



The World Bank

Volcanoes Community Resilience Project (P178161)

Project Information Document (PID)

Concept Stage | Date Prepared/Updated: 28-Oct-2022 | Report No: PIDC33094

**BASIC INFORMATION****A. Basic Project Data**

Country Rwanda	Project ID P178161	Parent Project ID (if any)	Project Name Volcanoes Community Resilience Project (P178161)
Region EASTERN AND SOUTHERN AFRICA	Estimated Appraisal Date Jun 26, 2023	Estimated Board Date Sep 28, 2023	Practice Area (Lead) Environment, Natural Resources & the Blue Economy
Financing Instrument Investment Project Financing	Borrower(s) Ministry of Finance and Economic Planning	Implementing Agency Ministry of Environment, Rwanda Development Board, Rwanda Environmental Management Authority, Rwanda Water Resources Board	

Proposed Development Objective(s)

To reduce risk of flooding, improve land management, and improve livelihoods of people in the Volcanoes region.

PROJECT FINANCING DATA (US\$, Millions)**SUMMARY**

Total Project Cost	50.00
Total Financing	50.00
of which IBRD/IDA	50.00
Financing Gap	0.00

DETAILS**World Bank Group Financing**

International Development Association (IDA)	50.00
IDA Grant	50.00



Environmental and Social Risk Classification

High

Concept Review Decision

Track II-The review did authorize the preparation to continue

Other Decision (as needed)

B. Introduction and Context

Country Context

1. **Rwanda has relied on visionary leadership and a focus on institution and nation building to progressively transform the country through economic growth and development.** Over the past two decades, the Rwandan economy had grown well above average compared to its peers and the world over, achieving an average annual growth rate of 7.4 percent during the past decade. Rwanda has moved from being the second poorest country in the world in 1994, to being ahead of 19 others in 2017. Despite the country's overall growth and development over the past 25 years, Rwanda is highly vulnerable to impacts from climate change through its high dependence on rain-fed agriculture, as well as need to improve its road networks, health sector and water resource management.¹

2. **Rwanda is highly vulnerable to seasonal climate variability and long-term climate change, leading to the risk of numerous natural and man-made hazards.** Temperatures across Rwanda are expected to increase, and projections show a change in annual mean temperature from 1.1°C to 3.9°C by end of the century.² The country anticipates increase in both intensity (between +3 to +17 percent) and frequency (between +9 to +60 percent) of rainfall by the end of the century.³ Droughts and floods are region-specific problems, with droughts occurring mainly in the east of the country and floods in the western/central north and south of the country.⁴ Risk assessments show that floods affect about 12,000 people (0.1 percent of the total population of the country) and 0.5 percent of the country's GDP each year. Considering future growth in population and GDP until 2050, the flood-affected population is expected to double, while affected GDP is expected to increase by a factor of fifteen.⁵ A recent devastating flood event in 2018, which affected 15 districts in Rwanda, resulted in losses of US\$236 million. The country is yet to fully recover from its impact.⁶ The impact of flooding on people is likely to worsen, as population growth and limited land have pushed people to settle in flood-prone areas. The country currently loses about 1.9 percent of its GDP by droughts, and this is expected to rise to 13.7 percent by 2050.⁷

3. **Climate-induced changes to the environment coupled with extreme hydrometeorological events will have adverse effects on productivity of climate-sensitive sectors that are important for Rwanda's economic development.** This includes agriculture, which, if less productive will negatively impact food security and water availability, potentially leading to famine, population displacement, conflicts, biodiversity loss, increased incidences of diseases and much more in certain regions. Due to its geographic location and topography, the country is also at high risk of erosion and landslides, some 42 percent of the land is moderately or severely susceptible to landslides.⁸ Combined with heavy rainfalls, this will

¹ Netherlands Commission for Environmental Sustainability. (2015). Climate Change Profile – Rwanda. ([link](#)).

² World Bank Group. (2021). Climate Risk Profile - Rwanda. ([link](#))

³ World Bank Group. (2021). Climate Risk Profile - Rwanda. ([link](#))

⁴ Netherlands Commission for Environmental Sustainability. (2015). Climate Change Profile – Rwanda. ([link](#)).

⁵ CIMA, UNISDR (2018). Rwanda Disaster Risk Profile.

⁶ Republic of Rwanda. (2019). Detailed designs of flood control measures in the Volcano Region, Rwanda: Final report. ([link](#)).

⁷ CIMA, UNISDR (2018). Rwanda Disaster Risk Profile. ([link](#))

⁸ World Bank Climate Change Knowledge Portal. (2022) Rwanda. ([link](#)).



have implications for flood risk management, soil erosion, land and environmental degradation, livelihoods and ecosystem services planned under the proposed project. These constitute serious obstacles to the country's continued development and responsible management of its natural resources, which is also likely to impact the country's tourism sector which contributes much to Rwanda's economic development. The number of visitors to the national parks increased by more than 2,800 percent during 2000–2019. In 2019, tourism generated foreign exchange earnings of US\$498 million, a 17 percent increase from 2018 and a 280 percent increase from 2006. In 2019 revenues from tourism constituted 50.1 percent of all service exports. Whilst tourism numbers were affected by the COVID pandemic, revenues from tourism are expected to reach over US\$800 million by 2024.⁹

4. The Covid-19 pandemic drove Rwanda's economy into its first recession since 1994 and the country's economic growth is expected to decelerate to its historical rate in 2022 and 2023, with GDP projected to grow at the rate of 7 to 8 percent per year over the next decade. Gross domestic product (GDP) fell by 3.4 percent in 2020. Domestic and global restrictions to contain the pandemic severely disrupted economic activities, and depressed exports, private investment, and consumption. Travel and tourism were brought to a near halt, mining and construction dropped sharply, and manufacturing fell. The global Covid-19 shock is still unfolding, creating severe fiscal pressures on Rwanda.¹⁰ Growth is expected to be driven by rising agricultural productivity; strong exports (of both traditional and nontraditional products); and large investments in infrastructure. Achieving the projected growth rates will require getting the pandemic under control, greater private sector investment, and higher state efficiency and accountability to its citizens.

Sectoral and Institutional Context

5. The project area covers two regions in the north-western part of Rwanda: The Volcanoes Region and the Vunga corridor. The entire area is 3,890 square kilometers. Along the northern border of the project area is the Volcanoes National Park (VNP) that covers an area of 160 square kilometers and is part of a unique transboundary network of protected areas in Rwanda, Uganda, and the Democratic Republic of Congo. The VNP is an area of national and international importance, and supports globally significant wildlife, including one of only two remaining populations of the endangered mountain gorilla. The Volcanoes Region, located in the north of Rwanda, spans the districts of Burera, Nyabihu, Rubavu, Gukenke, Muhanga, Ngororero, Musanze and part of Rutsiro District, and is home to over 1.4 million people. The communities that live in this region are highly vulnerable to the adverse effects of floods, landslides, and soil erosion, which are projected to exacerbate from increased rainfall due to climate change.¹¹

6. The VNP is currently facing multiple challenges. Despite its significant conservation value, the VNP is small and isolated, with insufficient interconnected habitat for mountain gorillas and other wildlife species. There is an ongoing process to expand the park to secure existing biodiversity values and to improve connectivity with other priority conservation areas in the region. This need for expansion is highlighted as part of the Global Safety Net¹², which includes areas regarded as essential for addressing the joint challenges of biodiversity and climate resilience.

7. Scientific studies and research identified that an expansion area for VNP of about 3,830 hectares is the minimum size to attain ecological integrity. The current expansion proposal targets an area of 1081 hectares as the first phase, while the remaining have been identified for future expansion. The expansion of the VNP coupled with effective management of park buffer areas will increase habitat for gorillas and other species, enhance opportunities for ecotourism, increase income for communities, reduce human wildlife conflict, help address disease and other risks of wildlife human contact, and provide a more diverse park with a broader altitude range that will help increase resilience to

⁹ World Bank, Global Program on Sustainability, and the GoR. (2021). "A post-pandemic nature-based tourism and conservation recovery plan for Rwanda,". ([link](#)).

¹⁰ World Bank. (2021). Rwanda Economic Update" 17th Edition. ([link](#)).

¹¹ FONERWA. (2022). Climate Risk Assessment.

¹² Global Safety Net App. (2022). ([link](#)).



climate change.¹³ Mainstreaming biodiversity in the landscape would help to increase ecosystem services. Currently, Rwanda has large areas characterized by small woodlots that are often inadequately managed. Those in the project area are dominated by *Eucalyptus* species with very few areas of natural forests existing outside formally protected areas. The introduction of more diverse tree species, including native species, together with an emphasis on improved management of existing forests would enhance their biodiversity and economic values.

8. Soil erosion is the most serious environmental problem in many catchment areas and the cost of doing nothing to address soil degradation is estimated to be 1.59 times greater than the cost of preventive action through soil and water conservation practices. About 6 million tons of crops are lost each year due to erosion, valued at US\$76 million (Rwf 76 billion). An estimated area of 1,080,168 hectares (45 percent of Rwanda's land area) is at risk of topsoil loss. Topsoil loss is estimated to be 25 tons per hectare per year. A national risk map was created to identify the risk of soil erosion and measures to prevent it. This information is central to catchment planning in Rwanda, especially for preventing erosion in areas of high erosion risk. Soil erosion mitigation measures include construction of soil and water conservation structures and planting different plant species to stabilize the structures. The GoR and local communities have experience and knowledge on how to develop terraces.¹⁴ The RWB is mandated with developing and implementing catchment restoration measures to address these challenges.

Relationship to CPF

9. The project is fully aligned with the World Bank Group Country Partnership Framework (CPF) (fiscal 2021–fiscal 2026) (Report No. 148876-RW) for Rwanda discussed by the Board of the Executive Directors on July 9, 2020. The proposed project will contribute to the cross-cutting objective of the CPF which aims to address climate change. The CPF recognizes that Rwanda is vulnerable to climate change and associated disaster risks, which can undermine its growth prospects and slow efforts to reduce poverty. The proposed project will support activities to mitigate climate change and reduce risks of flooding. The project will also contribute to objective four of the CPF, which focuses on increased agriculture productivity and commercialization, through its investments in climate-smart agriculture and slope stabilization and erosion control.

10. The proposed project supports broader World Bank climate-related commitments and national policies for climate resilience. The proposed project strengthens climate resilience and contributes to scaling up climate action in accordance with the World Bank Group Climate Action Plan 2021–2025 and Country Climate Development Report. In addition, the proposed project will support Rwanda's GGCRS, Environmental Vision to 2030, Biodiversity Strategy, the National Policy on Water Resources, and the national mandate for an Integrated Water Resources Management Authority. The GGCRS informed the 2017 Strategic Program for Climate Resilience, which includes Climate Resilient Human Settlements as one of four key programs. Through investments in resilient infrastructure, nature-based solutions, and institutional strengthening to improve the capacity for climate resilient planning, the project will contribute to reducing the frequency and impact of water-related disasters.

11. Finally, the proposed project will help to strengthen Rwanda's implementation of multilateral environmental agreements aimed at producing global environmental benefits. Rwanda is a committed signatory to multilateral environmental agreements. The United Nations Framework Convention on Climate Change and the Paris Agreement is a key agreement and in May 2020, Rwanda was the first country in Africa to submit its updated NDC for mitigation and

¹³ RDB and International Gorilla Conservation Program. *Ecological and Conservation Planning Study: Volcanoes National Park Expansion and Buffer Zone*. Prepared for the RDB and the International Gorilla Conservation Programme by Dr Stephen Holness, Southern Connections NPC, April 2018.

¹⁴ Third Rural Sector Support Project (P126440), and Rwanda Land, husbandry water harvesting and hillside irrigation (P124785)



adaptation for the period up to 2030, providing a more detailed and robust assessment of mitigation and adaptation measures. In 2011, Rwanda committed to restore two million hectares of land as part of the AFR100 which is a country-led effort to bring 100 million hectares of land in Africa into restoration by 2030. The AFR100 contributes to the Bonn Challenge, the African Resilient Landscapes Initiative, the African Union Agenda 2063, the Sustainable Development Goals, and others. The country is also a signatory of the Convention on Biological Diversity and recently joined the 'green list' of the IUCN that promotes higher standards of conservation of nature and wildlife. The proposed project will contribute to the realization of these commitments and result in improved biodiversity conservation, reduced land degradation, and mitigation of climate change. The proposed project will also enable the GoR to advance the Sendai Framework for Disaster Risk Reduction 2015–2030.

C. Proposed Development Objective(s)

To reduce risk of flooding, improve land management, and improve livelihoods of people in the Volcanoes area.

Key Results (From PCN)

12. Key expected results in the project include:

- Direct project beneficiaries, (number), percentage female.
- People benefiting from reduced risks from floods (number, percentage female).
- People benefiting from improved livelihoods, percentage female.
- Catchment area (hectares) restored or rehabilitated.
- Land area benefiting from reduced risks from floods (area).
- Forest area (hectares) brought under sustainable forest managed.

13. Potential outcome indicators will be explored during project preparation to ensure that they can be attributed to the project, that baseline data exist, that indicators are measurable, and that approaches to measure them are available to provide accurate results at reasonable cost.

D. Concept Description

14. **The project's theory of change reflects the objectives for: (a) reducing the risks of floods, (b) improving land management, and (c) improving the livelihoods of people living in the Volcanoes Region.** The activities that will lead to these desired outcomes include investments in grey and green infrastructure, flood early warning systems (FEWS), improved land management practices, green villages, livelihood diversification, and technical assistance and capacity building. These activities will over the long-term help to strengthen livelihoods and incomes of people living in the Volcanoes Region, climate resilience, increase biodiversity values of restored and protected forests, and strengthen Rwanda's climate resilience.

15. **The project comprises four components:** (1) flood risk management; (2) catchment and landscape restoration; (3) VNP expansion and livelihood diversification and (4) project management, monitoring and evaluation, and capacity building.



Legal Operational Policies	Triggered?
Projects on International Waterways OP 7.50	No
Projects in Disputed Areas OP 7.60	No

Summary of Screening of Environmental and Social Risks and Impacts

16. **The environmental impact of the project is largely positive, including activities that will play a pivotal role in flood reduction, rehabilitating degraded landscapes and conservation of valuable ecosystems through afforestation and reforestation, and biological and physical soil and water conservation.** The beneficial impacts of the project includes: (a) reduced flood risks; (b) enhanced biodiversity in a unique ecosystem; (c) improved soil and water source conservation, which contributes to proper water management and increased soil moisture that can reduce variability in response to flood/drought conditions, (d) soil retention, which can provide benefits both on-site in terms of soil quality and off-site in terms of reduced erosion, (e) land savings or erosion prevention, increased soil fertility (which is a determining factor for higher and less variable crop yields), (f) increased vegetation cover, which helps to prevent erosion and improved downstream water quality, while simultaneously supporting biodiversity, which will be further enhanced through investment in green corridors, and the like. Furthermore, the project will also include the incorporation of social inclusion, job creation and income diversification for communities in the project footprint. This is expected to increase household income and improve broader social outcomes in the project areas.

17. **Under the VNP expansion, the project will support relocation of affected households through development of smart green villages.** In addition to the full compensation that PAHs will receive, improved housing will be constructed in the green smart village as part of a livelihood improvement plan. The smart green village targeting to host an estimated 1109 households will be constructed in an area of 100 ha that will have the following components: (a) land productivity, 1,000 square meters per households to use for agriculture production; (b) residential housing, 300 square meters will be allocated to each household for housing and home gardens, houses will be constructed in a 4-in-1 design to manage space; (c) infrastructure development, such as nursery schools, health centers, mini-markets or selling points, village internal roads, connections to electricity and piped water; (d) support for information and communication technology, such as a room equipped with the internet through which people can access *Irembo* services; (e) and construction of a multipurpose hall to hold meetings, historical and cultural events, and provide office space for local leaders and police. The government will also establish a multi-agency program coordination mechanism with requisite skills to manage identified risks. This will include (i) recruitment of environmental and social experts; (ii) preparation of environmental and social risk mitigation plans; (iii) conducting inclusive consultations leading to payment of cash and in-kind compensation for land acquisition; (iv) support to livelihood restoration, income generation activities and settlement in integrated climate resilient green villages; and (v) ensure full compliance of agreed mitigation measures during implementation and having a functional grievance redress system

18. **Notwithstanding its positive impacts, the project is likely to impose some potential negative environmental and social impacts.** The planned construction of flood risk reduction infrastructure, landscape restoration and park expansion will result in land acquisition, restrictions on land use and access to natural resources, thus affecting livelihoods and income sources for affected communities. This will affect the welfare of an estimated 1109 project-affected households that lie within the 1081 hectares of park expansion zone. The acquisition of land with a complete change of purpose from agricultural to natural forest habitat may lead to food insecurity for households that are dependent of land-based livelihoods, loss of income and physical displacement from their communities due to acute land constraints in the areas around the park. Environmental impacts may arise through construction and rehabilitation of physical and biological conservation structures such as bunds, terraces, water harvesting trenches, check-dams, small reservoirs, and other civil



works associated with construction of infrastructure in the green villages. However, these impacts will mostly be site specific and reversible in nature. The major negative environmental impact and risks are from the construction of green village residential houses for more than 1109 HHs and associated infrastructure in terms of roads, water supply system, school, and health facility. The impact on the land resource is in the form of soils erosion and degradation due to earthworks, spoil material, utilization of construction materials sites, and contamination of soil from wastes and hazardous chemicals release, contamination of water resources, air pollution, noise, and dust emissions.

19. Risk of exclusion of vulnerable groups from experiencing equitable access to project benefits may arise. Groups which include women, persons with disabilities, the elderly and youths may be disenfranchised owing to existing gender inequalities, social and cultural practices that may limit their participation, and thus being disproportionately affected by risks and impacts associated with the project. The areas surrounding the VNP are believed to have previously hosted Historically Marginalized People (HMP) that collected fruit, honey, and medicinal plants from the forest. Previous government efforts in the 1990s that led to the establishment of Rwanda's national parks (Volcanoes, Gishwati and Nyungwe) saw the relocation of HMPs whose livelihoods were largely dependent on the natural resources from these areas. The resettlement process was aimed at integrating these groups into mainstream society; however, many have struggled to successfully integrate and remain vulnerable to date. The planned intervention may likely compound the situation of these vulnerable groups. As part of project design, further investigations will be conducted to determine the presence of such groups in the project area and to specify appropriate measures to mitigate risks that may exacerbate their vulnerability. Further, the assessment will inform the application of ESS7 requirements and to ensure inclusive consultations are held with all interested stakeholders through culturally appropriate means. Civil society organizations and nongovernmental organizations that have been working with historically marginalized people in Rwanda will also be engaged throughout the project preparation cycle.

20. The severity of the risks and impacts listed above will be further assessed during project preparation. It is envisaged that the project will prepare the following instruments during project preparation: Resettlement Action Plan (RAP) in compliance to ESS 5; Environment and Social Impact Assessment (ESIA) in compliance to ESS 1; Labor Management Procedures (LMP) in compliance to ESS 2 and Stakeholders Engagement Plan (SEP) in compliance to ESS 10 and the Environment and Social Commitment Plan (ESCP). Application of ESS7 is yet to be determined.

21. All proposed project activities to be financed will meet the requirements of relevant ESSs of the World Bank. An Environmental and Social Review will be conducted at the concept stage to assess the borrower's institutional capacity for environmental and social management and screen potential risks and impacts.

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The World Bank

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