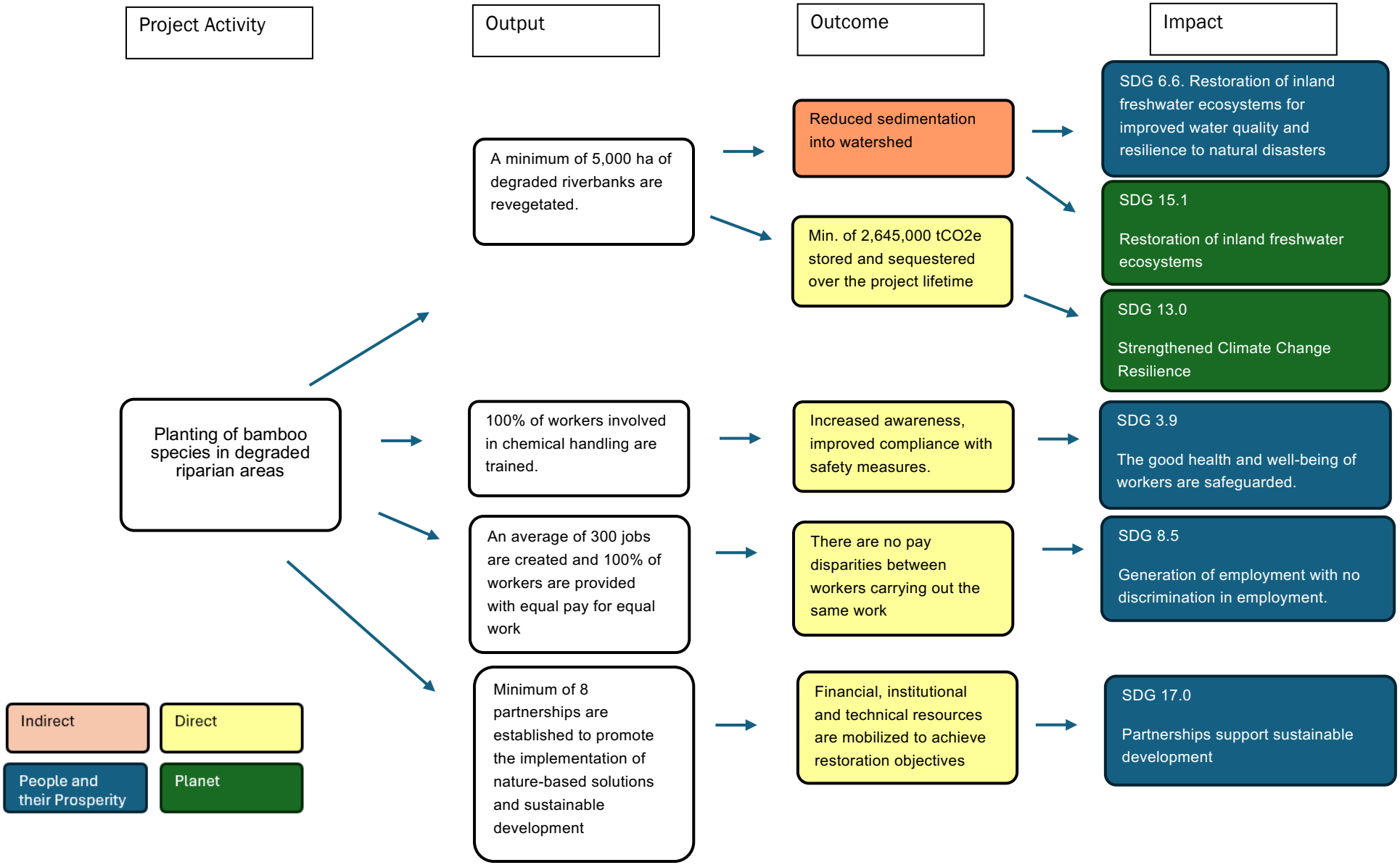
The project's interventions aim to generate net positive outcomes for natural capital and the provision of key ecosystem services across Rwanda's southern and western districts.

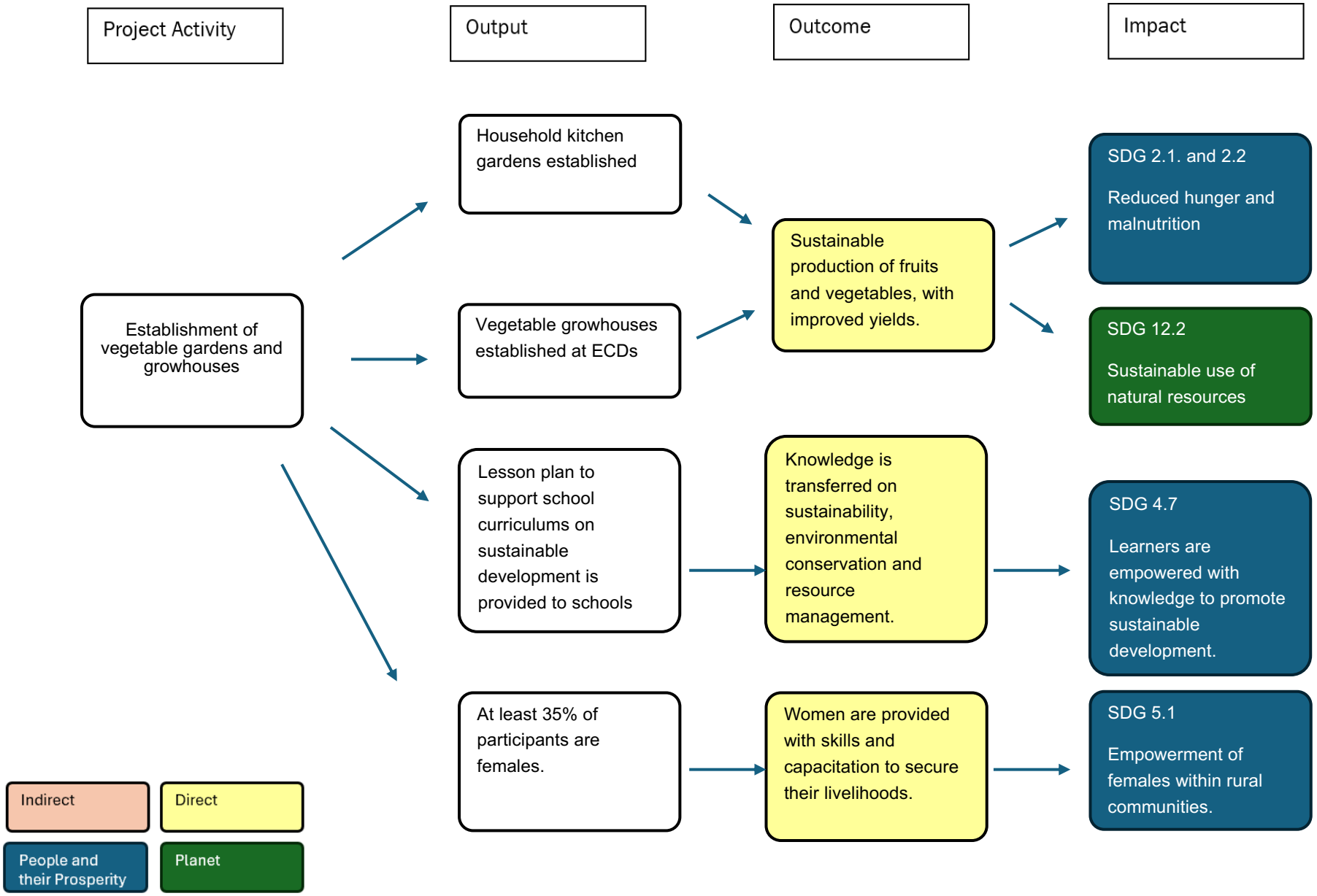
- Restoration of Degraded Land and Ecosystem Function: Through reforestation efforts, the project restores ecosystem functions over a minimum of 5,000 ha of degraded riparian areas. Ecosystem services such as soil stabilization are enhanced by planting bamboo species.
- Water Quality: In areas where cropland expansion has degraded riparian buffers and increased sedimentation into rivers, the project improves water quality through riparian planting and sustainable land management practices.
- Regenerative Agriculture: By transitioning from conventional farming to more sustainable methods, the project strengthens provisioning ecosystem services such as food and fuelwood production. Training in regenerative farming practices promotes sustainable productivity while enhancing soil health.
- The removal of GHG emissions through emissions reductions verified under VCS supports global climate mitigation efforts while improving local ecosystem resilience.

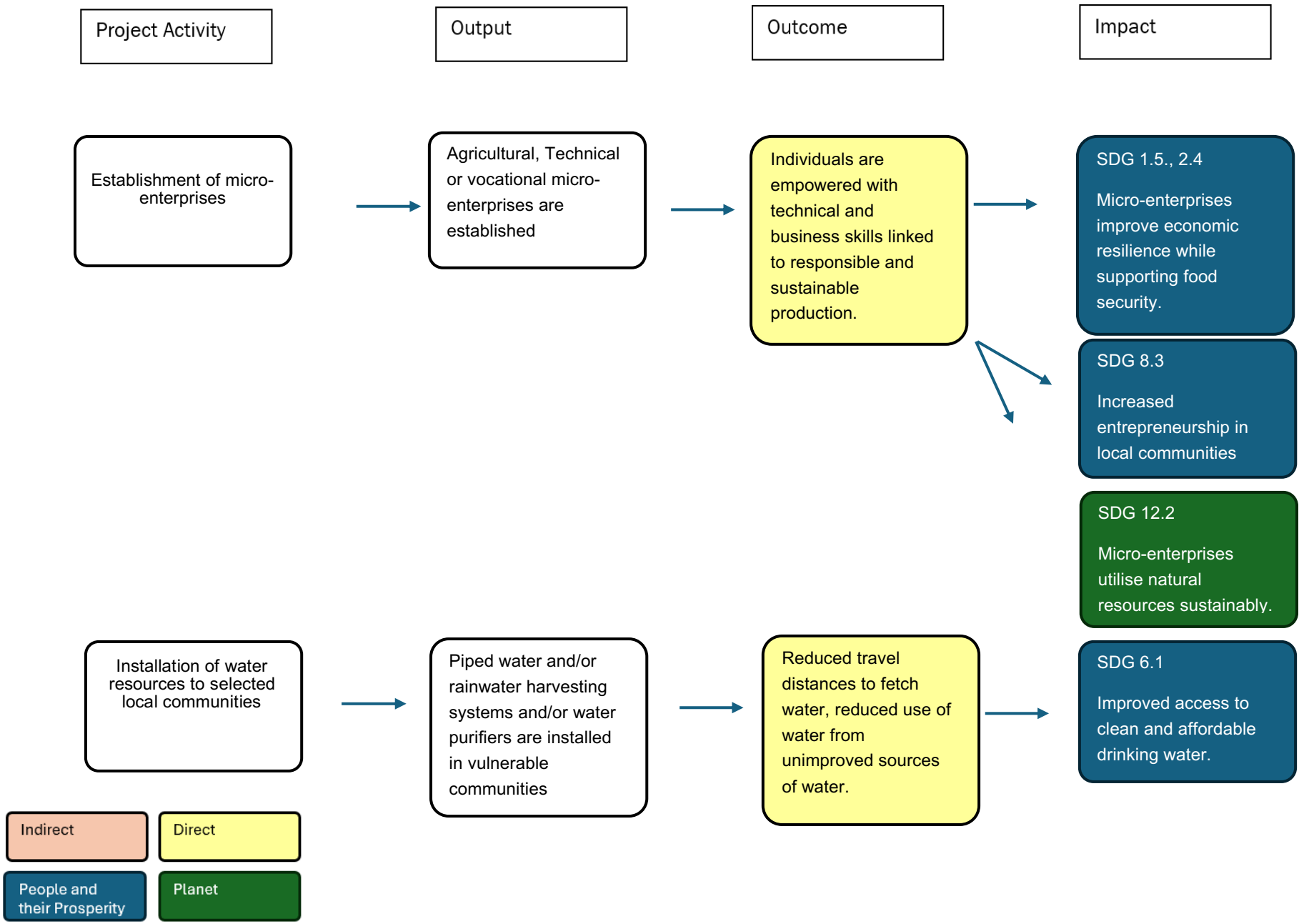
Figure 13: Estimated GHG Emission Removals– 1st Project Instance

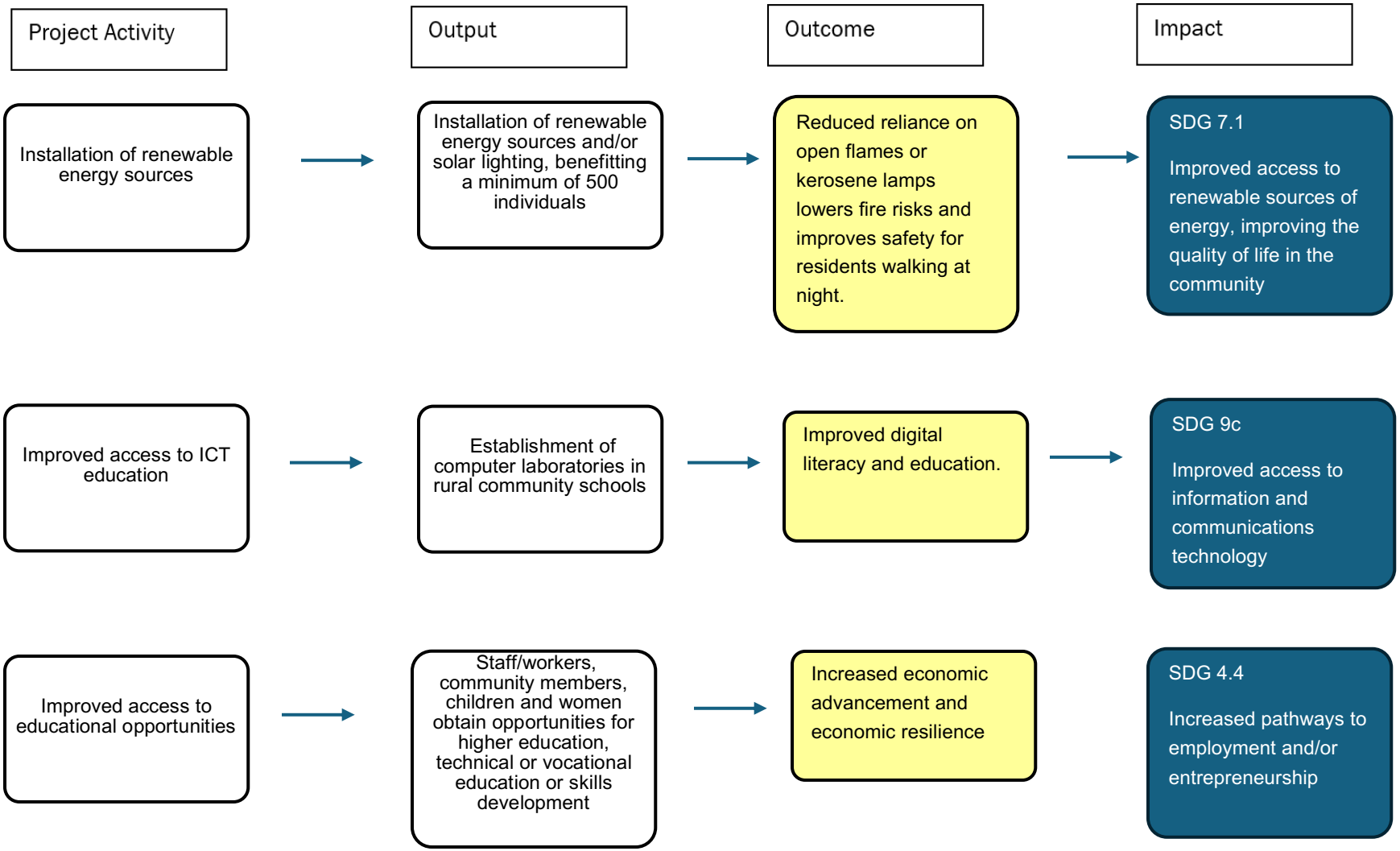
Year	Estimated baseline removals (tCO2e)	Estimated project removals (tCO2e)	Estimated leakage emissions (tCO2e)	Estimated net GHG emission reductions or removals (tCO2e)
2023	0	2,280.50	0	2,280.50
2024	0	8,560.49	0	8,560.49
2025	0	18,845.20	0	18,845.20
2026	0	43,673.28	0	43,673.28
2027	0	91,725.48	0	91,725.48
2028	0	163,582.81	0	163,582.81
2029	0	297,685.37	0	297,685.37
2030	0	505,017.34	0	505,017.34
2031	0	742,767.75	0	742,767.75
2032	0	938,172.81	0	938,172.81
2033	0	1,012,871.55	0	1,012,871.55
2034	0	1,015,804.88	0	1,015,804.88
2035	0	1,018,738.21	0	1,018,738.21
2036	0	1,021,671.55	0	1,021,671.55
2037	0	1,024,604.88	0	1,024,604.88
2038	0	1,027,538.21	0	1,027,538.21
2039	0	1,030,471.55	0	1,030,471.55
2040	0	1,033,404.88	0	1,033,404.88
2041	0	1,036,338.21	0	1,036,338.21
2042	0	1,039,271.55	0	1,039,271.55
TOTAL				1,039,271.55

APPENDIX 1: CASUAL CHAINS




Project Activity
Output
Outcome
Impact
Establishment of vegetable gardens and growhouses
Household kitchen gardens established
Vegetable growhouses established at ECDs
Lesson plan to support school curriculums on sustainable development is provided to schools
At least 35% of participants are females.
Sustainable production of fruits and vegetables, with improved yields.
Knowledge is transferred on sustainability, environmental conservation and resource management.
Women are provided with skills and capacitation to secure their livelihoods.
SDG 2.1. and 2.2
Reduced hunger and malnutrition
SDG 12.2
Sustainable use of natural resources
SDG 4.7
Learners are empowered with knowledge to promote sustainable development.
SDG 5.1
Empowerment of females within rural communities.
Indirect
Direct
People and their Prosperity
Planet


Project Activity
Output
Outcome
Impact
Establishment of micro-enterprises
Agricultural, Technical or vocational micro-enterprises are established
Individuals are empowered with technical and business skills linked to responsible and sustainable production.
SDG 1.5., 2.4
Micro-enterprises improve economic resilience while supporting food security.
SDG 8.3
Increased entrepreneurship in local communities
SDG 12.2
Micro-enterprises utilise natural resources sustainably.
Installation of water resources to selected local communities
Piped water and/or rainwater harvesting systems and/or water purifiers are installed in vulnerable communities
Reduced travel distances to fetch water, reduced use of water from unimproved sources of water.
SDG 6.1
Improved access to clean and affordable drinking water.
Indirect
Direct
People and their Prosperity
Planet


Project Activity
Output
Outcome
Impact
Installation of renewable energy sources
Installation of renewable energy sources and/or solar lighting, benefitting a minimum of 500 individuals
Reduced reliance on open flames or kerosene lamps lowers fire risks and improves safety for residents walking at night.
SDG 7.1
Improved access to renewable sources of energy, improving the quality of life in the community
Improved access to ICT education
Establishment of computer laboratories in rural community schools
Improved digital literacy and education.
SDG 9c
Improved access to information and communications technology
Improved access to educational opportunities
Staff/workers, community members, children and women obtain opportunities for higher education, technical or vocational education or skills development
Increased economic advancement and economic resilience
SDG 4.4
Increased pathways to employment and/or entrepreneurship

APPENDIX 2: OCCUPATIONAL SAFETY ASSESSMENT

The project proponent is committed to prioritizing the health and safety of employees and stakeholders, complying with national regulations, and providing resources for a safe work environment.

The project proponent has assessed the hazards associated to project activities, likelihood of each hazard causing harm, the severity of harm that could result from each hazard to determine the level of risk and extent of mitigation measures. Risks were classified into the following categories - Low Risk: Risk Level 1 – 3; Moderate Risk: Risk Level 4 – 6; High Risk: Risk Level 8 – 15 and Extreme Risk: Risk Level 16 – 25.

Activity	Hazard Description	Likelihood (L)	Severity (S)	Risk Level (L x S)	Control Measures
Pitting	Injury from sharp tools	3	3	6	Provide training on safe handling of tools, safe work distances, ensure proper maintenance of equipment
Hoeing	Injury from sharp tools	3	2	6	Provide training on safe handling of tools, safe work distances, ensure proper maintenance of equipment
Planting/Blanking	Injuries from tools	2	2	4	Provide training on proper planting techniques, provide appropriate PPE (where required), ensure adequate rest breaks
Casing/Ring weeding	Injury from sharp tools, repetitive strain	2	2	4	Provide training on safe handling of tools, ensure adequate rest breaks, provide PPE
Transporting chemicals	Chemical spills, skin contact, inhalation risks	3	2	6	Provide training on safe transportation procedures, ensure proper labelling and secure packaging of chemicals, adhere to SoP for Management of Chemicals
Manual spraying of chemicals	Exposure to toxic chemicals, inhalation risks	3	5	15	Provide training on chemical handling and safety procedures, provide appropriate PPE as required by the SDS, adhere to SoP on Management of Chemicals. Affected staff have annual medicals. Specific employees are identified for the application of chemicals.
Managing chemical and diesel spillages	Pollution, contamination risks	3	3	9	Provide spill response training, ensure availability of spill kits and absorbent materials are available where practical, implement proper disposal procedures for contaminated materials, conduct regular inspections of storage and handling areas. Adherence to SoPs on Management of Chemicals and Management of Waste

Activity	Hazard Description	Likelihood (L)	Severity (S)	Risk Level (L x S)	Control Measures
Working in extreme weather	Heatstroke, lightning strikes	4	4	16	Provide training on recognizing and managing symptoms of epistaxis, heatstroke, implement prevention measures (e.g., frequent breaks, drinking water), train workers on lightning safety protocols (e.g., seeking shelter indoors), monitor weather forecasts.
Training new workers infield	Injuries during training, exposure to hazards	4	4	16	Provide induction safety training for new workers, conduct regular safety briefings and inspections, provide appropriate PPE, where required.
Solitary work	Injury, lack of immediate assistance	3	5	15	Implement check-in procedures for solitary workers, ensure workers have means of communication.
Vehicle Maintenance	Injuries from equipment, exposure to hazardous chemicals	3	5	15	In accordance with national regulations, annual inspections of vehicles are conducted, with maintenance activities planned.
Transport	Driver fatigue	2	5	10	Ensure regular rest breaks when travelling long distances, where possible ensure the rotation of drivers.
Transport	Road conditions	3	4	12	Ensure all drivers have legally required licenses. All motorbikes have been assessed by the competent authority on an annual basis. Drivers are provided with awareness talks on reduced speeds on gravel roads.
Responding to office emergencies	Injury from rushing, exposure to hazards	1	4	4	Provide emergency response awareness training, ensure availability of appropriate equipment (fire extinguishers and first aid box), adherence to SoP on Emergency Response
Responding to field emergencies	Injury from rushing, exposure to hazards	2	4	8	Provide emergency response awareness training and first aid training, ensure availability of appropriate equipment (first aid box), adherence to SoP on Emergency Response
Construction of nursery and community impact Infrastructure	Falls, equipment accidents	3	2	6	Provide awareness training on safe construction practices, ensure use of PPE, conduct regular inspections of construction sites