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INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT AND  
INTERNATIONAL DEVELOPMENT ASSOCIATION

PROJECT APPRAISAL DOCUMENT  
ON A  
PROPOSED CREDIT  
IN THE AMOUNT OF US\$50 MILLION

AND

A PROPOSED GRANT  
IN THE AMOUNT OF US\$12 MILLION  
FROM GLOBAL PARTNERSHIP FOR SUSTAINABLE AND RESILIENT LANDSCAPES  
MULTI DONOR TRUST FUND

TO THE

REPUBLIC OF RWANDA

FOR A  
VOLCANOES COMMUNITY RESILIENCE PROJECT  
(P178161)

September 11, 2023

Environment, Natural Resources & the Blue Economy  
Eastern And Southern Africa

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## CURRENCY EQUIVALENTS

(Exchange Rate Effective Jul 31, 2023)

Currency Unit = US\$

1 = US\$1

US\$ 1.343940= SDR 1

## FISCAL YEAR

January 1 - December 31

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## ABBREVIATIONS AND ACRONYMS

AFR100	African Forest Landscape Restoration Initiative
AM	Accountability Mechanism
CPF	Country Partnership Framework
CROM-DSS	Catchment Restoration Opportunity Mapping Decision Support System
DRM	Disaster Risk Management
DFIL	Disbursement and Financial Information Letter
DPCC	District Project Coordination Committee
EHS	Environment Health and Safety
EIB	European Investment Bank
EICV 5	Integrated Household Living Conditions Survey
EIRR	Economic Internal Rate of Return
ESF	Environment and Social Framework
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
ESS	Environmental and Social Standards
FEWS	Flood Early Warning System
FIRR	Financial Internal Rate of Return
FM	Financial Management
FONERWA	National Climate Change and Environment Fund
GAP	Gender and Anti-GBV Action Plan
GBV	Gender-Based Violence
GDP	Gross Domestic Product
GEF	Global Environment Facility
GGCRS	Green Growth and Climate Resilience Strategy
GHG	Greenhouse Gas
GoR	Government of Rwanda
GRM	Grievance Redress Mechanism
GVTC	Greater Virunga Transboundary Collaboration
IFR	Interim Financial Report
IGA	Income Generating Activity
IUCN	International Union for Conservation of Nature
LAFREC	Landscape Approach to Forest Restoration and Conservation
LMP	Labor Management Procedures
LRP	Livelihood Restoration Plan
M&E	Monitoring and Evaluation
MINALOC	Ministry of Local Government
MINECOFIN	Ministry of Finance and Economic Planning
MINEMA	Ministry in Charge of Emergency Management
MoE	Ministry of Environment
MoU	Memorandum of Understanding
NBS	Nature-Based Solutions
NDC	Nationally Determined Contribution
NGO	Nongovernmental Organization
NLUDMP	National Land Use and Development Master Plan
NDF	Nordic Development Fund

NPV	Net Present Value
NST1	First National Strategy for Transformation
PCU	Project Coordination Unit
PES	Payment for Ecosystems Services
PFM	Public Financial Management
PIM	Project Implementation Manual
PIU	Project Implementation Unit
RAP	Resettlement Action Plan
RDB	Rwanda Development Board
REMA	Rwanda Environmental Management Authority
RFA	Rwanda Forest Authority
RHA	Rwanda Housing Authority
RPF	Resettlement Policy Framework
RTDA	Rwanda Transport Development Agency
RWB	Rwanda Water Resources Board
SEA	Sexual Exploitation and Abuse
SEP	Stakeholder Engagement Plan
SLM	Sustainable Land Management
UNESCO	United Nations Education, Scientific, and Cultural Organization
VCRP	Volcanoes Community Resilience Project
VLUAP	Village Land Use Action Planning
VNP	Volcanoes National Park



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**DATASHEET****BASIC INFORMATION**

Project Beneficiary(ies)	Operation Name		
Rwanda	Volcanoes Community Resilience Project		
Operation ID	Financing Instrument	Environmental and Social Risk Classification	
P178161	Investment Project Financing (IPF)	High	

**Financing & Implementation Modalities**

<input type="checkbox"/> Multiphase Programmatic Approach (MPA)	<input checked="" type="checkbox"/> Contingent Emergency Response Component (CERC)
<input type="checkbox"/> Series of Projects (SOP)	<input type="checkbox"/> Fragile State(s)
<input type="checkbox"/> Performance-Based Conditions (PBCs)	<input type="checkbox"/> Small State(s)
<input type="checkbox"/> Financial Intermediaries (FI)	<input type="checkbox"/> Fragile within a non-fragile Country
<input type="checkbox"/> Project-Based Guarantee	<input type="checkbox"/> Conflict
<input type="checkbox"/> Deferred Drawdown	<input type="checkbox"/> Responding to Natural or Man-made Disaster
<input type="checkbox"/> Alternative Procurement Arrangements (APA)	<input type="checkbox"/> Hands-on Expanded Implementation Support (HEIS)

Expected Approval Date	Expected Closing Date
28-Sep-2023	31-Dec-2028
Bank/IFC Collaboration	
No	

**Proposed Development Objective(s)**

The Project Development Objective is to reduce the risk of flooding, strengthen watershed management, and improve livelihoods of people in the project area.

**Components**



Component Name	Cost (US\$)
Component 1: Flood risk management	101,100,000.00
Component 2: Landscape restoration and catchment management	31,900,000.00
Component 3: VNP expansion and livelihood restoration	26,400,000.00
Component 4: Project management, monitoring and evaluation, and capacity building	12,600,000.00
Component 5: Contingency Emergency Response Component	0.00

## Organizations

Borrower:	Republic of Rwanda Rwanda Water Resources Board, Rwanda Meteorology Agency, Ministry of Environment, Rwanda Environmental Management Authority, Rwanda Development Board
Implementing Agency:	

## PROJECT FINANCING DATA (US\$, Millions)

### Maximizing Finance for Development

Is this an MFD-Enabling Project (MFD-EP)?	No
Is this project Private Capital Enabling (PCE)?	No

### SUMMARY

Total Operation Cost	172.00
Total Financing	172.00
of which IBRD/IDA	50.00
Financing Gap	0.00

### DETAILS

#### World Bank Group Financing

International Development Association (IDA)	50.00
IDA Credit	50.00



#### Non-World Bank Group Financing

Trust Funds	12.00
Global P'ship for Sust. and Resilient Landscapes - PROGREEN	12.00
Other Sources	110.00
EC: European Investment Bank	110.00

#### IDA Resources (US\$, Millions)

	Credit Amount	Grant Amount	SML Amount	Guarantee Amount	Total Amount
National Performance-Based Allocations (PBA)	50.00	0.00	0.00	0.00	50.00
<b>Total</b>	<b>50.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>50.00</b>

#### Expected Disbursements (US\$, Millions)

WB Fiscal Year	2024	2025	2026	2027	2028	2029
Annual	5.00	12.50	15.00	15.00	11.00	3.50
Cumulative	5.00	17.50	32.50	47.50	58.50	62.00

#### PRACTICE AREA(S)

##### Practice Area (Lead)

Environment, Natural Resources & the Blue Economy

##### Contributing Practice Areas

Social Sustainability and Inclusion; Urban, Resilience and Land

#### CLIMATE

##### Climate Change and Disaster Screening

Yes, it has been screened and the results are discussed in the Operation Document

**SYSTEMATIC OPERATIONS RISK- RATING TOOL (SORT)**

Risk Category	Rating
1. Political and Governance	● Moderate
2. Macroeconomic	● Moderate
3. Sector Strategies and Policies	● Moderate
4. Technical Design of Project or Program	● Substantial
5. Institutional Capacity for Implementation and Sustainability	● Substantial
6. Fiduciary	● Substantial
7. Environment and Social	● High
8. Stakeholders	● Substantial
9. Other	● Moderate
10. Overall	● Substantial

**POLICY COMPLIANCE****Policy**

Does the project depart from the CPF in content or in other significant respects?

[ ] Yes    [✓] No

Does the project require any waivers of Bank policies?

[ ] Yes    [✓] No

**ENVIRONMENTAL AND SOCIAL****Environmental and Social Standards Relevance Given its Context at the Time of Appraisal**

E & S Standards	Relevance
ESS 1: Assessment and Management of Environmental and Social Risks and Impacts	Relevant
ESS 10: Stakeholder Engagement and Information Disclosure	Relevant
ESS 2: Labor and Working Conditions	Relevant



ESS 3: Resource Efficiency and Pollution Prevention and Management	Relevant
ESS 4: Community Health and Safety	Relevant
ESS 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	Relevant
ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	Relevant
ESS 7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	Not Currently Relevant
ESS 8: Cultural Heritage	Relevant
ESS 9: Financial Intermediaries	Not Currently Relevant

NOTE: For further information regarding the World Bank's due diligence assessment of the Project's potential environmental and social risks and impacts, please refer to the Project's Appraisal Environmental and Social Review Summary (ESRS).

## LEGAL

### Legal Covenants

#### Sections and Description

## Conditions

Type	Citation	Description	Financing Source
Effectiveness	Article V. 5.01. (a)	The PROGREEN Grant Agreement has been executed and delivered and all conditions precedent to its effectiveness, or to the right of the Recipient to make withdrawals under it (other than the effectiveness of this Agreement), have been fulfilled.	IBRD/IDA, Trust Funds
Effectiveness	Article V. 5.01. (b)	The Recipient has prepared and adopted the Project Implementation Manual in the form and substance satisfactory to the Association.	IBRD/IDA, Trust Funds



Effectiveness	Article V. 5.01. (c)	The Recipient has expanded the Single Project Implementation Unit in the Ministry of Environment through recruiting (or appointing) on a full-time basis a financial management specialist, an environmental risk management specialist, a social risk management specialist, and gender specialist, each with qualifications, experience and under terms of reference acceptable to the Association, all in a manner and substance satisfactory to the Association.	IBRD/IDA, Trust Funds
Disbursement	Section III. B. 1. (c)	Under Category (1) until the Rwanda Water Resources Board has recruited (or appointed) into its Single Project Implementation Unit one environmental risk management specialist and one social risk management specialist each with qualifications, experience and under terms of reference acceptable to the Association, all in a manner and substance satisfactory to the Association.	IBRD/IDA, Trust Funds
Effectiveness	Article V. 5.01. (d)	The Recipient has prepared, consulted upon, adopted, and publicly disclosed: (i) the Labor Management Procedures; (ii) the Gender and Anti-Gender-based Violence	IBRD/IDA, Trust Funds



		Action Plan; and (iii) the Resettlement Action Plan, all in manner and substance satisfactory to the Association.	
Disbursement	Section III. B. 1. (d)	<p>under Categories (4) and (5) until: (i) the Rwanda Environment Management Authority has recruited (or appointed) into its Single Project Implementation Unit an environmental risk management specialist, a social risk management specialist, a livelihood development specialist, and an ecology specialist, each with qualifications, experience and under terms of reference acceptable to the Association, all in a manner and substance satisfactory to the Association; and (ii) the Recipient has established two Project Hubs, each comprising one district environmental officer and one community development officer with qualifications, experience and under terms of reference acceptable to the Association, all in a manner and substance satisfactory to the Association.</p>	IBRD/IDA, Trust Funds
Disbursement	Section III. B. 1. (f)	<p>under Category (2) until the Rwanda Meteorology Agency has recruited (or appointed) into its Project Implementation Unit an environmental and social risk management specialist, each with qualifications,</p>	IBRD/IDA, Trust Funds



		experience and under terms of reference acceptable to the Association, all in a manner and substance satisfactory to the Association.	
Disbursement	Section III. B. 1. (g)	under Category (6) until the Rwanda Development Board has recruited (or appointed) into its Single Project Implementation Unit an environmental risk management specialist, a social risk management specialist and a livelihood and community engagement specialist, each with qualifications, experience and under terms of reference acceptable to the Association, all in a manner and substance satisfactory to the Association.	IBRD/IDA, Trust Funds



### I. STRATEGIC CONTEXT

#### A. Country Context

1. **Rwanda is a low-income country that has been one of the fastest growing economies in Africa.** Following a sharp decline in 2020 due to the impact of COVID-19, the economy recovered and expanded by 10.9 percent in 2021 and by 8.2 percent in 2022, due to a strong recovery in tourism and related services. Rwanda's per capita income was US\$966 in 2022,<sup>1</sup> Rwanda is ahead of more than 20 countries in the region related to per capita income.
2. **Rwanda has successfully reduced poverty in recent decades, from 60.4 percent of the population in 2000 to 38.2 percent 2017.**<sup>2</sup> These gains are at risk due to inflation, which disproportionately impacts the poor. Increased private sector investment is needed to create jobs and strengthen skills and capacity, especially in rural areas, for youth and women. Rwanda has a young population with a median age of 20 years. This results in high population growth of 2.3 percent annually. Poverty levels of female headed households has declined from 47 percent in 2010/2011 to 39.5 percent in 2016/2017 while for male headed households it declined from 44.3 percent to 37.8 percent in the same period. Extreme poverty has declined from 26 percent in 2010/2011 to 17.8 percent in 2016/2017 for female headed households, while for male headed households it declined from 23.6 percent to 15 percent in the same period. Moreover, women are less likely to participate in the labor force, with 50.9 percent of women participating compared with 65.2 percent of men in February 2023<sup>3</sup>.
3. **Rwanda's Country Climate and Development Report (2022) estimates that if climate risks materialize, Rwanda's GDP levels could drop by 5–7 percent below baseline in multiple years by 2050.**<sup>4</sup> 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.<sup>5</sup> Rwanda's Green Growth and Climate Resilience Strategy (GGCRS) and its updated Nationally Determined Contribution (NDC)<sup>6</sup> (May, 2020) define its vision to become a developed, climate-resilient, and low-carbon economy by 2050.

#### B. Sectoral and Institutional Context

4. **Rwanda's economy is dominated by rainfed agriculture and nature-based tourism.** Agriculture, trade, transport, and the hospitality industry are responsible for 65 percent of employment. Of this, women account for 53 percent of the agricultural labor force and concentrate on subsistence food crops.<sup>7</sup> Women farmers lag behind men in terms of ownership and control of land. Outside of agriculture, many women work in low-paid informal occupations, such as small-scale retail trade. By contrast men work in higher-paid services and industrial jobs.<sup>8</sup> Rwanda's GDP is exposed to climate fluctuations, with climate-sensitive economic sectors—agriculture, food, and beverages, as well as trade, transport, and hospitality—

<sup>1</sup> World Development Indicators, gross national income per capita, current US dollars, Atlas method. URL: <https://data.worldbank.org/indicator/NY.GNP.PCAP.CD?locations=RW>.

<sup>2</sup> Based on Rwanda's "Fifth Integrated Household Living Conditions Survey 5 EICV5 Poverty Panel Report", December 2018.

<sup>3</sup> Rwanda's Gender Monitoring Office (GMO) and Rwanda's "Fifth Integrated Household Living Conditions Survey 5 EICV5 Poverty Panel Report", December 2018.

<sup>4</sup> World Bank Group. 2022. Rwanda Country Climate and Development Report. CCDR Series. © World Bank, Washington, DC. URL: <http://hdl.handle.net/10986/38067> License: CC BY-NC-ND 3.0 IGO.

<sup>5</sup> Netherlands Commission for Environmental Sustainability. "Climate Change Profile – Rwanda" July 2015. URL: [https://ees.kuleuven.be/eng/klimos/toolkit/documents/687\\_CC\\_rwanda.pdf](https://ees.kuleuven.be/eng/klimos/toolkit/documents/687_CC_rwanda.pdf).

<sup>6</sup> Updated Nationally Determined Contribution (NDC), 2020. Republic of Rwanda. URL: [https://unfccc.int/sites/default/files/NDC/2022-06/Rwanda\\_Updated\\_NDC\\_May\\_2020.pdf](https://unfccc.int/sites/default/files/NDC/2022-06/Rwanda_Updated_NDC_May_2020.pdf).

<sup>7</sup> Rwanda Labour Force Survey, 2022.

<sup>8</sup> Rwanda's Gender Monitoring Office and EICV 5 report.



accounting for 45 percent of the GDP.

5. **The mountainous northern and western districts of the country are particularly vulnerable to negative climate impacts.** During years of severe floods (for example, a 100-year flood), such extreme events are forecast to reduce GDP by an additional 4.4 percentage points below the baseline scenario during the flood year. Devastating floods and landslides in these districts in May 2023 killed 135 people and destroyed nearly 6,000 homes, totaling over US\$450 million in damage.<sup>9</sup> Women are especially vulnerable to flood impacts due to household care burdens and mobility constraints. Rwanda anticipates increases in both intensity (between +3 to +17 percent) and frequency (between +9 to +60 percent) of rainfall by the end of the century.<sup>10</sup> Heavy precipitation events are expected to impact rivers and surface water runoff during the summer rainy seasons, increasing both the frequency and intensity of floods. The impact of flooding on people is likely to worsen, as population growth and limited land push people to settle in flood-prone areas.

6. **The Volcanoes Region and the adjacent Vunga corridor, located in the north-western of Rwanda, spans the districts of Burera, Nyabihu, Rubavu, Gakenke, Muhanga, Ngororero, Musanze and part of the Rutsiro District, and is home to over 2.3 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.<sup>11</sup> According to Ministry in Charge of Emergency Management (MINEMA) records, between January 2013 to June 2023, Burera, Musanze, Muhanga, Nyabihu, Gakenke, Ngororero, Rutsiro and Rubavu districts experienced severe climate related events including floods, landslides, hailstorms and rainstorms with 539 people killed, 316 seriously injured, 18,415 houses damaged, 7,740.57 Hectares of crops damaged, 1,995 livestock lost, and 345 road structures damaged. A recent flood risk assessment by the World Bank (2023) shows that the expected annual damage in the Volcanoes Region and Vunga corridor amounts to US\$10.1 million per year and may increase national food security risks.

7. **Soil erosion and flood risk are the most serious environmental problems in many catchment areas in Rwanda.** This is due to flooding exacerbated by climate change. About six million tons of crops, valued at US\$76 million (RWF 76 billion), are lost each year due to erosion. To identify areas at risk of soil erosion and develop prevention measures, a national erosion risk map based on a spatial model developed by the Government was created in July 2018. This risk map informs catchment planning to optimize land use and risk reduction measures.

8. **The Volcanoes National Park (VNP) is an area of national and international importance and is the habitat of the endangered mountain gorilla.** Established in 1925, the VNP is an International Union for Conservation of Nature (IUCN) Category II National Park and United Nations Educational, Scientific and Cultural Organization (UNESCO) Biosphere Reserve. Mountain gorillas play a particularly important ecological function in forest landscapes by being large scale grazers and spreading seeds of trees which replenish forests.<sup>12</sup> Despite external pressures, the mountain gorilla population has increased, with approximately 1,006 gorillas living exclusively in three trans-boundary national parks which includes the VNP. There is an ongoing process to expand the VNP to secure existing biodiversity values and improve connectivity with other priority conservation areas in the region. VNP expansion can accommodate the growing mountain gorilla population and create additional tourism opportunities and flood mitigation. VNP expansion will improve gorilla habitat and support a 15–20 percent increase in population and a reduction of 50 percent of infant gorilla mortality.

<sup>9</sup> Relief Web, 2023. Rwanda: Floods and Landslides. URL: <https://reliefweb.int/report/rwanda/more-130-people-killed-devastating-floods-rwanda>.

<sup>10</sup> World Bank Group, 2021. Climate Risk Profile - Rwanda. URL: [https://climateknowledgeportal.worldbank.org/sites/default/files/2021-09/15970-WB\\_Rwanda%20Country%20Profile-WEB.pdf](https://climateknowledgeportal.worldbank.org/sites/default/files/2021-09/15970-WB_Rwanda%20Country%20Profile-WEB.pdf).

<sup>11</sup> Republic of Rwanda, 2019. Detailed designs of flood control measures in the Volcano Region, Rwanda. These numbers exclude the impacts from the recent floods and landslides disaster in May 2023.

<sup>12</sup> Worldwide Fund for Nature (2022). "Mountain gorillas: close relatives at risk". URL: <https://www.wwf.org.uk/learn/wildlife/mountain-gorillas#why-mountain-gorillas-are-so-important>.



9. The current expansion proposal targets an area of 732.5 ha for the pilot phase, while the remaining 2,749 ha have been identified for future phases, eventually leading to a 23 percent expansion of the VNP. The expansion of the VNP coupled with effective management of park buffer zones will increase the habitat for mountain gorillas and other species. Buffer zones around parks/reserves are designed to maintain ecological integrity and involve community participation in biodiversity conservation.<sup>13</sup> The expansion area will also 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 climate change.<sup>14</sup>

10. The proposed Volcanoes Community Resilience Project (VCRP) aims to serve as a foundation for a comprehensive, sustainable program aimed at enhancing climate resilience and catchment management in the Volcanoes region over an extended period. An initial assessment of funds needed to adequately address flood risks and enhance catchment management in the Volcanoes region has been estimated at around US\$490 million (Annex 1). A prioritization exercise was undertaken to inform a first phase of investments as part of a longer-term programmatic approach in the region. Through this process, 21 level 3 sub-catchments were selected as priorities for investments under this project. The intention is to secure additional financing to fund future phases of investments to cover the full Volcanoes region. As such, this project provides a blueprint for replication and scaling with potential additional financing from development partners such as the Climate Investment Fund, the GEF, Green Climate Fund and Nordic Development Fund (NDF), which will also support Rwanda's strategic NBS investments to enhance national resilience to climate change.

### C. Relevance to Higher Level Objectives

11. VCRP is aligned with the Bank's goals of ending extreme poverty and promoting shared prosperity in a sustainable manner through support for climate resilience, land productivity, and diversified livelihood activities. The project supports the Africa Regional Strategy and its focus on job creation. The project also incorporates the World Bank led Next Generation Africa Climate Business Plan's (FY21-26) strategic directions on food security, securing environmental stability, and protecting against climate shocks, as well as draws on lessons learned from past achievements in sustainable land management (SLM) projects.

12. The project is fully aligned with the World Bank Group Country Partnership Framework (CPF) for Rwanda (FY2021–FY 2026)<sup>15</sup> 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 proposed project will support activities to mitigate climate change and reduce risks of flooding. The project will also contribute to Objective 4 of the CPF, which focuses on increased agriculture productivity and commercialization, through its investments in climate-smart agriculture and slope stabilization and erosion control.

13. 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 the Country Climate and Development Report. In addition, the proposed project will support Rwanda's updated GGCRS (2022), Environmental Vision to 2030, Biodiversity Strategy, National Policy on Integrated Water Resources Management.

14. The project is consistent with the country's NDC. In the latest NDC submitted to the United Nations Framework Convention on Climate Change (UNFCCC), the country commits to reducing greenhouse gas emissions by 38 percent by

<sup>13</sup> Lamichhane, et al. 2019. Contribution of Buffer Zone Programs to Reduce Human-Wildlife Impacts: The Case of the Chitwan National Park, Nepal.

<sup>14</sup> RDB and International Gorilla Conservation Program, 2018.

<sup>15</sup> Rwanda Country Partnership Framework FY21 - FY26, World Bank, Report No. 148876-RW.



2030 and identifies US\$5.7 billion in needs for mitigation measures and US\$5.3 billion to adapt vulnerable sectors to climate impacts. The project contributes to the NDC by investing in flood risk reduction measures, land and catchment restoration, and improved forest management.

## II. PROJECT DESCRIPTION

### A. Project Development Objective

#### PDO Statement

15. The Project Development Objectives (PDO) are to reduce the risk of flooding, strengthen watershed management, and improve livelihoods of people in the project area.

Over the longer term, the project will contribute to the objectives of improving livelihoods of people living in the project area, enhancing biodiversity values in the project area, increasing agricultural productivity and mitigating and adapting to climate change.

#### PDO Level Indicators

16. Key expected results in the project are as follows:

- Direct project beneficiaries, disaggregated by gender.
- People benefiting under the project from reduced losses and damage from flooding, disaggregated by gender.
- People benefiting from improved livelihoods, disaggregated by gender.
- Land area benefiting from strengthened land management.
  - Terrestrial protected areas under improved management due to the project.
  - Area of landscapes under sustainable land management in production systems due to the project.
  - Land area benefiting from reduced risks of flooding.
  - Cumulative impact on net greenhouse gas emissions (Metric tonnes CO<sub>2</sub>-eq).

### B. Project Components

#### Component 1: Flood risk management (US\$101.1 million: US\$13.9 million IDA; US\$87.2 million European Investment Bank [EIB])

17. This component seeks to reduce flood risks in the Volcano and Vunga corridor by implementing comprehensive flood risk reduction interventions and by improving flood early warning systems (FEWS) and community-level flood preparedness. The component will support interventions in areas of high flood risks and will directly address the need for the target area to adapt to climate change, as flooding in Rwanda is anticipated to increase in both frequency and intensity due to climate change. It will involve a combination of physical and non-physical measures to maximize the impact and efficiency of the investments.

#### *Subcomponent 1.1: Flood risk reduction investments (US\$92.2 million: US\$5 million IDA; US\$87.2 million EIB)*

18. This subcomponent will support a range of activities to adapt to climate change by reducing the risks of flooding in the project area. These include: (a) identification of priority areas for flood risk reduction interventions; (b) development or refinement of feasibility studies, detailed designs, and bidding documents; (c) construction of civil works for flood risk reduction and supervision of civil works; and (d) technical assistance and activities to increase capacity for managing flood risks and ensuring that the interventions are sustained.



19. **The project will target prioritized areas for flood risk reduction and catchment restoration investments.** Prioritization of catchments to be treated under the project was informed by metrics of flood impact (to be addressed under this subcomponent) and soil loss (to be addressed under Subcomponent 2.1) to maximize the benefits of the investments. The area and people that will benefit under the current project are presented in Table 1.

**Table 1: Areas and people to benefit from the project investments in flood and erosion risk reduction.**

Item	Units
Catchments (high risk) (number)	21
Total area (ha)	113,000
Total population (number)	1,478,000
Total population exposed to floods (50-year return period) (number)	502,000
Total area under agriculture (ha)	37,300
Land at flood risk of 50-year return period (ha)	10,700

20. **Furthermore, priority will be given to investments that mitigate flood risk at source throughout the catchment (from upstream to downstream) as far as the local landscape and land availability allow.** The required conveyance and flood protection measures will be considered and designed after determining the detention capacity to be constructed in the catchment. Many smaller detention facilities distributed across the catchment will increase the number of beneficiaries and reduce the flood capacity needed in the gullies. The proposed types of interventions envisaged are presented in Annex 1 (Table 3). The default design standards will be set at a return period of 50 years (2 percent annual exceedance probability) adjusted by climate change projections for detention facilities and a return period of 100 years (1 percent annual exceedance probability) adjusted by climate change projections for culverts and bridges along national roads.

21. **NBS principles to be applied to flood and stormwater infrastructure will first focus on the opportunity to improve natural attenuation of flood peaks.** The interventions—detention, sediment trapping and conveyance—will be designed to convey floodwaters, making the best use of the features of the landscape, and preventing transfer of flood risk downstream. Other NBS principles will also be pursued, including offering ecological habitat, providing multi-use functionality of the land that will allow community recreation and agricultural production. ‘Gray’ infrastructure solutions will only be considered where NBS are not feasible. Climate hazards impact on NBS will be mitigated as appropriate (e.g., consideration of drought resistant species).

22. **This subcomponent will support preparation of stormwater master plans for Musanze and Rubavu cities.** It will also support preparation of guidelines to link the flood risk and hazard maps with the spatial plans of all districts in the project area.

*Subcomponent 1.2: Flood early warning system (FEWS) and community-level flood preparedness (US\$8.9 million, IDA)*

23. **This subcomponent will establish a FEWS and support community-level flood preparedness activities.** The FEWS will cover 9 level 3 catchments across the Volcanoes Region and will provide advance warning of extreme runoff and flash floods to communities at high risk of floods.

24. **This subcomponent will support activities to improve risk knowledge, capacities for detection, monitoring and forecasting, communication and dissemination of warnings, and capacities for preparedness and response.** Meteo Rwanda’s monitoring capabilities will be enhanced by the installation of weather radar system to cover the Volcanoes



Region, automatic weather stations, and lightning detectors. The installation of a new weather radar will enable Meteo Rwanda to monitor extreme rainfall conditions across the Volcanoes Region and beyond, providing better coverage across the northern and western parts of Rwanda. This weather radar will complement the existing C-Band radar situated close to Kigali, allowing Meteo Rwanda to create a ‘mosaic’ product, which will be a step toward the creation of a national weather radar network. Forecasting capabilities will be strengthened through improved weather forecasting systems and capabilities for nowcasting and the development of impact-based warning services. The Rwanda Water Resources Board (RWB) will be supported by new investments in river monitoring stations, field equipment, and capacity support for hydrological and hydraulic modelling. MINEMA will benefit from equipment for evacuation and warning, such as sirens, training for community engagement, and the strengthening of local networks. Consideration will be given to the sustainability of investments and emphasis will be placed upon government ownership and capacity building.

25. **Emphasis will be placed on last-mile dissemination and inclusive warning services.** A strategy to communicate and disseminate warnings will be designed around the needs of vulnerable communities, considering factors such as knowledge and literacy, daily activities, gender sensitivities, and access to technologies. To strengthen the ability to respond to warnings, communities will be engaged through public awareness campaigns, community outreach and capacity building, ensuring that appropriate channels are used to reach disadvantaged groups: women, girls, persons with disabilities, and the youth. Collaboration with existing structures will be used for dissemination of early warning services. A particular difficulty in the Volcanoes Region is the short lead-times associated with floods. The implication is that the dissemination processes should be rapid while retaining quality control processes and building trust.

**Component 2: Landscape restoration and catchment management (US\$31.9 million: US\$6.6 million IDA; US\$9.5 million PROGREEN; US\$15.8 million EIB)**

26. **This component supports landscape restoration and catchment management interventions aimed at improving livelihoods; reducing surface runoff and erosion; and enhancing efforts to restore and protect biodiversity in the region.** The catchment management measures will integrate climate-smart interventions whenever feasible for maximum impact. Additionally, beneficiaries will be supported to adopt appropriate agronomic practices and cropping systems through a combination of best practices.

27. **Planned interventions will be coordinated through an integrated catchment management approach that actively involves local stakeholders in the design and implementation of targeted interventions.** Such work will build on previous catchment management initiatives and seek to strengthen the approach to planning and implementation. Community Coordination Committees (CCCs) elected by communities will provide a platform for sector and community leaders to engage with farmers and community members at the village level. Catchment development planning and implementation will be performed in collaboration with the catchment management committees (CMCs) who oversee the implementation of the plans at grassroot or micro-catchment level. The Catchment Restoration Opportunity Mapping – Decision Support System (CROM-DSS), the ecological restoration plan, and district forest management plans, which are aligned with district land use plans will inform the development of the Village Land Use Management Plans. Resources at district level will support communities in implementing the Village Land Use Action Plannings (VLUAPs) through community procurement to ensure ownership of investments and the quality of inputs. Technical assistance will be provided to support engagement, capacity building. The CCC supported by the technical assistance will also identify income generating activities and eligible beneficiaries as well as support implementation.

***Subcomponent 2.1: Integrated catchment and landscape restoration (US\$20.8 million: US\$3 million IDA; US\$2.0 million PROGREEN; US\$15.8 million EIB)***

28. **This subcomponent will support interventions in the same area as Subcomponent 1.1 with the primary objective of improving resilience of productive landscape and project beneficiaries.** The RWB through integrated



catchment management planning studies has identified 66 Level 3 catchments (over 311,000 ha) as priority areas for land restoration and specific rehabilitation measures. About half of the area, requires interventions to address land degradation, specifically severe soil erosion and surface runoff, and adapt and mitigate climate change. The total investment needed for this subcomponent is approximately USD107 million (Annex 1). As a first phase, this project will cover 21 of the 66 catchments which have been prioritized based on flood risks, sediment load and erosion hazard. The interventions to be implemented are selected using the CROM Decision Support System (CROM DSS), a tool that the RWB widely applies. As part of this first phase, the VCRP will support a range of sustainable land management interventions including construction of contour bund and bench terraces, gully rehabilitation, planting of hedgerows, agroforestry, afforestation and reforestation and the installation of water harvesting structures. These interventions are proven technologies to restore landscapes and promote livelihood and climate change resilience in Rwanda and elsewhere in Africa.

29. **The impact of soil erosion on crop production will be minimized.** Soil erosion causes soil fertility depletion, which is the primary cause of low agricultural productivity in Rwanda. Adoption of planned SLM practices will retain surface water and protect the agricultural land from splashes and accelerated erosion. The practices also augment soil fertility and improve agriculture productivity. Conservative estimates show that the impact of catchment restoration in the priority areas for intervention under this project will protect approximately 500,000 tons of crops per year from losses.<sup>16</sup>

30. **Continued stakeholder and beneficiary engagement during the implementation of SLM activities will be important.** Throughout project implementation, the VCRP implementation team will carry out regular consultation and mobilization sessions for the beneficiaries in each targeted catchment to mitigate as much as possible any negative impacts related to the works and ensure buy-in and ownership by beneficiaries.

*Subcomponent 2.2. Ecological restoration of priority conservation areas (US\$6 million: US\$2.5 million IDA, US\$3.5 million PROGREEN)*

31. **This subcomponent will include interventions to restore the VNP expansion area and other priority areas within the broader project area.** Key interventions under this sub-component include: (a) restoration VNP expansion area, (b) restoration of priority conservation sites in the broader VCRP area and (c) integration of biodiversity into catchment management actions. The selected activities are aligned with and support the implementation of Rwanda's National Biodiversity Strategy and Action Plan, which presents a long-term vision for "national biodiversity to be restored and conserved, contributing to economic prosperity and human well-being through delivering benefits essential for Rwandan society in general" by 2040.

32. **A detailed ecological restoration plan will be prepared to identify, delineate, and prioritize key areas for ecological restoration in the VCRP area and broader landscape.** This plan will build on restoration activities recently undertaken through the Rwanda Landscape Approach to Forest Restoration and Conservation Project (LAFREC) (P131464, closed September 30, 2021), financed by grants totaling US\$9.54 from the Global Environment Facility (GEF) and the Least Developed Countries Fund. Planned initiatives will also draw on experience of the Embedding Integrated Water Resource Management in Rwanda Project and other similar initiatives.

33. **Restoration and management of VNP expansion area.** Restoration actions in the park expansion zone will seek to create additional habitat for mountain gorillas and other biodiversity, while also seeking to enhance tourism opportunities and reduce human-wildlife conflict outside the park. Activities to be funded include the construction of a

<sup>16</sup> The State of Soil Erosion Control in Rwanda. May 2022. URL: <https://waterportal.rwb.rw/sites/default/files/2022-08/The%20State%20of%20Soil%20Erosion%20Control%20in%20Rwanda.pdf>.



suitable fence along the newly demarcated boundary of the park expansion area, removal of built infrastructure and site decontamination following the resettlement process under Environmental and Social Standards 5 (ESS5), active replanting and assisted natural regeneration with native species, and the control and management of invasive plant species. These activities will contribute towards climate mitigation through elements of afforestation. In addition, the management plan for the VNP will be updated to include the expansion area. A buffer zone land use and development master plan is currently under development by the Rwanda Development Board (RDB).

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34. **Ecological restoration in the broader VCRP project area.** The Rwanda Environmental Management Authority (REMA) in consultation with local stakeholders, has compiled a preliminary list of key biodiversity areas to be restored, which will be reviewed and refined as part of the preparation of the ecological restoration plan for the project area. Restoration opportunities to be investigated include restoration of remnant forests, rehabilitation of priority wetlands, restoration of islands and lakeshores of Burera and Ruhondo lakes, enhanced management of Gishwathi rangelands, and establishment of forests along road reserves. The restoration of a priority wetland and associated buffer zones will be initiated with available funds. The intent however is to mobilize additional funding to further ecological restoration opportunities in the project area and broader regions.

35. **Integration of biodiversity into catchment and landscape restoration actions.** This will be achieved by integrating at least 20 percent of native plant species as part of landscape and catchment restoration actions. This will include a specific emphasis on river buffer zones whilst also integrating native species in afforestation, reforestation, agroforestry, and gully rehabilitation investments which contribute towards climate change mitigation. To support this initiative, local communities will be capacitated to grow and supply seedlings of native plant species.

*Subcomponent 2.3: Livelihoods diversification (US\$5.1 million: US\$1.1 IDA; US\$4 million, PROGREEN)*

36. **Livelihood development activities have two main objectives.** The first is to support livelihood diversification for households and groups (including vulnerable households and groups) that live in the project area (some 90 percent of poor households in the project area depend on natural resources for income and food). Livelihood activities are vulnerable to the impact of climate change, e.g., through the dependence on rainfed agriculture. The second is to enhance the sustainable management of the landscapes and catchments restored under the project, including through the design of an institutional mechanism to support payments for ecosystem services.

37. **The project will support targeted households and community groups in the project area for livelihood development and diversification.** Priority will be given to activities within the restored areas; and to vulnerable households, including the poor as categorized in the national social registry system, women, youth, and persons with disabilities. Households classified as poor will be prioritized for household-level interventions, although this will not exclude their participation in community-level interventions. Other vulnerable groups will be considered for both household-level and community-level activities.

38. **The project will identify households and community groups interested in diversified livelihood options and provide them with support, including support for agricultural and other production inputs, extension services, financing, and technical assistance.** The project will also target groups of people with a shared interest in pursuing specific income-generating activities (IGAs), focusing on interventions around climate and resilience, sustainable forest and natural resources management, climate-smart agriculture, and off-farm economic activities. Among others, the project will support sustainable forest management activities; woodlots and wood-based value chains; milk collection centers; water supply services; small livestock; kitchen gardens/greenhouses (vegetable, and fruit farming), and eco-tourism, including handicraft facilities. A detailed list of IGAs will be included in the Project Implementation Manual (PIM), which will be finalized by effectiveness, along with the approach for how groups and households will access livelihood



development support.

39. **The project will ensure that there is differentiated engagement and that profession-based groups, cooperatives and CSOs are engaged to ensure access to benefits for vulnerable households and groups.** These measures will be reflected in the PIM and in the Livelihoods Manual (which will be disclosed by effectiveness) to ensure that the approach to working with relevant profession-based groups, cooperatives and CSOs is reflected there. The project will also support general training in business skills, group dynamics, financial management (FM), bookkeeping, and technical issues related to specific IGAs. For any project-financed collectively owned asset, a management framework will be established, including the establishment of a management committee, a usage fee structure where appropriate, and a maintenance plan. The project will not support any activity that results in deforestation, forest degradation, wetland degradation, soil erosion, soil degradation, or significant adverse environmental or social impacts. A negative list will be included in the PIM. Full guidance on the operation of the livelihood's diversification activities and a detailed list of viable income generating activities will be presented in a Livelihoods Manual to be prepared. The project will support targeted communities to create resilient livelihood assets and to diversify livelihood and income generating activities as well as support ecological restoration by preventing further deforestation, degradation and to support afforestation. The livelihood developments will therefore focus on natural resource and eco-tourism-based income generating activities and their value chains.

40. **To sustain the engagement of targeted communities in the sustainable management of the restored landscapes and catchments, the project will support the design of a framework for payment for ecosystems services (PES) scheme<sup>17</sup>.** Project funds will be used to identify the targeted ecosystem services, the goals of the PES scheme, landscapes, and catchments where the scheme would be implemented, the stakeholders to be involved (i.e., buyers and providers of services). This would be followed by compiling studies on the biophysical (i.e., status of ecosystem services and metrics for its monitoring), social (determining whether to engage as individuals or groups and the social cohesion and decision making within the group), economic (drivers degrading the ecosystem service, determining marketable value of the service) and institutional (for example, legal, policy and land ownership context, capacity, awareness raising needs, and the like) aspects of relevance for the PES scheme as well as identifying areas where further studies would be needed. The design of the payment scheme will entail determining which kinds of activities will be eligible for payments, the payment levels, the contract structure and terms, the monitoring system, and the plan needed for managing the PES scheme.

41. **Planned livelihood development activities will be supported by targeted technical assistance.** This will include capacity building, research, and monitoring and evaluation (M&E) to strengthen sustainable livelihood development in the project area and promote coordination across actors. The technical assistance will also consider the feasibility and mechanisms through which payments for ecosystems services could be made in the future to promote sustainability. Additional details of Component 2 activities are presented in the PIM.

42. **The project will ensure that women participate in the development and implementation of the livelihood-related activities.** They will be included in income-earning opportunities such as producing tree seedlings and planting trees as part of a community-based approach. The project will also ensure that women benefit from training and technical assistance.

### **Component 3: VNP expansion and livelihood restoration (US\$26.4 million IDA)**

43. **This component will support communities affected by phase one of the VNP expansion.** It will include (a) VNP expansion, (b) compensation for households that are displaced due to the park expansion, (c) the establishment of a model Smart Green Village, and (d) support for livelihood diversification and IGAs for project-affected people.

<sup>17</sup> This activity will be informed by analytical work financed by the Global Program for Sustainability (GPS).



*Subcomponent 3.1: VNP expansion, and a model smart green village (US\$23 million IDA)*

44. **This subcomponent will support the pilot phase expansion of the VNP by an estimated 732.5 ha.** This consists of (a) land to be acquired under the project (approximately 426 ha) using government funds and (b) land acquired through a range of other sources, including land that has been donated by ecolodges and conservation partners and existing government land. According to the Resettlement Action Plan (RAP) prepared for the project, this pilot phase will affect approximately 922 households, of which an estimated 510 households will require physical relocation to an area of 50 ha that is a maximum of 2 km from the site where they currently live. The remaining households will lose assets and livelihoods-and will be eligible for inclusion in the Livelihood Restoration Plan (LRP) (Subcomponent 3.2) if they reside within the district. The average size of land owned by households in the expansion area, based on self-reported plot sizes in the RAP, is 0.39 ha; 74 percent of the project-affected households have plot sizes of less than 0.5 ha and only 8 percent have more than 1 ha. Generally, most of the affected households are small landowners with the smallest surveyed plot being 100 m<sup>2</sup>.

45. **The RDB will compensate the affected households in accordance with ESS5 on Land Acquisition, Restrictions on Land Use, and Involuntary Resettlement as detailed in the RAP.** In addition, the RDB will provide eligible households with support in the form of houses in a Smart Green Village. The Smart Green Village, which will accommodate residences and improved livelihood enterprises, was zoned as residential land use in the 2020 National Land Use and Development Master Plan. Investments to improve livelihoods will be drawn from successful examples that target communities facing similar socio-economic issues and circumstances. These include the SACOLA model, the Kinigi model village, and the bamboo product and beekeeping community cooperative enterprises that involve the vulnerable groups of the area. The RDB has experience in undertaking resettlement and establishing Smart Green Villages which will enable them to better manage the risks associated with the resettlement.

46. **To improve the living conditions of people who are physically displaced by the expansion of the VNP, the project will provide housing in a climate-resilient Smart Green Village.** The Smart Green Village will provide housing, renewable energy, green cooking solutions, a water harvesting facility, and waste management. Climate hazard impacts on the Green Village will be mitigated as appropriate (for example, ensuring drainage structures are sufficient for flooding events, planting of shade trees to reduce ambient temperature etc.). The RDB is preparing a tender for the detailed designs of the integrated Smart Green Village. The Smart Green Village will also host poor or vulnerable persons who are physically displaced by the flood risk management interventions of Component 1. The Green Village design will consider the needs of women and other vulnerable groups (such as elderly people and persons with disabilities), including access to services, and proximity to economic opportunities. Affected people, including women and youth, will be targeted to participate in the design and implementation of the green villages through the project Stakeholder Engagement Plan (SEP) and as an activity included in the terms of reference for the detailed design. The use of local labor will be prioritized in the construction of the village to provide jobs and foster a sense of ownership by the residents and nearby host community. This will form part of the bidding requirements of the contractor who will also be expected to undertake training and knowledge transfer on construction practices.

47. **The RDB is seeking to strengthen relationships with various partners to secure long-term commitments to effectively implement future phases of the park expansion program of an estimated 2,749 ha, using the approaches and lessons learned from implementation of the pilot phase.** This will include the continued engagement with affected communities on resettlement approaches and engagement with nongovernmental organizations (NGOs) that represent vulnerable groups in the expansion and resettlement areas to ensure that their needs are considered in resettlement planning and implementation, including livelihood support.



*Subcomponent 3.2: Livelihood diversification and income generation activities (US\$3.4 million IDA)*

48. **This subcomponent will support households that are economically displaced as a result of activities under Subcomponent 3.1 to restore their livelihoods.** While livelihood restoration activities need to be implemented at the individual level, the proposed activities are envisaged to be implemented at three levels: individual, community (collectives), and host community-resettled community. Based on the identification of preliminary feasible livelihood options, consultation was undertaken with project-affected people to determine interest in the proposed options to further refine the LRP. Consultations with project-affected people will be undertaken to ensure that assistance is tailored to everyone's needs and preferences for restoring their livelihoods.

49. **This subcomponent will develop economic activities and jobs for the project-affected people to restore livelihoods and strengthen economic incentives for sustainable land and natural resource management.** The LRP identified two main categories for livelihood restoration. The first is land-based livelihoods, including climate smart agriculture production, livestock production, poultry farming, and value addition to agricultural produce, among others with the aim of ensuring these activities are resilient to any future climatic shocks. The second category covers non-land-based livelihoods focused on employment opportunities in the project, financial services, micro-credit schemes, tailoring, handicrafts, tourism services, and so on to diversify livelihoods and avoid unsustainable exploitation of natural resources. Consideration will be given to vulnerable groups in the development and implementation of the LRP, including gender, persons with disabilities, the elderly, and the youth. The project will ensure orientation of women and girls to non-traditional trades to position them to venture into other lucrative trades such as welding, transportation, and carpentry other than handcraft and tailoring. The RAP developed to cover the expansion of the VNP presents the preferences of project-affected people regarding proposed actions and will be used as the basis for the development of detailed LRP based around feasible options.

50. **The LRP will aim to address the gender gaps that serve as constraints for women's economic empowerment (in specific sectors).** The analysis framework on each individual livelihood option in the LRP will include a gender analysis, as part of a social risk analysis, in addition to the climate and environment risk analysis. The project will ensure that livelihood restoration interventions engage women in both traditional (tailoring, catering, and weaving) and non-traditional (and often more profitable) trades (information and communication technology, welding, carpentry, masonry etc.) Support will also be provided to support livelihood diversification opportunities for women within the natural resource/forestry-based economic activities. Women will be targeted as entrepreneurs and employees within the agroforestry livelihoods considered under the LRP. Further, the project will target women for new off-farm livelihoods. The interventions will leverage the experiences of initiatives of NGOs on training for off-farm employment and community cooperatives. It will include technical support, financial assistance, and business development services.

**Component 4: Project management, monitoring and evaluation, and capacity building (US\$12.6 million: US\$3.1 million IDA; US\$2.5 million PROGREEN; US\$7 million EIB)**

51. **This component will finance project management costs of the implementing agencies, notably the Project Implementation Units (PIUs), for core staff in project coordination, environmental and social (E&S) risks management, FM, procurement, and M&E, including a midterm review, and end-project completion report.** This component will also cover any costs related to the establishment of a grievance redress mechanism (GRM). This component will support the comprehensive monitoring of the implementation progress and outcomes of the project, including impacts on livelihoods and community welfare, as well as access to climate adaptation finance for community projects. This will be achieved through the design and implementation of a monitoring framework, which will make use of technologies, such as remote sensing. This component will support multi-stakeholder impact monitoring by working with communities, the private sector, and the academic sector in Rwanda. This component will finance training, technical assistance, community mobilization and awareness raising, knowledge management and sharing, operating costs, and acquisition of goods to



ensure that the implementing agencies are able to implement the project effectively and efficiently. It will finance activities aimed at ensuring that gender and citizen engagement are considered in all project-financed activities.

#### **Component 5: Contingent Emergency Response Component (US\$0)**

52. Following an eligible crisis or emergency, the recipient may request that the World Bank reallocate project funds to support emergency response and reconstruction. When triggered, this component will draw uncommitted resources from other project components to cover emergency response. The initial allocation to the Contingent Emergency Response Component (CERC) is US\$0. For the CERC to be activated, and financing to be provided, the Government of Rwanda will need to: (a) submit a request letter for CERC activation and the evidence required to determine the eligibility of the emergency as defined in the CERC Annex to the PIM; (b) submit an Emergency Action Plan, including the emergency expenditures to be financed; and (c) to meet the environmental and social requirements as agreed in the Environmental and Social Commitment Plan (ESCP) and CERC Annex. Paris Alignment considerations for the CERC will also be detailed in the CERC Annex.

#### **Gender Considerations**

53. **Implementing a gender responsive FEWS.** Under Component 1, the project will seek to address gender gaps related to women's limited access to FEWS and lower levels of representation in Disaster Risk Management (DRM) structures. The project will support a gender responsive FEWS which will provide women with timely access to information on potential disasters. VCRP will identify FEWS to meet differentiated needs of women, through a combination of ICT-based and human-centered communication channels. This design architecture is based on existing community structures (e.g., Umuganda) which have proven effective for information dissemination. The project will increase engagement of women, specifically through implementation of gender-responsive DRM structures which will leverage women's knowledge of disaster preparedness and response while also better understanding vulnerabilities in the face of disasters. The project will ensure women are represented and hold leadership positions in DRM structures. This will be done in collaboration with existing National Women Council and National Council for Disabilities.

54. **Enhancing women's representation, engagement and leadership in the environment and natural resource sector.** Under component 2, the project will strive to narrow the gender gaps related to women's representation in planning and decision-making processes in the environment and natural resource sector. Component 2 activities will ensure women have opportunities to lead and participate actively in decision-making entities, including the catchment management committees at the cell, village, and micro-catchment levels. The project will also provide leadership trainings and will address barriers to women's participation in trainings and capacity enhancements. Access of female beneficiaries to livelihood restoration will be enhanced and monitored under Component 3. The project will target women working in the agriculture and natural resource sectors while also encouraging women to switch to off-farm livelihoods activities. Actions will support women's transition from subsistence farming to commercialized agriculture, particularly by supporting women's organizations and cooperatives; identifying entry points for targeting women farmers in climate-smart agriculture interventions; providing training and technical assistance on improved agricultural practices, business management, and financing; and promoting women leaders of agriculture extension services.

55. **Enhancing women's access to economic opportunities.** The project will enhance the access of female beneficiaries to livelihood restoration and diversification. The project will target women working in the agriculture and natural resource sectors while also aiming to encourage women to switch to new off-farm livelihoods activities through various activities, including technical assistance, skill development, business development, and financial support.

**Table 2: Gender Gaps, Actions, and Indicators**

Gender Gaps	Gender-targeted Actions	Indicators used to Measure the Impact of Actions
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<b>Limited access to early warning systems on potential disasters</b>	Under Component 1 Designing and implementing a gender responsive FEWS to ensure women have timely access to information on potential flood disasters. Designing and implementing gender responsive and participatory DRM mechanisms	People benefiting under the project from reduced losses and damage from flooding, female (RMS requirement) (percent). (Baseline 0; Target 50 percent) ( <i>PDO indicator</i> )
<b>Gender gaps in representation in planning and decision-making processes in the natural resource sector</b>	Under Component 2 Enhancing women's voice and engagement through ensuring that women have an opportunity both to lead and participate actively in community based decision-making entities, including catchment management committees at the cell, village, and micro-catchment levels	Women who hold leadership positions in catchment management committees (percentage). (Baseline 0; Target 30 percent)
<b>Gender gaps in access to economic opportunities (in specific sectors, agriculture, natural resource sector, and off-farm sectors)</b>	Under Component 3 Supporting women's transition from subsistence farming to commercialized agriculture, particularly by supporting women's organizations and cooperatives. Providing technical and financial support for natural resource based economic activities. Supporting women's transition from farm to off-farm economic activities	People benefiting from diversified livelihood restoration under the project, females (percentage). (Baseline 0; Target 50 percent) People benefiting from improved livelihoods, female (percent) (Baseline 0; Target 50 percent) ( <i>PDO indicator</i> )

### C. Project Beneficiaries

56. **The targeted catchments are home to over 1.4 million people in approximately 223,000 households who will be direct beneficiaries of the project (57 percent of the total population in the six districts).** The most populated districts are Ngororero (with 30 percent of the project beneficiaries), Nyabihu (17.2 percent), Muhanga (15 percent), Musanze (13 percent), and Gakenke (10 percent). People will benefit from lower exposure to flood events, and improved soil and water management. Some people will also benefit through employment related to the restoration activities. The total estimated labor requirement to successfully complete the recommended interventions in the selected 63 catchments is approximately 45 million person-days. People will also benefit from the opportunities to improve and diversify their livelihoods.

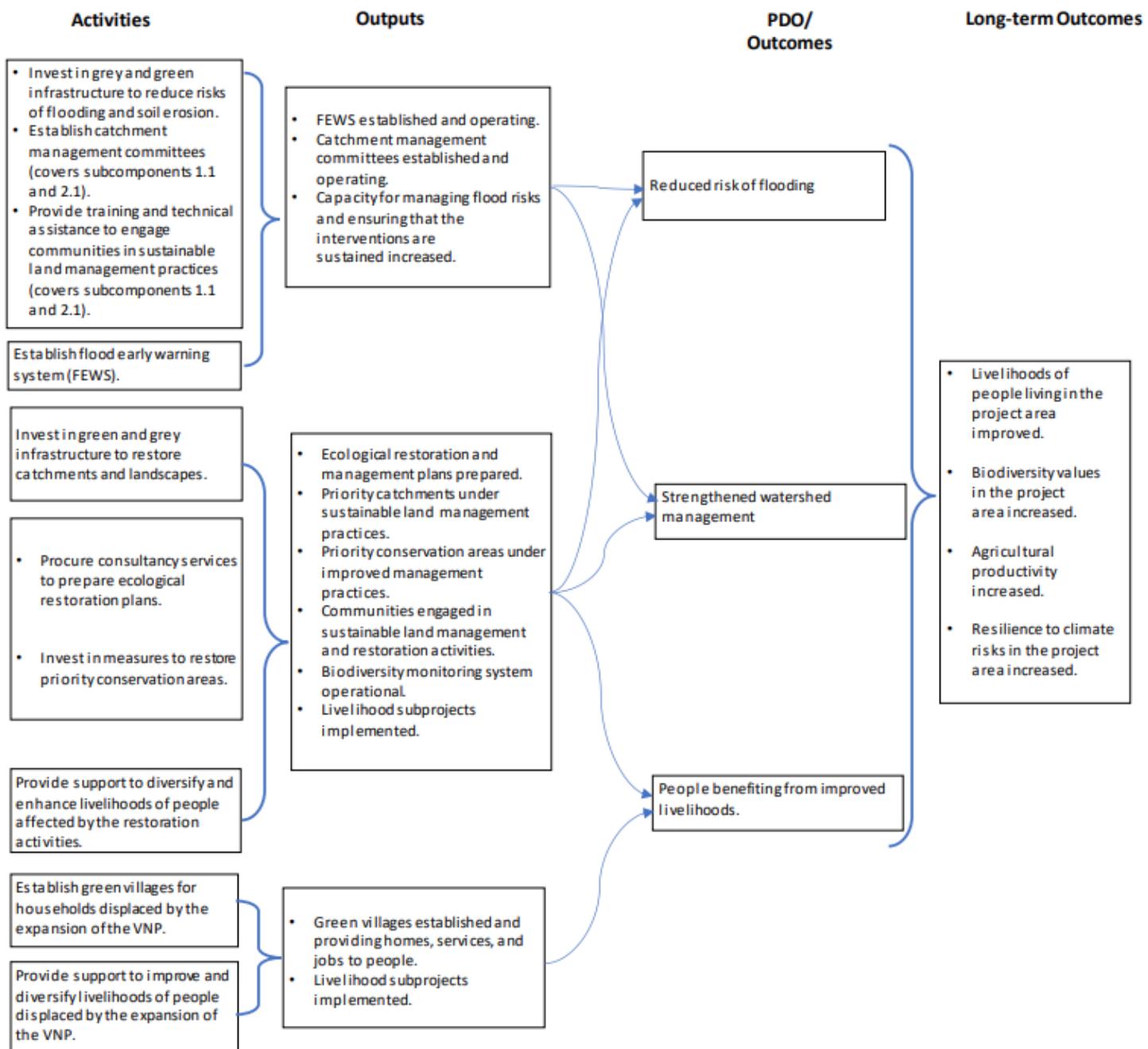
57. **Citizen Engagement:** VCRP will also follow a community-based participatory approach. The community-based participatory approach will identify the most appropriate interventions that respond to the unique needs of each individual micro-watershed included in the project area. This approach will result in several benefits, including improved community ownership and engagement, as well as ensuring that expected results are achieved and sustained.

### D. Results Chain

58. **The project aims to achieve its three development objectives as summarized in figure 1.** The project will achieve these objectives through activities grouped under four components. The activities that will lead to the desired outcomes include investments in gray and green infrastructure, establishment of the FEWS, implementation of improved land management practices, construction of a Smart Green Village, support for livelihood diversification, technical assistance, and capacity building. These activities will, over the long-term, help increase agricultural productivity, strengthen livelihoods and incomes of people living in the project area, increase biodiversity in the VNP area, and increase resilience to climate risks.



Figure 1: Theory of Change

**Critical assumptions:**

- Financial support from partners is provided to acquire land, establish green villages, and support income diversification activities.
- Government at all levels are committed to and have capacity to manage project activities.
- Communities are consulted, actively engaged, and given ownership and capacity building support, and all activities are coordinated as an integrated landscape management approach.



### E. Rationale for Bank Involvement and Role of Partners

59. **The World Bank brings added value to a project of this nature in several ways.** First, the World Bank brings global knowledge and technical capacity on flood risk management, catchment and landscape restoration, resettlement of people, and promotion of improved and diversified livelihoods. The World Bank has also undertaken a detailed assessment of opportunities for nature-based tourism through its February 2023 ‘Rwanda Economic Update: Making the Most of Nature Based Tourism’ (edition 20)<sup>18</sup>. Second, the World Bank brings implementation experience and cross-country learning from similar World Bank-financed projects (including, the Rwanda LAFREC Project [P131464], Ethiopia’s series of Sustainable Land Management projects [P107139, P163383, P133133, P170384], Burundi Landscape Restoration and Resilience Project [P160613] and its Additional Financing [P171745], Ghana Landscape Restoration and Small-Scale Mining Project [P171933], and the Tajikistan Resilient Landscape Restoration Project [P171524]. Third, the World Bank brings considerable financial resources, enabling the scaling-up of promising initiatives being undertaken by other development partners and NGOs. Fourth, the World Bank with its strong convening power can bring together the knowledge and resources of the development partners and NGOs in Rwanda to ensure that all work together toward a common objective. Lastly, the World Bank has a longstanding engagement in biodiversity conservation, including protected area management and leveraging innovative partnerships through support for collaborative management partnerships and financial instruments, including the wildlife conservation bond.

60. **Partners are supporting the project design in several ways.** PROGREEN, a trust fund managed by the World Bank, is financing a review of incentives, financial tools, and instruments for SLM and biodiversity conservation, and developing options to be considered for support under the project. The recipient executed component will specifically address sustainable forestry and landscape management, climate resilient livelihoods and agricultural practice and capacity building. Other partners supporting the project include the EIB and the EU, which will finance flood risk management and catchment restoration activities. The CIF and GEF are expected to join later and finance all components in the first quarter of the Fiscal Year 2025. The deadline for EIB to provide co-financing is 12 months from the effectiveness of the IDA credit.

61. **Several development partners are currently supporting the GoR’s catchment restoration program, either through funding of specific areas/watersheds in the country or by providing complementary support in the form of thematic investments or institutional strengthening and capacity building.** For example, the Dutch Government is supporting the Sebeya Landscape Restoration Pilot program, an important contribution towards the implementation of community-based catchment restoration schemes. Other development partners such as the Nordic Development Fund, have expressed interest in participating in the project and may join later. Moreover, this project will serve as an anchor and platform for the programmatic approach that GoR is envisioning for future investments in the sector in Rwanda.

### F. Lessons Learned and Reflected in the Project Design

62. **Providing alternative livelihoods is critical to gain community support for interventions aimed at restoring catchments and landscapes.** Most people living in the areas targeted for restoration are poor and depend on exploitation of forests, wetlands, rivers, and other natural resources for food and income. It is critical to provide them with alternative sources of income and food, if they are to comply with the measures aimed at protecting the natural resources. Under the LAFREC Project (P131464), the selection of alternative livelihood measures and target communities was based on consultation with the communities and resulted in the preparation of livelihood plans. Such consultation and planning are included in the project design to ensure that vulnerable groups, including women, are targeted.

<sup>18</sup> Djiofack,C; et al. 2023. Rwanda Economic Update: Making the Most of Nature Based Tourism in Rwanda (English). Rwanda Economic Update. no. 20 Washington, D.C.: World Bank Group. URL: <http://documents.worldbank.org/curated/en/099123502202319117/P1774570bcc36025096cd01bfac8d121ba>



63. **Establishing an effective coordination mechanism is essential to ensure that the various implementing agencies effectively and efficiently implement the project.** The MoE is the lead executing agency and will ensure that all agencies meet regularly to discuss implementation progress, challenges encountered, and viable solutions to challenges. In this regard, the design of the project builds on lessons generated from Second Rwanda Urban Development Project (RUDPII - P165017). Furthermore, the division of implementation responsibilities reflects lessons learned on the importance of ownership, which was a noted deficiency of some activities under the LAFREC Project.

64. **Developing an integrated approach to addressing resilience and biodiversity imperatives.** Focused technical assistance under RUDPII demonstrated the potential of NBS to reduce peak-runoff and subsequent flood damage in Kigali whilst also enhancing biodiversity benefits. With a growing interest in NBS, city scans were undertaken across six Secondary Cities in Rwanda with the aim of profiling opportunities for investment in NBS. These scans further emphasized the important linkage between catchment management and flood risks. In response, the flood management strategy for this project is centered on a NBS approach where conventional ('grey') solutions are considered as an alternative only where conditions require.

65. **Involving beneficiary communities in the preparation of restoration plans is necessary to ensure that communities are fully committed to the desired outcomes.** Initially, communities benefiting from the LAFREC Project were skeptical about the importance and benefits of the project, especially in the co-management of buffer zones and the corridor connecting the Gishwati and Mukura Forest Reserves. The project developed a detailed restoration plan for the degraded habitats through participatory planning and mapping of all degraded habitats, which were targeted for forest restoration interventions. The participating communities ultimately understood the importance of restoring the habitat for their own sustainable livelihoods and fully supported the interventions. Multi-stakeholder platforms and good landscape governance played an influential role in creating a shared vision for well-functioning landscapes.

66. **Targeting women to participate in project activities will help to close the gender gap in incomes and promote sustainable, inclusive, and green growth.** Women prioritize health, nutrition, and education of their children, which over time, leads to productivity and faster economic growth and reduced poverty. The project will target women for employment and alternative livelihood opportunities.

### III. IMPLEMENTATION ARRANGEMENTS

#### A. Institutional and Implementation Arrangements

67. **The MoE, through its Project Coordination Unit (PCU) will coordinate project implementation.** It will work in close collaboration with the PIUs of the other agencies involved in implementation, namely the RWB, Meteo Rwanda, REMA, and RDB. The PCU and PIUs of each institution will be responsible for the procurement, FM, contract management, and overall management of the activities for which they are responsible. They will work in close collaboration with the RFA, the Rwanda Housing Authority (RHA), and district authorities' and local governments in intervention areas.

68. **To fulfill its main responsibilities, the MoE will use existing institutional mechanisms to coordinate all activities.** These mechanisms comprise the National Steering Committee, National Technical Advisory Committee, District Project Coordination Committee (DPCC); Community Coordination Committee (CCC). The National Steering Committee, chaired by the Permanent Secretary for the MoE. The Steering Committee will be responsible for: (a) establishing policy guidelines and providing overall oversight of project implementation; (b) approving the annual national and districts work plans and budgets and the annual Procurement Plan; and (c) reviewing the annual implementation performance report to be



prepared by the implementing agencies, and compiled by the MoE, and overseeing the implementation of corrective actions, if needed.

69. **The National Technical Advisory Committee will establish various task forces focusing on thematic areas.** They will provide technical advice and customized training and support to the districts and communities. Such task forces may include those focusing on SLM, climate smart agriculture, agriculture water management, livelihoods, and value chain support. The project will collaborate with other World Bank-supported projects operating in the intervention area, if relevant. The composition of this committee is detailed in the PIM.

70. **The RWB, through the Project Hubs at the district level, will be responsible for the day-to-day management of flood risk management and catchment restoration activities, under Subcomponents 1.1 and 2.1.** Responsibilities include: (a) preparation of consolidated annual work plans and progress reports, (b) monitoring and supervision of overall implementation progress and evaluation of project impacts, (c) financial administration, and (d) procurement. The RWB's SPIU will be strengthened to allow it to effectively handle project activities and provide administrative support to the National Steering Committee and Advisory Technical Committee. The RWB will work in close collaboration with various ministries with an interest in the project, such as the MINALOC, MINECOFIN, MINEMA, the Ministry of Agriculture and Animal Resources, the RFA, the Rwanda Agriculture Board and others.

71. **Meteo Rwanda will be responsible for implementing establishment of the FEWS and weather-forecasting initiatives, under Subcomponent 1.2, in close coordination with RWB and MINEMA in coordination with local authorities, such as district offices.** Meteo Rwanda will procure activities to be implemented by MINEMA. Effective implementation will require close collaboration and coordination between these government institutions. This subcomponent will build upon and learn from experiences of FEWSs supported by the LAFREC project. The RWB will procure some of the activities under Subcomponent 1.2 (i.e., hydro stations) alongside activities under Subcomponent 1.1. As many of the activities procured under Subcomponent 1.2 require coordination between government authorities, procurement documents will be shared between them for review and input.

72. **REMA will be responsible for implementing Subcomponent 2.2 (ecological restoration of priority conservation areas) and Subcomponent 2.3 (livelihood development) of people affected by the catchment and ecological restoration activities under Component 2.** It will leverage other Bank-funded projects in Rwanda involved with livelihood development to the extent possible.

73. **The RDB will be responsible for implementing the Smart Green Village and livelihood improvements for people affected by the park expansion (all under Component 3).** It will work in close collaboration with other agencies, such as the Ministry of Agriculture and RHA, to ensure that appropriate support is offered to the affected people.

74. **The RFA will provide technical expertise and play a central role in nursery development.** The RFA has a seed center in Huye, and its expertise will be used to improve the productivity and climate-resilience of the planting material—both native and exotic—used in woodlot establishment or replanting as part of catchment and landscape restoration. The RFA will also oversee public forest management outside the protected areas.

75. **Beneficiary communities will be involved in executing most activities aimed at reducing the risk of flooding and restoring catchments and landscapes.** To ensure strong community engagement, the project will support the establishment and strengthening of existing community structures. The DPCCs will be established to coordinate activities across project intervention areas. They will comprise technical experts who will build the capacity of communities to



implement the works aimed at reducing flood risk and restoring catchments and landscapes. The project will also support community facilitators.

### B. Results Monitoring and Evaluation Arrangements

76. **Objectives and design.** The objective of the (M&E) system is to track the project's implementation progress and achievement of expected outcomes to enable the GoR (national and sub-national) and World Bank to address issues as they arise. An integrated web-based data collection platform will be established at the MoE into which data on implementation progress and outcomes will be entered. The MoE will contract a consulting firm to design and develop the integrated data platform, which will include an interface that allows the people responsible for M&E at all implementing agencies to enter monitoring data into the system.

77. **The MoE will lead the overall M&E efforts.** The ministry's PCU will be staffed with dedicated M&E specialists who will be responsible for data collection and reporting on implementation progress and results in the project's quarterly progress reports. They will help build the capacity of the M&E teams based at the PIUs of the implementing agencies through provision of training and advice. Staff with specialized skills in (a) operations and maintenance of management information systems, (b) a data manager; and (c) others as needed will comprise the M&E team at the MoE.

78. **The M&E teams will be established as members of the PIUs of the implementing agencies.** They will be responsible for collecting and sharing information presented in the Results Framework in accordance with the procedures laid out in the M&E monitoring plan and entering the data in the integrated data platform. Data from each implementing agency will be aggregated with the data of others and presented in the quarterly progress reports.

79. **Data generation and reporting.** The data to track the key performance indicators come from (a) supervising engineers' reports on construction progress, (b) implementing agencies' reports on progress with preparing strategies and plans, (c) database to be maintained by the agencies responsible for livelihood improvements, (d) reports of grievance redress committees, and (e) others. The MoE PCU is responsible for preparing the project's quarterly financial and progress report and consolidating information from each implementing agency. It will submit quarterly project progress reports to the World Bank, the National Steering Committee, and other stakeholders within 45 days of the end of each quarter. The GoR and the World Bank will prepare a comprehensive midterm review of the project implementation and results in 2026/27, during which the project's objectives, design, Results Framework, and other aspects will be reviewed and any required adjustments to project design agreed.

80. **Capacity building for M&E.** The project will provide support to strengthen capacity for M&E at the MoE and implementing agencies. Specifically, the project will finance consultants who will work with the MoE to prepare a detailed M&E and reporting system plan, provide on-the-job and other training for M&E specialists at all implementing agencies, and provide other capacity support required to establish and operate an effective M&E system. The project will also finance follow-on training and workshops with M&E specialists to ensure that normal staff turnover does not disrupt the M&E effort.

### C. Sustainability

81. **Sustainability is a key consideration in the project.** Different approaches will be required for different investments. For example, larger-scale flood risk reduction infrastructure or activities, such as dredging, will be primarily managed by the GoR, while smaller activities implemented closer to the communities will adopt a participatory and consultative approach. Planning and implementation of catchment/landscape restoration will be participatory. The community will drive the process of a participatory approach. Sustainability of the restored landscapes and catchments



will require mechanisms through which communities receive incentives for their efforts in restoring landscapes. Maintenance of the park expansion area will necessitate implementation of a tourism revenue sharing scheme, building on the existing model. Among other things, mechanisms for PES will be assessed to sustain the communities' efforts in the future. Sustainability of livelihoods supported under the project will require regular M&E, consultation with beneficiaries, and adaptations if necessary.

## IV. PROJECT APPRAISAL SUMMARY

### A. Technical

82. **The project is deemed technically sound.** It builds on the achievement of the LAFREC Project (P131464P), which demonstrated how to successfully involve communities in landscape restoration projects. Investments in flood risk reduction and catchment and landscape restoration will be based on technology and methods that are proven successful in Rwanda and elsewhere, such as constructing contour bank terraces; planting hedgerows; and establishing native vegetation as buffers along rivers, streams, and gullies. Detailed engineering designs will be based on comprehensive hydrological modeling. The design of the Green Village follows principles of similar villages in Rwanda and other countries, providing a full range of services, including access to health, education, water and sanitation, markets, and employment opportunities.

83. **All investments will be designed in consultation with communities to respond to local conditions.** The project will draw on community labor for construction of works aimed at reducing flood risk and restoring catchments and landscapes. It will also support communities to propagate tree seedlings and establish or replant wood lots. The list of priority investments for the first year of implementation has been agreed. To ensure adequate contract management, the work will be overseen by dedicated construction supervision consultants, implementing agency PIU staff, and beneficiary representatives.

84. **Construction materials and plants (both native and fast-growing species used for commercial woodlots) are readily available in Rwanda and will be even more so due to project support for nursery development.** The local construction industry has experience and adequate capacity to undertake the proposed works. Rwanda has adequate capacity for testing the quality of materials.

85. **The operation is aligned with the goals of the Paris Agreement on both mitigation and adaptation.** The risk level of the Project interventions, for both mitigation and adaptation, is assessed to be low. A summary of the assessment and reduction of risks is below.

86. **Assessment and reduction of mitigation risks.** The project will support flood risk reduction investments, including NBS options, to convey floodwaters, trap sediments, and prevent transfer of flood risks downstream. Other NBS principles will also be pursued, including offering ecological habitat, providing multi-use functionality of the land that will allow community recreation and agricultural production. In addition, the project will promote adoption of climate-smart agriculture approaches, aimed at increasing agricultural productivity, and helping communities to adapt to, and build resilience to climate change, while reducing GHG emissions. The project will also invest in agroforestry, afforestation, reforestation, and improved forest, catchment, and landscape management. By the end of the implementation period, the project investments will mitigate about 2.8 million tCO<sub>2</sub>-e. No leakage will occur and no area with high carbon stocks or high biodiversity will be negatively affected. Rather the project will support the conservation of ecologically sensitive areas and the protection of the high conservation value of the VNP. The project will support the restoration of the park expansion



zone to create additional habitat for mountain gorillas and other biodiversity, while also seeking to enhance nature-based tourism opportunities. Activities to be funded include active replanting and assisted natural regeneration with native species, and the removal of invasive plant species. With respect to livelihood diversification, the project aims to support people in adopting livelihoods that do not depend on the exploitation of the natural resources that are restored and protected under the project. It will help people find climate-friendly livelihood options, and promote the use of solar or wind energy, wherever possible. The flood-risk reduction, landscape and catchment restoration, and livelihood diversification identified above can be considered to have low mitigation-related risks. The Smart Green Villages will be constructed in a manner that is energy efficient - this includes the use of solar panels for eco-lodges and public facilities including street lighting, rainwater harvesting, composting latrines, natural ventilation, and green cooking methods. Locally available materials will also be used to reduce the carbon footprint of the structures. During detailed design the project will ensure that the structures align with Rwandan building standards and the Universally Aligned List by ensuring buildings improve energy performance equivalent to Level 1 EDGE Certification (20 percent saving energy).

87. **Assessment and reduction of adaptation risks.** The main climate and disaster risks likely to affect the project arise from flooding. The project will support soil and water conservation infrastructure, including terraces, and rainwater harvesting structures. The project will finance the establishment of a flood early warning system designed to alert people of potential flooding and the need to evacuate. It will support catchment management committees to ensure that communities are fully engaged in strategic watershed planning and implementation of activities to improve catchment management. Adoption of climate-smart agricultural practices and alternative livelihoods will also assist with adaptation. Finally, the Smart Green Village supported under the project will include investments in renewable energy, improved cookstoves, a water harvesting facility, and waste management services. Risk reduction methods in the green village include for example, elevated plinths to address risk from flooding in the context of the model green village.

## B. Economic and Financial Analysis

88. **A 30-year cost benefit model is used to assess the ex-ante efficiency of the VCRP.** The analysis includes all components and the entire US\$172 million budget.

89. **Net benefits captured through this type of intervention accrue over many years adding to the difficulty of supporting beneficiary livelihoods and attracting private sector investors.** Incentives are also strategically different from standard productivity investments because substantial benefits are generated from avoided future losses. In this setting, the lack of cash and credit for working capital and investments in the agriculture sector prevents beneficiaries from adopting new practices with such long-term benefits. To ensure a viable and sustainable investment it is therefore important to support interventions that increase productivity and support livelihoods.

90. **The project provides a net present value (NPV) of US\$42 million and an economic internal rate of return (EIRR) of 9 percent, which is viable at a 7 percent discount rate.** The economic benefit-cost ratio is 1.2 and the payback period is 14 years. When impact on GHG emissions is included at US\$5 per tonne CO<sub>2</sub>e, the NPV increases by 11 percent and the EIRR is 10 percent. When GHG emissions are included, they contribute 2 percent of the NPV while the three components contribute 55, 18, and 25 percent, respectively. With a 16 percent discount rate, the project is not financially viable with a financial rate of return of 9 percent and a financial benefit cost ratio of 0.6. The financial discount rate reflects the opportunity cost of capital as per current lending rates. More detailed analyses show that at the beneficiary level investments are financially viable and reduce poverty. However, the net benefits generated in the project area and by the targeted households and IGAs are not large enough compared to the US\$172 million investment cost with a 16 percent discount rate. If the discount rate is less than 9 percent, the project is financially viable.



91. **Project interventions reduce GHG emissions by 2.8 MtCO<sub>2</sub>e or 2 tCO<sub>2</sub>e per ha per year.** The estimated value of impact on GHG emissions ranges between US\$2 million and US\$8 million, depending on the discount rate used in the base case. When using higher carbon prices between US\$53 and US\$107 per tCO<sub>2</sub>e, the estimated social value of carbon ranges between US\$25 million and US\$246 million at different discount rates.

92. **In addition to labor during the construction period, IGAs can generate 448 full-time jobs with an annual value of US\$549,000.** This excludes jobs during construction. During implementation some jobs may be diverted from other IGAs. Only the new jobs should be attributed to the project. The sustainability of these jobs also depends on whether the IGAs continue operating in the future.

93. **The results are sensitive to several assumptions.** The estimated project returns are conservative because several other benefit flows have not been quantified due to limited data and difficulty in attributing these to the current project. These include multiplier effects, impact on tourism, gender-disaggregation of livelihood impacts, indirect impact from floods, improved water quality, improved nutrition, avoided losses of and increase in biodiversity, and institutional strengthening.

94. **Elasticities indicate that some assumptions can change the ENPV significantly.** For example, because many of the benefit flows are tied to the value of crop production, a 1 percent change in crop revenue or costs can change the NPV by 11 to 6 percent, respectively. A 1 percent change in project costs changes NPV by 4 percent. A 1 percent change in flood risk impact expected annual impact can change the ENPV by 3 percent. A 1 percent change in the revenue generated by all IGAs leads to a 3 percent change in ENPV. A 1 percent increase in the farmer adoption rate increases the NPV by 2 percent. The results are less sensitive to these assumptions if the value of GHG emissions is added to the base case.

### C. Fiduciary

#### (i) Financial Management

95. **A Financial Management (FM) assessment has been carried out for the project in accordance with the World Bank policy and directives on Investment Project Financing (IPF).** The assessment was carried out on MoE, the RDB, Meteo Rwanda, REMA and the RWB during project preparation to determine whether the implementing entities have acceptable FM arrangements, which will ensure that: (a) funds are used for the intended purposes in an effective, efficient, and economical way; (b) financial reports will be prepared in a reliable, accurate and timely manner; and (c) project assets will be appropriately safeguarded.

96. **The project benefits from the public financial management (PFM) reforms that the country has undergone and the project's oversight and accountability arrangements.** The PFM system is anchored in solid legal frameworks and PFM strategies. Progress has been made in budget planning, expenditure efficiency, enhancement of the internal audit function, external audit coverage, and financial reporting. The Public Expenditure and Financial Accountability (PEFA) 2022<sup>19</sup> confirmed these strengths. The project has acceptable project oversight and accountability structure which involves a National Steering Committee, management oversight (that is, the MoE, the RDB, Meteo Rwanda, REMA, and the RWB), internal oversight bodies (internal audit and audit committee), external oversight bodies (Office of the Auditor General), and Parliament that approves the government's budget.

97. **Based on the assessment conducted, the FM risk of the project is rated substantial.** The following key risks are

<sup>19</sup> Ministry of Finance and Economic Planning. 2022. Public Expenditure and Financial Accountability (PEFA) Assessment. Government of Rwanda.



identified: (a) the complex nature of the project that is giving rise to potential accountability challenges in ensuring that funds have been used for intended purposes; (b) knowledge gaps of the MoE, Meteo Rwanda, and the RWB on World Bank FM procedures, because they have not previously implemented a World Bank-financed project; (c) there are multiple source of financing namely IDA credit, PROGREEN MDTF grant, European Investment Bank Loan. Further additional funds also expected from NDF, GEF grant and CIF which will have multiple designated accounts and complexities in accounting of funds; (d) disbursement delays in funds reaching the final beneficiaries; (e) the six implementing districts have activities under REMA and RWB which can lead to mix-up in financial reporting for the funds received from different sources and (f) inadequate and delayed implementation of external and internal audit recommendations.

98. **Several mitigating measures have been incorporated in the project.** These are (a) the MoE to develop detailed FM guidelines for the project as part of the PIM and livelihoods manual; (b) the MoE, RDB, Meteo Rwanda, REMA, and the RWB to recruit or appoint a dedicated FM specialist for this project to be part of the PIUs with terms of reference to be agreed with the World Bank; (c) the World Bank to provide support and training on Bank FM and disbursement procedures to project FM staff before effectiveness and as needed during project implementation; (d) the AWPB will be prepared with details showing financiers and proportion of financing for each activity, to guide finance teams in expenditure allocation; (e) Rwanda IFMIS currently has portal for projects financial reporting which is capable of segregating financial reports by different financiers. There will be liaison with MINECOFIN IFMIS unit to ensure these are mapped correctly; and (f) There will be a comprehensive start-up workshop where all implementing entities will be sensitised on financial management requirements for the project. Detailed FM arrangements are presented under Annex 1. The action plan (Table 5 – Annex1) has been prepared to mitigate the identified risks which will be monitored throughout project implementation. With the implementation of these, it is the conclusion of the assessment that the current arrangements of the project will provide reasonable assurance that the project resources will be used for the intended purposes.

#### (ii) Procurement

99. **Procurement for the proposed project will be carried out in accordance with the 'World Bank Procurement Regulations for Borrowers under Investment Project Financing', dated November 2020, hereafter referred to as 'Procurement Regulations'.** The project will be subject to the World Bank's Anticorruption Guidelines, dated July 1, 2016, and beneficiary disclosure requirements. The proposed project will use Systematic Tracking of Exchanges in Procurement (STEP), a planning and tracking system that will provide data on procurement activities, establish benchmarks, monitor delays, and measure procurement performance. Rated criteria shall be used for all international competitive procurements to ensure sustainable procurement (environmental, social, economic and climate change [Paris Alignment]) are considered in the procurement processes.

100. **All five implementing agencies will have procurement roles independent of each other.** However, the MoE will have an overall coordination role in addition to procurement of its activities. There are also community procurement activities using the community-driven development approach, which will follow Procurement Regulations paragraph 6.52 and Annex 1 - Selection Methods paragraph 6.9 and 6.10. The communities will be hired to carry out small and scattered works. The community procurement is coordinated, and reports consolidated by the MoE. The fiduciary assurance of community procurement shall come from citizen engagement, disclosure at community level, and social audits.

101. **The Project Procurement Strategy for Development and approved.** It considers the market, procurement risks, and procurement options and sets out the selection methods to be followed by the borrower for major activities during project implementation in the procurement of goods, works, non-consulting and consulting services financed by the project. The Procurement Plan is an output of the Project Procurement Strategy for Development and will be updated at least annually or as required to reflect the actual project implementation needs and improvements in institutional



capacity.

102. **A procurement capacity and risk assessment has been carried out for the implementing agencies (Annex 1).** This assessment confirms whether the existing capacity is adequate to implement the project and proposes mitigation measures in the event of capacity gaps.

103. **Based on risks and gaps identified, the project procurement risk is rated ‘Substantial’.** With implementation of the recommended mitigation measures, the risk can be revised to ‘Moderate’ during project implementation. The Procurement Risk Assessment and Management System for the appraisal stage was done for the project on May 21, 2023, and the procurement performance risk is rated ‘Substantial’.

#### D. Legal Operational Policies

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

104. **Projects on International Waterways (OP/BP 7.50).** The project triggers OP/BP 7.50 because some of the proposed investments will take place on the Akagera River, a tributary of the Nile River, and the Lake Kivu/Rusizi River system, which are international waterways. In accordance with the Policy, other riparian countries were notified of the project. The World Bank sent the notification letters on behalf of the government as per their request and also informed the Lake Victoria Basin Commission and the Nile Basin Initiative of the notification letters sent to the riparian countries. Responses were received from DRC and Burundi and the World Bank has provided additional information as requested by those response letters including the environmental and social instruments that have been prepared for the project.

#### E. Environmental and Social

##### Environmental risk management

105. **The environmental impact of the project is largely positive.** The project's activities contribute positively to environmental conservation of valuable ecosystems through landscape rehabilitation, afforestation/reforestation, and ecosystem protection. A comprehensive set of SLM and restoration actions are planned, including construction and maintenance of terraces, buffers along water bodies, wetland rehabilitation, and agroforestry measures. The project aims to safeguard the rich biodiversity of the Volcanoes National Park (VNP), counteracting threats like establishment of invasive species. Flood risk management entails both gray and green measures, involving the construction of flood detention ponds, sediment trap check dams, and channels, which might lead to impacts like altered stream beds and water quality. Environment health and safety (EHS) impacts during the construction and operation of the Smart Green Village involve soil erosion, contamination, and disease spread, and traffic safety necessitating careful management. Anticipated concerns include limited local capacity, invasive species risks, conflicts among land users, and health and safety issues. The Smart Green Village's construction and operation poses potential risks to workers and community well-being, requiring attention to infrastructure design, emergency preparedness, and service safety. The project ESCP stipulates that an Environmental and Social Management Framework (ESMF) will guide the project's implementing agencies in the preparation of the environmental and social risk management instruments required for each subproject, to comply with the relevant Rwanda laws and the World Bank Environmental and Social Standards (ESS).



106. According to the World Bank ESF eight of the ten ESS relevant to the project are ESS1, ESS2, ESS3, ESS4, ESS5, ESS6, ESS8, and ESS10. Based on the type and extent of the abovementioned and other envisioned environmental-related impacts, the potential environmental risk of the project is classified as **Substantial**.

### **Social Risk Management**

107. **The VCRP will provide significant benefits to communities.** Flood risk reduction interventions will reduce community vulnerability to climatic shocks and raise agricultural productivity. In addition, a combination of gray and green measures will provide employment opportunities for the local communities. Catchment management and ecological restoration interventions will boost ecosystem services and biodiversity in the landscape. While most catchment management activities will have a direct benefit for local communities, the loss of limited productive land for conservation purposes is expected in some areas. Ecosystem benefits can be harnessed for income diversification, while financial mechanisms to incentivize conservation actions will be investigated. Active involvement of community to restore landscapes will also enhance their participation in nature-conserving activities, which are critical for flood risk reduction and boosting tourism activities. VNP expansion and livelihood diversification will boost livelihoods of project-affected people through improved living conditions in a Smart Green Village, and diversified income generation and livelihood activities. The project will ensure that there is differentiated engagement and that profession-based groups, cooperatives and CSOs are engaged to ensure access to benefits for vulnerable households and groups. In addition, the project-affected people will be less exposed to human-wildlife conflicts and impact on their properties. The surrounding communities will also benefit from opportunities brought about by park expansion including employment and increased tourism related business opportunities.

108. **Nevertheless, the project has risks associated with the planned interventions.** Social risks include physical relocation of an estimated 510 households out of the park expansion area, land acquisition, restrictions on land use, restricted access to natural resources, economic displacement, labor influx-related risks resulting in social conflicts, spread of transmittable diseases, sexual exploitation and abuse and sexual harassment, risks related to exacerbating inequalities, and exclusion of vulnerable groups. Therefore, the social risk of the project is **High**.

**The MoE, as the coordinating entity, will be responsible for ensuring that the ESF and respective ESS requirements are met.** In compliance with the requirements of the respective standards, the following instruments have been prepared and will be monitored during project implementation: the ESMF including the Sexual Exploitation and Abuse and Sexual Harassment (SEA/SH) Plan, Resettlement Policy Framework (RPF), Biodiversity Management Plan (BMP)/ Ecological Restoration Plan (ERP), Environmental and Social Impact Assessment (ESIA) for the Smart Green Village, Labor Management Procedure (LMP), Resettlement Action Plan (RAP) for park expansion, Gender and Anti-GBV Action Plan (GAP) and Stakeholder Engagement Plan (SEP). Requirements for these instruments, including implementation timeframes, have been provided in the ESCP. During the preparation of the ESF instruments, several consultations took place during the period from Dec 2022 to May 2023. The GoR has disclosed the ESMF, RPF, ESCP and SEP for VCRP on REMA and MoE websites on August 24/2023. REMA: <https://www.rema.gov.rw/> and MoE: <https://www.environment.gov.rw/>.

109. **The Grievance redress mechanism will be one of the strategies put in place to monitor and resolve complaints that may arise during or after the Project implementation by the affected people or other interested parties.** Therefore, the project implementation will minimize grievances throughout all its stages, following the provisions of Rwandan laws and the World Bank ESS 2, ESS10. Grievances shall be raised either informally or formally through existing channels or project specific grievance redress committees which will focus on grievances between the community and the project as



described in figure 3, while grievances among workers will be first handled by workers grievance redress committees to be established before the contractors can start works as provided in the LMP. Grievances shall be resolved at no cost to the complainant and in respectful manner, while specific cases shall trigger specific channels outside the project control. These include cases of Gender-Based Violence (GBV) which will be reported directly to Isange One Stop Center specialized providing a holistic package of support (medical, legal, forensic/investigation, psychosocial and safety needs to help victims of violence and child abuse, the majority of whom are women and girls). Prevention measures such as awareness campaigns and engagement meetings with decentralized structures will be done to minimize GBV risks.

110. Complaints will be submitted either in person, by phone, text message, mail, e-mail or via a website. In particular, the ministry of environment has developed an online channel “BazaMoE” in Kinyarwanda, meaning “Ask the Ministry of Environment” through which complains can be logged following the link:  
<https://bazamoe.environment.gov.rw/home/index>.

## V. GRIEVANCE REDRESS SERVICES

111. **Grievance Redress.** Communities and individuals who believe that they are adversely affected by a project supported by the World Bank may submit complaints to existing project-level grievance mechanisms or the Bank's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may submit their complaint to the Bank's independent Accountability Mechanism (AM). The AM houses the Inspection Panel, which determines whether harm occurred, or could occur, as a result of Bank non-compliance with its policies and procedures, and the Dispute Resolution Service, which provides communities and borrowers with the opportunity to address complaints through dispute resolution. Complaints may be submitted to the AM at any time after concerns have been brought directly to the attention of Bank Management and after Management has been given an opportunity to respond. For information on how to submit complaints to the Bank's Grievance Redress Service (GRS), visit <http://www.worldbank.org/GRS>. For information on how to submit complaints to the Bank's Accountability Mechanism, visit <https://accountability.worldbank.org>.

## VI. KEY RISKS

112. The overall risk rating of the project is **Substantial**.

113. **Technical Design of Project (Substantial risk).** This will be the first World Bank-financed project focused on expanding the VNP. As the approach is yet untested, the likelihood of success is not known. However, the project design reflects Rwanda's successful approach of ensuring that communities adjacent to national parks benefit from the revenues generated by tourism. In addition, the project intends to combine both gray and green solutions for flood risk reduction in line with the latest international practices, which is a new approach for the Rwandan counterparts. The GoR and the World Bank will work closely together during implementation. However, the GoR is highly committed to catchment restoration to reduce the risks of flooding and landslides and raise agricultural productivity. The project will serve as an anchor and platform for the programmatic approach that GoR is envisioning for future investments in the sector in Rwanda. There is a risk that co-financing envisaged for the project and the broader program does not fully materialize. In the case of EIB, which will be participating in the project, Euro 100 million is expected to be provided within 12 months of effectiveness of the IDA credit. In case the EIB co-financing does not materialize, the Bank and the Government will agree to a reduced scope for the project.

114. **Institutional Capacity for Implementation and Sustainability (Substantial risk).** The project will be implemented



by the MoE, the RWB, Meteo Rwanda, REMA, and the RDB. The RWB and Meteo Rwanda have no experience as an implementing agency for World Bank-financed projects. Coordination between the implementing agencies and REMA, RFA, MINEMA, RHA, MINAGRI, FONERWA, and others, all of which will provide technical support in strategic areas, may also be a challenge. To mitigate these risks, the World Bank will undertake a thorough assessment of the capacity of the agencies and propose implementation arrangements to reduce this risk, such as establishing a PIU within the agencies and offering technical assistance and capacity building support on key aspects of project implementation. A Project Steering Committee will be established to provide a platform for regular coordination and decision-making among the agencies. Tailor-made capacity building will be provided for communities before and during project implementation. In coordination with the relevant implementing institution, the necessary coordination platforms at the community level will be established to ensure ownership and sustainability.

115. **Environmental and Social (High risk).** Some implementing agencies will be using the ESF instruments for the first time and will require time to adjust to new procedures for supervision and subproject preparation (including ESIA, Environmental and Social Management Plans, and procurement of works). Despite the significant benefits of the project, negative social impacts and risks are expected notably for the welfare of an estimated 922 project-affected households that lie within the 732.5 ha park expansion zone that will be subject to resettlement. Risks and impacts will be mitigated through the application of the World Bank's ESF and risk management procedures. The World Bank will continuously monitor compliance with the standards and procedures and propose measures to address any shortcomings. Grievance redress measures will be established and supported by the project to ensure that project-affected people are able to bring complaints to the project teams.

116. **Fiduciary Risks (Substantial risk).** Procurement and FM capacities of the RWB, and Meteo Rwanda are not yet known. These risks will be mitigated through early implementation of an action plan agreed with the World Bank. In particular, the World Bank will provide support and training on World Bank FM and disbursement procedures to all project staff before effectiveness and as needed during project implementation, and continuously monitor compliance with the policies and procedures and propose measures to address any shortcomings.

117. **Stakeholders (Substantial risk).** The local communities to be resettled need to have equal access to subprojects to effectively participate in the project. Therefore, local communities need to be appropriately consulted, and adequate funds need to be allocated to build their capacity and establish and strengthen livelihood improvement activities. All activities must be coordinated as an integrated landscape management approach. People who must relocate may take action to delay or stop the expansion of the VNP. The extensive culturally appropriate consultation that will be required to engage vulnerable groups that may need to be relocated will require substantial time, potentially leading to delays in project implementation. To mitigate this risk, the GoR has been consulting with communities that will be affected by the project during project preparation, aimed at reaching consensus on the way forward and will also draw upon the services of locally recognized non-governmental organizations to support the process of engagement.



## VII. RESULTS FRAMEWORK AND MONITORING

### PDO Indicators by PDO Outcomes

Baseline	Period 1	Period 2	Period 3	Period 4	Closing Period
<b>Direct project beneficiaries</b>					
<b>Direct project beneficiaries (Number)</b>					
Jan/2024	Jan/2025	Jan/2026	Jan/2027	Jan/2028	Jan/2029
0.00	50,000.00	300,000.00	700,000.00	1,100,000.00	1,418,000.00
<b>Direct project beneficiaries, female (Percentage)</b>					
Jan/2024	Jan/2025	Jan/2026	Jan/2027	Jan/2028	Jan/2029
0.00	50.00	50.00	50.00	50.00	50.00
<b>People benefiting under the project from reduced losses and damage from flooding</b>					
<b>People benefiting under the project from reduced losses and damage from flooding (Number)</b>					
Jan/2024	Jan/2025	Jan/2026	Jan/2027	Jan/2028	Jan/2029
0	0	0	0	502,000	502,000
<b>People benefiting under the project from reduced losses and damage from flooding, female (Percentage)</b>					
Jan/2024	Jan/2025	Jan/2026	Jan/2027	Jan/2028	Jan/2029
0	0	0	0	50	50
<b>Land area benefiting from strengthened land management</b>					
<b>Terrestrial protected areas under improved management effectiveness due to the project (Hectare(Ha))</b>					
Jan/2024	Jan/2024	Jan/2025	Jan/2026	Jan/2027	Jan/2029
0	0	0	0	732.5	732.5
<b>Area of landscapes under sustainable land management in production systems due to the project (Hectare(Ha))</b>					
Jan/2024	Jan/2025	Jan/2026	Jan/2027	Jan/2028	Jan/2029
0	7,427.2	14,854.4	22,281.6	29,708.8	37,136
<b>Land area benefiting from reduced risks of flooding (Hectare(Ha))</b>					
Jan/2024	Jan/2025	Jan/2026	Jan/2027	Jan/2028	Jan/2029
0.00	0.00	0.00	0.00	10,700.00	10,700.00
<b>Cumulative impact on net greenhouse gas emissions (Metric tonnes CO2-eq) (Number)</b>					
Jan/2024	Jan/2025	Jan/2026	Jan/2027	Jan/2028	Jan/2029



0	-16752.842	-50258.526	-100517.05	-167528.42	-2764220
<b>People benefiting from improved livelihoods</b>					
<b>People benefiting from improved livelihoods (Number)</b>					
Jan/2024	Jan/2026	Jan/2027	Jan/2028	Jan/2029	Jan/2029
0	21000	143,000	243,500	342,500	404,000
<b>People benefiting from improved livelihoods, female (Percentage)</b>					
Jan/2024	Jan/2025	Jan/2026	Jan/2027	Jan/2028	Jan/2029
0.00	50	50	50	50	50

### Intermediate Indicators by Components

Baseline	Period 1	Period 2	Period 3	Period 4	Closing Period
<b>Component 1: Flood risk management</b>					
<b>Priority catchments with flood early warning system established and preparedness activities conducted (Number)</b>					
Jan/2024	Jan/2025	Jan/2026	Jan/2027	Jan/2028	Jan/2029
0.00	0.00	0.00	5.00	9.00	9.00
<b>Surface area covered by NBS features as a proportion of the footprint area of the civil works for flood mitigation (Percentage)</b>					
Jan/2024	Jan/2025	Jan/2026	Jan/2027	Jan/2028	Jan/2029
0.00	70	70	70	70.00	70.00
<b>Length of gullies and/or embankment improved or constructed (Kilometers)</b>					
Jan/2024	Jan/2025	Jan/2026	Jan/2027	Jan/2028	Jan/2029
0	0	0	0	0	24
<b>Capacity of detention facilities for flood attenuation improved or constructed (Cubic Meter(m3))</b>					
Jan/2024	Jan/2025	Jan/2026	Jan/2027	Jan/2028	Jan/2029
0	0	0	0	0	1064000
<b>Component 2: Landscape restoration and catchment management</b>					
<b>Area of erosion gullies and landslides targeted through catchment and landscape restoration efforts (Kilometers)</b>					
Jan/2024	Jan/2025	Jan/2026	Jan/2027	Jan/2028	Jan/2029
0.00	93.2	186.4	279.6	372.8	466.0
<b>Households adopting sustainable and climate-smart/resilient land management practices (Number)</b>					
Jan/2024	Jan/2025	Jan/2026	Jan/2027	Jan/2028	Jan/2029
0.00	6,000.00	42,000.00	72,500.00	102,500.00	102,500.00
<b>Land area under contour bank and bench terraces (Hectare(Ha))</b>					
Jan/2024	Jan/2025	Jan/2026	Jan/2027	Jan/2028	Jan/2029



0.00	3741	7482	11223	14964	18705
<b>Area in which hedgerows have been integrated in production systems (Hectare(Ha))</b>					
Jan/2024	Jan/2025	Jan/2026	Jan/2027	Jan/2028	Jan/2029
0.00	2446	3669	3669	2446	12,230
<b>Water harvesting structures installed (Number)</b>					
Jan/2024	Jan/2025	Jan/2026	Jan/2027	Jan/2028	Jan/2029
0.00	545.80	1091.6	1637.4	2183.2	2,729.00
<b>Fence constructed along the new demarcated park boundary (Kilometers)</b>					
Jan/2024	Jan/2026	Jan/2027	Jan/2028	Jan/2029	Jan/2030
0.00	0	0	0	7	14
<b>Ecological restoration plans prepared (Number)</b>					
Jan/2024	Jan/2025	Jan/2026	Jan/2027	Jan/2028	Jan/2029
0.00	1	1	1	1	2
<b>Areas under afforestation and reforestation (Hectare(Ha))</b>					
Jan/2024	Jan/2025	Jan/2026	Jan/2027	Jan/2028	Jan/2029
0.00	187	374	561	748	935
<b>People benefiting from income generating activities in project intervention areas (Number) (Number)</b>					
Jan/2024	Jan/2025	Jan/2026	Jan/2027	Jan/2028	Jan/2029
0	3600	7200	12600	16200	18000
<b>People benefiting income generating activities in project intervention areas, females (Percentage) (Percentage)</b>					
Jan/2024	Jan/2025	Jan/2026	Jan/2027	Jan/2028	Jan/2029
0	50	50	50	50	50
<b>Women who hold leadership positions in catchment management committees (Percentage)</b>					
Jan/2024	Jan/2025	Jan/2026	Jan/2027	Jan/2029	Jan/2029
0	30	30	30	30	30
<b>Area of wetlands under restoration (Hectare(Ha))</b>					
Jan/2024	Jan/2025	Jan/2026	Jan/2027	Jan/2027	Jan/2028
0	0	0	0	12	24
<b>Area of river and wetland buffer zones under restoration (Hectare(Ha))</b>					
Jan/2024	Jan/2025	Jan/2026	Jan/2027	Jan/2028	Jan/2029
0	0	114	343	514	572
<b>Area in which agro-forestry has been integrated in productive systems (Hectare(Ha))</b>					
Jan/2024	Jan/2025	Jan/2026	Jan/2027	Jan/2028	Jan/2029
0.00	358.00	1,074.00	2,149.00	3,223.00	3,581



Proportion of native tree seedlings integrated into sustainable land management activities (Percentage)					
Jan/2024	Jan/2025	Jan/2026	Jan/2027	Jan/2028	Jan/2029
0	20	20	20	20	20
Component 3: VNP expansion and livelihood restoration					
People benefiting from diversified livelihood restoration under the project (Number)					
Jan/2024	Jan/2025	Jan/2026	Jan/2027	Jan/2028	Jan/2029
0	700	1300	1500	1700	1700
Eligible Households moving to Green Village (Percentage)					
Jan/2024	Jan/2025	Jan/2026	Jan/2027	Jan/2028	Jan/2029
0	0	100	100	100	100
People benefiting from livelihood diversification and income generating activities under component 3, females (Percentage)					
Jan/2024	Jan/2025	Jan/2026	Jan/2027	Jan/2028	Jan/2029
0	50	50	50	50	50
Component 4: Project management, monitoring and evaluation, and capacity building					
Percentage of beneficiaries satisfied with the participatory process and level of engagement in the project (Percentage)					
Jan/2024	Jan/2025	Jan/2026	Jan/2027	Jan/2028	Jan/2029
0	50	60	70	80	85
➤Percentage of female beneficiaries satisfied with the participatory process and level of engagement in the project (Percentage)					
Jan/2024	Jan/2025	Jan/2026	Jan/2027	Jan/2028	Jan/2029
0	50	60	70	80	85
Component 5: Contingency Emergency Response Component					

**Monitoring & Evaluation Plan: PDO Indicators by PDO Outcomes**

<b>Direct project beneficiaries</b>	
<b>Direct project beneficiaries (Number)</b>	
Description	This indicator measures the number of people directly benefiting from the project. People who benefit from more than one intervention, such as terracing and livelihood support, will be counted only once. The maximum number are those benefiting from the establishment of the FEWS.
Frequency	Continuous
Data source	Rwanda Population and Housing census
Methodology for Data Collection	The National Institute of Statistics Rwanda carries out population and housing censuses every ten years.
Responsibility for Data Collection	MoE
<b>Direct project beneficiaries, female (Percentage)</b>	
Description	This indicator measures the number of women directly benefiting under the project, as above.
Frequency	Continuous
Data source	Same as above, with the percentage of women in the project area coming from the census or socio-economic surveys.
Methodology for Data Collection	Same as above
Responsibility for Data Collection	Same as above
<b>People benefiting from reduced losses and damage from flooding</b>	
<b>People benefiting under the project from reduced losses and damage from flooding (Number)</b>	
Description	This indicator measures the number People benefiting under the project from reduced losses and damage from flooding.
Frequency	Continuous
Data source	Data from the RWB showing progress with physical interventions, with the percentage of women in the
Methodology for Data Collection	The RWB will collect the data from supervising engineers monitoring works.
Responsibility for Data Collection	The RWB will collect the data continuously, and report on it in the quarterly progress reports.
<b>People benefiting under the project from reduced losses and damage from flooding, female (Percentage)</b>	
Description	This indicator measures the number of people benefiting under the project from reduced losses and damage from flooding, and the percentage female.
Frequency	Same as above
Data source	Same as above
Methodology for Data Collection	Same as above
Responsibility for Data Collection	Same as above
<b>Land area benefiting from strengthened land management</b>	
<b>Terrestrial protected areas under improved management effectiveness (Hectare (Ha))</b>	
Description	This is a GEF indicator and refers to the to the number of hectares of protected area whose management has been improved. The emphasis here is on the VNP expansion area where active restoration actions will seek to enhance biodiversity values. IDA = 307.5 ha; PROGREEN= 425 ha. This indicator will be used to report on the PROGREEN indicator "Area of conservation landscapes under sustainable use (ha)"
Frequency	Annual
Data source	GIS files showing the extent of park expansion zone under active restoration.



Methodology for Data Collection	Progress to be monitored and validated in relation to restoration plan.
Responsibility for Data Collection	REMA
<b>Area of landscapes under sustainable land management in production systems (Hectare (Ha))</b>	
Description	<p>This is a GEF indicator which captures the landscape area that is in production (e.g., agriculture, rangeland, and forests) and whose soil, air, and water are managed in a sustainable manner<sup>20</sup>. IDA = 33,570 ha; PROGREEN= 3,566 ha. This indicator will be used to report on the PROGREEN indicator “Area of production landscapes under sustainable use (ha)”</p> <p>For the purposes of this project, this will include a wide variety of sustainable land management practices implemented under Component 2 of the project. This includes, but is not limited to:</p> <ul style="list-style-type: none"> <li>• Hedgerows</li> <li>• Afforestation and reforestation</li> <li>• Agroforestry</li> <li>• Gully rehabilitation</li> <li>• Contour bank and bench terraces</li> <li>• Riparian and wetland buffer zones</li> <li>• Supplementary measures (e.g. bamboo to close gullies, grassed waterways &amp; waterway infrastructure)</li> </ul>
Frequency	Annual
Data source	GIS files showing the extent of the land under different sustainable land management practices; biannual progress reports; JISM
Methodology for Data Collection	Sourced and consolidated from micro-catchment plans and validated through GIS mapping and ground-truthing (GPS and land survey).
Responsibility for Data Collection	RWB and REMA
<b>Land area benefiting from reduced risks of flooding (Hectare (Ha))</b>	
Description	This indicator measures the land area benefiting from reduced risks of flooding.
Frequency	Bi- Annual
Data source	Data from the RWB showing progress with physical interventions
Methodology for Data Collection	The RWB will collect the data from supervising engineers monitoring works.
Responsibility for Data Collection	The RWB will collect the data continuously, and report on it in the quarterly progress reports.
<b>Cumulative impact on net greenhouse gas emissions (Metric tonnes CO2-eq) (Number)</b>	
Description	This indicator measures the tons of carbon/hectare resulting from the activities of the project to plant vegetation. The target by financing source is as follows: IDA =201,034.1metric tonnes CO2-eq.; PROGREEN = 50,258.53metric tonnes CO2-eq.
Frequency	Annual
Data source	RWB and REMA to report on progress with planting.
Methodology for Data Collection	<p>The targets are based on the 2023 EX-ACT analysis of impact on GHG emissions:</p> <ul style="list-style-type: none"> <li>• Mitigation potential = 2,764,219 tonne CO2-equivalent. Area included in analysis = 41,875 hectare. Years included in analysis = 30</li> <li>• Therefore, total emission reduction = <ul style="list-style-type: none"> <li>◦ 2.8 million tonne CO2-equivalent</li> <li>◦ 66 tonne CO2-equivalent per hectare</li> <li>◦ 2.2 tonne CO2-equivalent per hectare per year</li> </ul> </li> </ul>

<sup>20</sup> CEISIN (Center for International Earth Science Information Network). 1997–2018. “What Is Sustainable Land Management?” New York. Earth Institute at Columbia University. URL: [www.ciesin.org/lw-kmn/slm/slm.html](http://www.ciesin.org/lw-kmn/slm/slm.html).



	If "carbon" is used then multiply "CO2-equivalent" by 0.27 (12/44) to obtain "Carbon" estimate.
Responsibility for Data Collection	The MoE/RWB will report on progress every two years
<b>People benefiting from improved livelihoods</b>	
<b>People benefiting from improved livelihoods (Number), disaggregated female</b>	
Description	This indicator measures the number of people benefiting from livelihood support under components 2 and 3 of the project. This covers income generating activities, employment and as a result of improved agricultural potential etc. IDA = 88,880 people; PROGREEN= 315,120 people.
Frequency	Bi-Annual
Data source	REMA, RWB and the RDB will maintain a database with the recipients of support and the nature of support.
Methodology for Data Collection	REMA, RWB and the RDB will enter information into the database and provide the information to the MoE quarterly.
Responsibility for Data Collection	The MoE will collect the data quarterly, and report on it annually in progress reports.
<b>People benefiting from improved livelihoods, female (percentage)</b>	
Description	This indicator measures the percentage of women benefiting from livelihood support under components 2 and 3 of the project. This covers income generating activities, employment and as a result of improved agricultural potential etc. IDA = 88,880 people; PROGREEN= 315,120 people.
Frequency	Bi-Annual
Data source	REMA, RWB and the RDB will maintain a database with the recipients of support and the nature of support.
Methodology for Data Collection	REMA, RWB and the RDB will enter information into the database and provide the information to the MoE quarterly.
Responsibility for Data Collection	The MoE will collect the data quarterly, and report on it annually in progress reports.

## Monitoring & Evaluation Plan: Intermediate Results Indicators by Components

<b>Component 1: Flood risk management</b>	
<b>Priority catchments with flood early warning system established and preparedness activities conducted (Number)</b>	
Description	This indicator measures the number (9) of priority catchments in which the FEWS is established and the preparedness activities have been conducted.
Frequency	Annual
Data source	Self-reporting by Meteo Rwanda
Methodology for Data Collection	Meteo Rwanda will maintain documents of each preparedness activity it undertakes.
Responsibility for Data Collection	Meteo Rwanda to provide the information to the MoE.
<b>Surface area covered by NBS features as a proportion of the footprint area of the civil works for flood mitigation.</b>	
Description	This indicator measures the surface area covered by NBS features as a proportion of the footprint area of the civil works. The footprint will include all features controlling flood flows and associated areas (e.g. interception drains, access roads, maintenance and operating areas, etc.) included in the design drawings.
Frequency	Bi-annual
Data source	The RWB will collect the data continuously from supervising engineers monitoring works, and report to the MoE quarterly.
Methodology for Data Collection	Supervising engineers report on progress with implementation of contracts.
Responsibility for Data Collection	RWB to monitor implementation of works and report on the indicator to the MoE.
<b>Length of gullies and/or embankment improved or constructed (Kilometers)</b>	



Description	This indicator measures the length of gullies and embankments improved or constructed including small gullies under catchment restoration (component 2)
Frequency	Semi-annual
Data source	The RWB will collect the data continuously from supervising engineers monitoring works, and report to the MoE quarterly.
Methodology for Data Collection	Supervising engineers report on progress with implementation of contracts.
Responsibility for Data Collection	RWB to monitor implementation of works and report on the indicator to the MoE.
<b>Capacity of detention facilities for flood attenuation improved or constructed (Cubic Meter(m3))</b>	
Description	This indicator measures the capacity of detention facilities improved or constructed under the project.
Frequency	Semi-annual
Data source	The RWB will collect the data continuously from supervising engineers monitoring works, and report to the MoE quarterly.
Methodology for Data Collection	Supervising engineers report on progress with implementation of contracts.
Responsibility for Data Collection	RWB to monitor implementation of works and report on the indicator to the MoE.
<b>Component 2: Landscape restoration and catchment management</b>	
<b>Area of erosion gullies and landslides targeted through catchment and landscape restoration efforts</b>	
Description	This indicator measures the area of gullies and landslides in which active restoration work has been undertaken to mitigate erosion risks as part of catchment and landscape management activities. This will include a combination of grey and green measures, tailored according to the local context. The target by financing source is as follows: IDA = 421 Ha; PROGREEN = 45 Ha.
Data source	GIS files showing the extent of gullies rehabilitation as part of the catchment and landscape restoration actions.
Methodology for Data Collection	Sourced and consolidated from micro-catchment plans and validated through GIS mapping and ground-truthing.
Responsibility for Data Collection	RWB
<b>Households adopting sustainable and climate-smart/resilient land management practices (Number)</b>	
Description	This indicator measures the number of households adopting sustainable and climate smart/resilient land management practices. Such practices include constructing terracing, adopting agro-forestry, and planting hedgerows, and the like. IDA = 42,050; PROGREEN = 59,450.
Frequency	Bi-Annual
Data source	RWB to report on the households adopting improved management practices.
Methodology for Data Collection	Periodic visits to households, with the RWB reporting progress to the MoE.
Responsibility for Data Collection	The MoE will report on progress in the quarterly progress reports.
<b>Land under contour bank and bench terraces (Hectare(Ha))</b>	
Description	This indicator measures the extent of productive land in which either contour bank or bench terracing has been introduced as a result of the project. The target by financing source is as follows: IDA = 16,905 ha; PROGREEN = 1,795 ha.
Frequency	Annual
Data source	GIS files showing the extent of land under contour bank or bench terraces as a result of project activities.
Methodology for Data Collection	Sourced and consolidated from micro-catchment plans and validated through GIS mapping and ground-truthing (GPS and land survey).
Responsibility for Data Collection	RWB
<b>Area in which hedgerows have been integrated in production systems (Hectare (Ha))</b>	
Description	This indicator measures the area of productive systems in which hedgerows have been integrated as a measure to



	reduce soil loss and enhance agricultural productivity. The target by financing source is as follows: IDA = 11,056 ha; PROGREEN=1,174 ha.
Frequency	Annual
Data source	GIS files showing the extent of productive systems in which hedgerows have been established.
Methodology for Data Collection	Sourced and consolidated from micro-catchment plans and validated through GIS mapping and ground-truthing (GPS and Land Surveys).
Responsibility for Data Collection	RWB
<b>Water harvesting structures installed (Number)</b>	
Description	This indicator measures the number of houses for which water harvesting structures have been installed. The target by financing source is as follows: IDA = 2,467; PROGREEN = 262.
Frequency	Bi-Annual
Data source	Micro-catchment plans, GIS Mapping, Field Surveys
Methodology for Data Collection	GPS records from installed infrastructure.
Responsibility for Data Collection	RWB
<b>Fence constructed along the new demarcated park boundary (Kilometers)</b>	
Description	This indicator measures the length of the fence to be constructed along the park boundary. The target by financing source is as follows: IDA = 5.2 kilometers; PROGREEN = 8.8 kilometers.
Frequency	Annual
Data source	GIS Mapping indicating the extent of fencing installed.
Methodology for Data Collection	GIS Mapping and ground-truthing
Responsibility for Data Collection	REMA
<b>Ecological restoration plans prepared (Number)</b>	
Description	This indicator measures the number of ecological restoration plans prepared. This includes an ecological restoration plan for the VCRP (includes VNP expansion and other priority sites) and the preparation of a management plan for the VNP. The target by financing source is as follows: IDA = 1 PROGREEN = 1. This indicator reports on the PROGREEN indicators "Countries with policy and institutional framework improved (number)"
Frequency	Semi-annual
Data source	Documents produced
Methodology for Data Collection	Storage of plans finalized and endorsed by the GoR.
Responsibility for Data Collection	REMA
<b>Areas under afforestation and reforestation (Hectare (Ha))</b>	
Description	This indicator measures the extent of newly established and reforested areas as a result of project activities. Such activities include the provision and establishment of improved seedlings, alien plant control and implementation of complimentary sustainable soil management practices. The target by financing source is as follows: IDA = 3,237 ha; PROGREEN = 344 ha.
Frequency	Annual
Data source	GIS files showing the extent of afforested and reforested areas established under the project.
Methodology for Data Collection	Sourced and consolidated from micro-catchment plans and validated through GIS mapping and ground-truthing (GPS and land survey).
Responsibility for Data Collection	REMA and RWB
<b>People benefiting from income generating activities in project intervention areas (Number), percentage female</b>	



Description	This indicator measures the number of people benefiting from IGAs under component 2 of the project. It is calculated for cooperatives/collectives based on the number of people who participate in the cooperative and for households on the number of household members. The target by financing source is as follows: IDA = 18,560 people; PROGREEN=381,440 people. This indicator reports on the PROGREEN indicator "People in targeted landscapes with increased benefits (number, of which women)"
Frequency	Bi-Annual
Data source	REMA will maintain a database with the recipients of support and the nature of support under IGAs
Methodology for Data Collection	REMA will enter information into the database and provide the information to the MoE quarterly.
Responsibility for Data Collection	The MoE will report on the value of the indicator in the quarterly progress reports.
<b>Women who hold leadership positions in catchment management committees (Percentage)</b>	
Description	This indicator measures the percentage of women holding leadership management positions in catchment management structures
Frequency	Bi-annual
Data source	Catchment management structures to self-report.
Methodology for Data Collection	Minutes of meetings
Responsibility for Data Collection	REMA to report the results to the MoE, which will present them in the quarterly progress reports.
<b>Area of wetlands under restoration (Hectare (Ha))</b>	
Description	This GEF indicator captures the area of wetlands, that is undergoing ecological restoration. The target by financing source is as follows: IDA = 12 ha; PROGREEN = 12 ha. This indicator reports on the PROGREEN indicator "Land area under restoration (ha)"
Frequency	Annual
Data source	GIS Mapping indicating the extent of wetland areas where best practices for ecological restoration are being applied.
Methodology for Data Collection	GIS Mapping and ground-truthing
Responsibility for Data Collection	REMA
<b>Area in which agro-forestry has been integrated in productive systems (Hectare (Ha))</b>	
Description	This indicator measures the area of productive systems in which agroforestry has been integrated as a measure to reduce soil loss and enhance agricultural productivity. The target by financing source is as follows: IDA = 200 ha; PROGREEN = 277 ha. This indicator reports on the PROGREEN indicator "Farmers adopting agroecological agricultural practices (number) (disaggregated by poor)"
Frequency	Bi-annual
Data source	GIS files showing the extent of productive systems in which agroforestry has been integrated as a result of the project.
Methodology for Data Collection	Sourced and consolidated from micro-catchment plans and validated through GIS mapping and ground-truthing.
Responsibility for Data Collection	RWB
<b>Area of river and wetland buffer zones under restoration (Hectare (Ha))</b>	
Description	This indicator measures the area of buffer zone along wetlands and rivers for which restoration actions have been effectively implemented. The target by financing source is as follows: IDA = 242 ha; PROGREEN = 330 ha. This indicator also reports on the PROGREEN indicator "Land area under restoration (ha)"
Frequency	Bi-annual
Data source	Micro-catchment plans, GIS Mapping, Field Surveys
Methodology for Data Collection	Micro-catchment plans validated through GIS mapping and ground-truthing (GPS and land survey).
Responsibility for Data	REMA



Collection	
<b>Proportion of native tree seedlings integrated into sustainable land management activities (Percentage)</b>	
Description	This indicator measures the proportion of native tree species introduced as part of catchment and landscape restoration efforts.
Frequency	Bi-annual
Data source	Database of receipts of seedlings purchased from suppliers
Methodology for Data Collection	Consolidation of receipts from seedling suppliers in Excel file. Data disaggregated according to "native": and "non-native" species and consolidated across project activities.
Responsibility for Data Collection	RWB and REMA
<b>Component 3: VNP expansion and livelihood restoration</b>	
<b>Households moving to the Green Village (Percent)</b>	
Description	This indicator measures the percentage of eligible households moving to the Green Village.
Frequency	Bi-Annual
Data source	Database maintained by the RDB of the households moving to the green village.
Methodology for Data Collection	The RDB will maintain a database of the households moving to the Green Village and provide the information to the MoE quarterly.
Responsibility for Data Collection	The MoE will report on the value of the indicator in the quarterly progress reports.
<b>People benefiting from livelihood diversification and income generating activities under the project (Number)</b>	
Description	This indicator measures the number of people benefiting from livelihood support under component 3 of the project.
Frequency	Bi-Annual.
Data source	The RDB will maintain a database with the recipients of support and the nature of support.
Methodology for Data Collection	The RDB will enter information into the database and provide the information to the MoE quarterly.
Responsibility for Data Collection	The MoE will report on the value of the indicator in the quarterly progress reports.
<b>People benefiting from livelihood diversification and income generating activities under component 3, females (Percentage)</b>	
Description	This indicator measures the number of people benefiting from livelihood support under component 3 of the project. As livelihood support will be offered to households, the people benefiting are all members of the households, which average 4.3 members.
Frequency	Bi-Annual.
Data source	The RDB will maintain a database with the recipients of support and the nature of support.
Methodology for Data Collection	The RDB will enter information into the database and provide the information to the MoE quarterly.
Responsibility for Data Collection	The MoE will report on the value of the indicator in the quarterly progress reports.
<b>Component 4: Project management, monitoring and evaluation, and capacity building</b>	
<b>Percentage of beneficiaries satisfied with the participatory process and level of engagement in the project, disaggregated by gender</b>	
Description	This indicator aims to report on the effectiveness of citizen engagement processes in the project. It will measure the level of satisfaction of project beneficiaries to the activities intended to engage them in project design, implementation and monitoring. The planned project surveys will be extended to obtain feedback from community members on their satisfaction with: (i) access to project information and awareness of decisions taken, (ii) their opportunities to provide feedback and participate in the dialogue, and (iii) the responsiveness of the implementing entity to feedback provided.
Frequency	Bi-Annual.
Data source	Database with participants of the consultations
Methodology for Data Collection	Feedback surveys for people participating in the consultations
Responsibility for Data Collection	MoE, RWB, REMA, Meteo Rwanda, and RDB to collect information on the participants of consultations in the areas under their responsibility. MoE to compile the results and present them in the quarterly progress reports.



## ANNEX 1: IMPLEMENTATION ARRANGEMENTS AND SUPPORT PLAN

### (I) Institutional and Implementation Arrangements

118. **The project involves a broad range of implementing agencies with overlapping mandates.** MoE is the coordinating institution of Environment and Natural Resources Sector in Rwanda. RWB is mandated with developing and implementing flood mitigation and catchment restoration measures. REMA, RDB and RFA are also involved in restoration initiatives and in fulfilling international commitments such as the African Forest Landscape Restoration Initiative (AFR100) and Conservation on Biological Diversity, among others. Meteo Rwanda leads meteorological data collection, processing forecasting and dissemination of information, including that related to flood risks. MINEMA leads on community preparedness and response to hazards. The design of project has been aligned with existing mandates as far as possible, with lead and support agencies identified for each sub-component (Table 2).

**Table 2. Roles and Responsibilities of the Implementing Agencies**

		MoE	RWB	REMA	RDB	METEO	MINEMA	RFA
1. Flood Risk Management	1.1: Flood risk reduction investments		L	T				
	1.2: Flood early warning system and community -level flood preparedness.		T			L	T	
2: Landscape restoration and catchment management	2.1: Integrated catchment and landscape restoration		L	T				T
	2.2: Ecological restoration of priority conservation areas			L				
	2.3: Livelihoods development		T	L				T
3: VNP expansion and livelihood diversification	3.1: Integrated climate resilient green settlements, VNP expansion, and model smart green village.			T	L			
	3.2: Livelihood diversification and income generation activities			T	L			
4: Project management, monitoring and evaluation, and capacity building		L	T	T	T		T	T

ROLE

L Lead

T Technical Support

119. **The MoE, through its PCU, will lead project implementation.** It will work in close collaboration with the PIUs of the other agencies involved in implementation: the RWB, Meteo Rwanda, REMA, and the RDB. The PCU and PIUs of each institution will be responsible for the procurement, FM, contract management, and overall management of the activities for which they are responsible. They will work in close collaboration with the RFA, the RHA, and district authorities' and local governments in intervention areas.

120. **To fulfill its main responsibilities, the MoE will use existing institutional mechanisms to coordinate all activities.** These mechanisms comprise the National Steering Committee, National Technical Advisory Committee, District Project Coordination Committee, Community Coordination Committee. The National Steering Committee, chaired by the Permanent Secretary for the MoE. The composition of the National Steering Committee is detailed in the PIM. The Steering Committee will be responsible for (a) establishing policy guidelines and providing overall oversight of project implementation; (b) approving the annual national and districts work plans and budgets and the annual Procurement Plan; and (c) reviewing the annual implementation performance report to be prepared by the implementing agencies, compiled



by the MoE, and overseeing the implementation of corrective actions, if needed.

**121. The RWB will be responsible for the day-to-day management of flood risk management and catchment restoration activities, under subcomponents 1.1 and, 1.2 and 2.1.** Responsibilities include: (a) preparation of consolidated annual work plans and progress reports, (b) monitoring and supervising overall implementation progress and evaluating project impacts, (c) financial administration and (d) procurement. RWB's SPIU will be strengthened to allow it to effectively handle project activities and to provide administrative support to the Project Steering Committee and the Technical Advisory Committee. The RWB will work in close collaboration with various ministries with an interest in the project, such as the MINALOC, MINECOFIN, MINEMA, the Ministry of Agriculture and Animal Resources, the RFA, the Rwanda Agriculture and Animal Resources Board, and others.

**122. Meteo Rwanda will be responsible for implementing the establishment of the FEWS and weather-forecasting initiatives, under subcomponent 1.2, in close coordination with RWB and MINEMA and with local authorities, such as district offices.** Meteo Rwanda will also perform procurement for activities to be implemented by MINEMA whereas RWB will perform procurement for some of the activities under component 1.2 (i.e. Hydrostation) alongside activities under component 1.1. Effective implementation will require close collaboration and coordination between these government institutions through MoUs. This subcomponent will build upon the World Meteorological Organization (WMO) checklist on establishment of FEWS. Meteo Rwanda will ensure that inputs from MINEMA are taken into account for tender and procurement documents on activities related to evacuation/response equipment, public awareness campaign and community education system for local warning as detailed in the list of activities under every institution contributing to FEWS and the MoUs.

**123. REMA will be responsible for implementing component 2.2 (ecological restoration of priority conservation areas) and component 2.3 (livelihood development) of people affected by the catchment and ecological restoration activities under component 2.** It will leverage other Bank-funded projects in Rwanda involved with livelihood development to the extent possible.

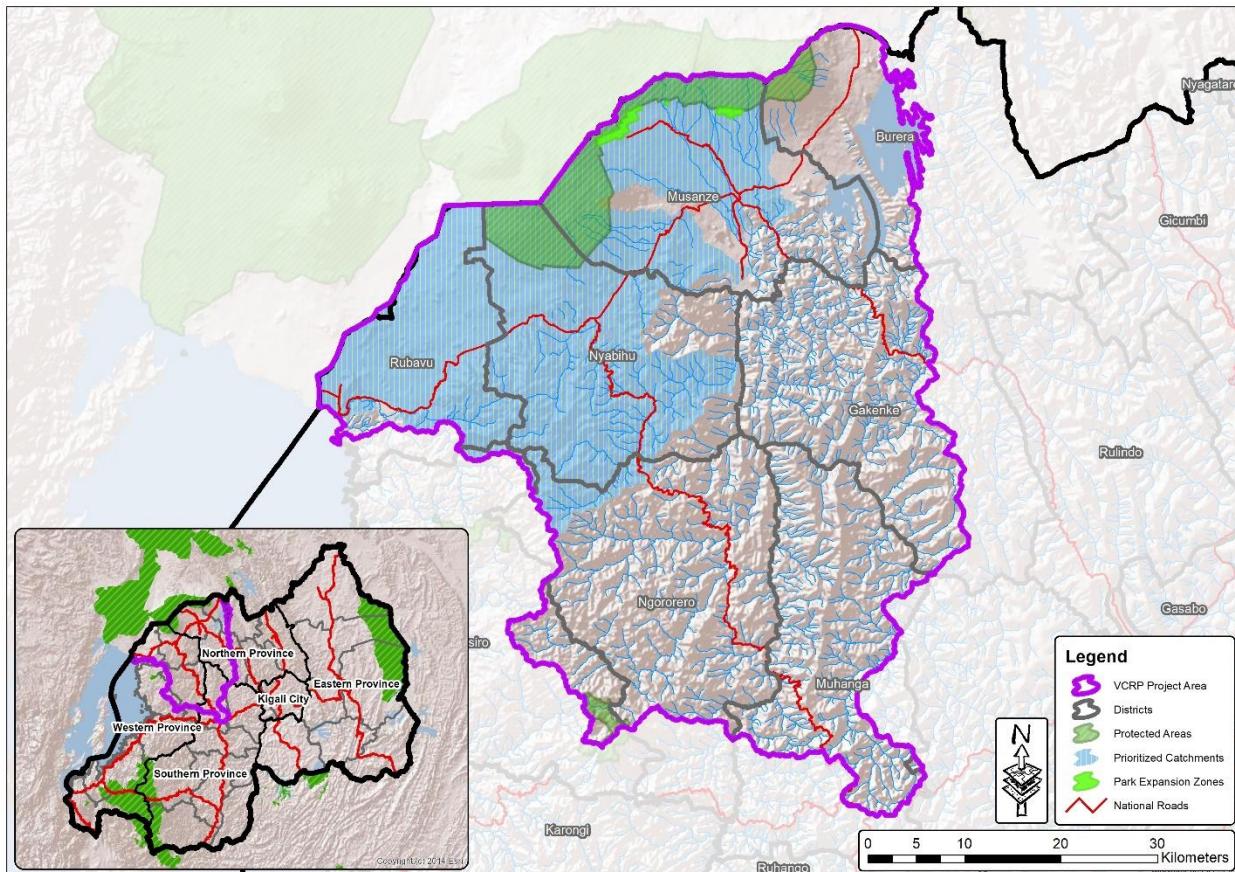
**124. The RDB will be responsible for implementing the Smart Green Village and livelihood improvements for people affected by the park expansion (all under component 3).** It will work in close collaboration with other agencies, such as the Ministry of Agriculture, RAB, NAEB, MINICOM, and RHA, to ensure that appropriate support is offered to the affected people.

**125. The RFA will provide technical expertise and play a central role in nursery development.** The RFA has a seed center in Huye, and its expertise will be used to improve the productivity and climate-resilience of the planting material—both natives and exotics—used in woodlot establishment or replanting as part of catchment and landscape restoration. The RFA will also oversee public forest management outside the protected areas.

**126. Beneficiary communities will be involved in executing most activities aimed at reducing the risk of flooding and restoring catchments and landscapes.** To ensure strong community engagement, the project will support the establishment and strengthening of existing community structures. The DPCCs will be established to coordinate activities across project intervention areas. They will comprise technical experts who will build the capacity of communities to implement the works aimed at reducing flood risk and restoring catchments and landscapes. The project will also support community facilitators.



Figure 1: Catchments selected for Phase 1 investments.



Map showing broader volcanoes and specific project intervention regions.

Table 3: Types of flood risk reduction interventions to be supported under the project.

Purpose	Types of interventions	NBS options
Flood attenuation	Constructing detention ponds in upstream locations	Utilize natural features in the landscape (wetlands, geological features, floodplains, sections with slack gradients, and so on) with structural interventions (earth berms, gabion, or rock weirs, and so on) to create flood storage. Natural habitats may be retained or restored in these systems.
	Constructing large off-channel detention ponds with dykes and flood detention ponds in lower areas	These will be limited to river sections with wide floodplain areas, typically with wetland features, which will detain flood waters with the construction of dykes (levees) and flood detention ponds along the riverbank. Wetland features are retained.
Conveyance and flood protection	Creating new lined and natural channels or upgrading the	In both cases, adapt to landscape and land use conditions as much as possible by using single and multi-stage channels in sequence to provide multi-use functionality of the land that will allow community recreation



	capacity of existing channels	and agricultural production. Select vegetation cover to enhance the attenuation potential of the channel.
	Stabilizing and enhancing of gully/ river banks and beds	Cut back eroded gully banks to increase the width of the channel. This will lower flow velocities and allow bank stabilization with grass rather than bamboo. Apply in combination with in-channel check-dams in steeper gullies.
	Construction/ upgrading bridges, culverts, road drainage and streams to increase conveyance	In smaller gullies, use causeways instead of culverts. These have lower environmental impact, are low cost, and are easy to maintain.
Sediment management	Mitigating clogging of caves by sediments	Create detention capacity by constructing a collar around the cave inlet as a form of weir. The sediment trap zone created by the detention area may be rehabilitated as a wetland system, or it may be suitable for grazing or other agricultural production.
	Constructing sediment traps	Apply the same approach described above for detention ponds. These ponds should be designed to provide both sediment trapping and flood storage capacity.
	Dredging in selected rivers	NBS potential is limited in the dredging zones, as they will remain disturbed environments until the upstream sediment export is stabilized. Thereafter, natural rehabilitation may be allowed to take place.

## (II) Financial Management

127. An FM assessment has been carried out for the project in accordance with the World Bank policy and directives on Investment Project Financing (IPF). The assessment was carried out on the MoE, the RDB, Meteo Rwanda, REMA and the RWB during project preparation to determine whether the implementing entities have acceptable FM arrangements, which will ensure that (a) funds are used for the intended purposes in an effective, efficient, and economical way; (b) financial reports will be prepared in a reliable, accurate and timely manner; and (c) project assets will be appropriately safeguarded.

### Country PFM

128. Rwanda's PFM system is anchored in solid legal frameworks including the 2003 Rwanda Constitution, revised on December 24, 2015, Articles 162 to 166; the Organic Law<sup>21</sup> No 002/2022, OL of December 12<sup>th</sup> 2022 on Public Finance Management that establishes principles and modalities for sound management of State finances and property; the Ministerial Order<sup>22</sup> No 001/16/10/TC, dated January 26, 2016, on financial regulations that regulates the structure and functioning of PFM, the preparation and implementation of the state budget, the accounting and reporting of all financial transactions, and financial control; government Accounting Policies Manual and Articles 165–166 of the Rwanda revised Constitution; and Law No 79/2013 of September 11, 2013, which determines the mission, organization, and functioning

<sup>21</sup> The Organic Law applies to all budget entities at the central and decentralized levels and sets up the fundamental public finance management principles of comprehensiveness, transparency, accountability, uniformity, consolidation, and gender balance in public state finance management.

<sup>22</sup> The Order applies to the management of public finances of all public entities, including the central government, decentralized entities, public institutions, and subsidiary entities.



of the Office of the Auditor General of State finances.

129. **The public financial management system had gone through a series of reforms since 2008**, guided by the PFM strategy plan 2008–2012, the PFM SSP 2013–2018 and the 2018–2023 PFM strategy. At the national level, progress has been made in budget planning, expenditure efficiency, enhancement of IFMIS for budget monitoring and financial reporting, enhancement of the internal audit function, external audit coverage, and financial reporting. The Public Expenditure and Financial Accountability (PEFA) Assessment 2022 confirmed these strengths. The project's arrangements will rely on the existing PFM system at the central and decentralized levels, and on the individual FM systems in each of the implementing agencies with some amendments to consider the project's and the World Bank's FM requirements. The detailed modalities will be presented in the PIM.

#### **FM Arrangements of the Project**

130. **Planning and budgeting.** The MoE, the RDB, Meteo Rwanda, REMA, and the RWB shall follow the Government's planning and budgeting procedures. The project budgets shall also be presented to the National Steering Committee for approval and included in the overall Country budgets approved by the Parliament. The approved budgets will be monitored on a quarterly basis by the preparation and analysis of budget execution reports including (a) budget for the period and for the year, (b) actual expenditure for the period and to date, (c) future expenditure commitments, and (d) balance of period budget remaining (actual expenditure and commitments together compared to period budget). The combined annual workplan and budget that clearly show planned activities under each component and implementing entity shall be submitted to the World Bank for no-objection.

131. **Accounting and staffing.** The project financial records at all the implementing agencies shall be maintained using the Government Integrated Financial Management Information and System, which shall be modified to accommodate project financial reporting requirements for the project to enable clear reporting for all the components. There are well established SPIUs for MoE, RDB, REMA and RWB which will also manage the project while Meteo Rwanda does not have any SPIU hence would establish a PIU. The MoE has a budget and FM expert, and there is a need to hire an FM specialist for the project. In addition, there is a need to hire or appoint a dedicated FM specialist at each implementing agency and designated FM staff at each of participating districts to ensure effective FM oversight, including timely financial reporting. Depending on the need and assessment, additional staff could be recruited to support the project. There will be comprehensive start-up workshop where all implementing entities will be sensitised on financial management requirements for the project to build on capacity on managing World Bank financed operations. Regular training will thereafter be provided on any weakness areas identified during project implementation.

132. **Internal control and internal audit.** All implementing entities are governed by the legal frameworks and manuals **prescribed** above. However, as the project involves multiple implementing entities and various intervention areas under the components, the MoE shall develop a PIM that will reflect the FM arrangements under this project, covering all the implementing agencies and arrangements under each of the components. The PIM will reflect detailed internal control arrangements for the project, including the extent of segregation of functions in payment processing and internal check mechanisms, in addition to payment approval and authorization arrangements. The livelihood manual that will be prepared for the project should also incorporate an FM section to ensure proper management of resources for such activities. To enhance internal control arrangements for the project, the internal audit units in all the implementing agencies will conduct a review of project activities based on the annual risk assessment that the unit conducts and shares the reports to the project management team and to the World Bank during implementation support missions.

133. **Financial reporting.** The project implementing agencies will each prepare and submit through the MoE quarterly



interim financial reports (IFRs) to the World Bank within 45 days after the end of the quarter end. The interim financial reports will be used to monitor project financial progress, including the rate of budget execution and level of disbursements. Similarly, the respective agencies will prepare annual project financial statements, which will be submitted to external auditor within 45 days after the end of the fiscal year and audited financial statements to the World Bank within six months after the end of the fiscal year. Financial reports for each implementing entities holding designated accounts shall at a minimum include sources and uses of funds (revenues and expenditures statement), financial position statement, cash flow statement, budget execution report; Designated Account activity statement for each designated account; notes on accounting policies and appendices.

134. **External audit.** The activities managed by the implementing agencies shall be subject to external audit by the Office of the Auditor General who has been auditing other World Bank funded projects implemented by the Government of Rwanda. The audit reports and management letters for all implementing entities will be submitted to the World Bank by the MoE within six months after the end of the financial year. The audit reports will be publicly disclosed in accordance with the World Bank Access to Information Policy. Upon receipt of the audit reports, each of the implementing agencies will be expected to prepare an action plan to address the audit findings. Follow-up on audit recommendation implementation will be conducted as part of regular World Bank FM supervision missions and quarterly review of audited IFRs.

135. **Funds flow arrangements.** Based on discussions with MINECOFIN and the implementing entities, it was agreed that the project will maintain five segregated Designated Accounts for the MoE, the RDB, Meteo Rwanda, REMA, and the RWB; which shall be maintained at the National Bank of Rwanda and shall be denominated in US dollars. Where applicable **each** of the six districts benefiting from the project shall maintain a Project Account at National Bank of Rwanda denominated in Rwanda francs that shall receive funds from any of the implementing agencies. Disbursements will follow the transactions-based Statement of Expenditure method. However, the project may also use direct payments, advances to the Designated Account, reimbursement and special commitments depending on the case. Upon effectiveness, the project will submit to the World Bank a request for withdrawal of funds based on the DA ceiling to be agreed and reflected on the Disbursement and Financial Information Letter (DFIL). Based on the request, the World Bank will transfer the proceeds of the loan to the various Designated Accounts up on their request. Subsequent replenishment of the Designated Accounts will be based on the submission of application of withdrawal accompanied by the Statement of Expenditure. The detailed modalities will be presented in the PIM and the DFIL. The project has CERC component too and the most effective funds flow mechanism for CERC activities would be assessed and determined should this component be activated. There will be separate designated accounts for other financiers' funds which will not be channeled through the World Bank.

### FM Risk and Action Plan

136. **The FM risk of the project is rated Substantial.** The following key risks identified are (a) the complex nature of the project this is giving rise to potential accountability challenges in ensuring that funds have been used for intended purposes; (b) knowledge gaps of the MoE, Meteo Rwanda and the RWB on World Bank FM procedures, because they have not previously implemented a Bank-financed project; (c) disbursement delays in funds reaching the final beneficiaries; and ; (d) there are multiple source of financing namely IDA credit, PROGREEN MDTF grant, EIB Loan. Further additional funds also expected from Nordic development, GEF and Climate Investment Funds which will have multiple designated accounts and complexities in accounting of funds; (e) the eight implementing districts have activities under REMA and RWB which can lead to mix-up in financial reporting for the funds received from different sources and (f) inadequate and delayed implementation of external and internal audit recommendations.



137. **Several mitigating measures have been incorporated in the project.** These are: (a) the MoE to develop detailed FM guidelines for the project as part of the PIM and livelihoods manual; (b) the MoE, RDB, Meteo, REMA, and the RWB to recruit or appoint a dedicated FM specialist for this project to be part of the PIUs with terms of reference to be agreed with the World Bank; (c) the World Bank to provide support and training on Bank FM and disbursement procedures to project FM staff before effectiveness and as needed during project implementation, (d) The AWPB will be prepared with adequate details showing financiers and proportion of financing for each activity, to guide finance teams in expenditure allocation; (e) Rwanda IFMIS currently has portal for projects financial reporting which is capable of segregating financial reports by different financiers; categories; components. There will be liaison with MINECOFIN IFMIS unit to ensure these are mapped correctly and (f) each implementing agency to enroll the project into their respective FM systems. The risk assessment and mitigating measures are presented below. The risk of the project will be monitored regularly throughout implementation and adjusted as needed.

**Table 3: FM Risks and Mitigating Measures**

Risk	Risk Mitigating Measures Incorporated to Project Design	Residual Risk Rating
<b>Inherent risk</b>		<b>Substantial</b>
<b>Country level</b> The country's political environment is deemed stable with ongoing judicial and legislative reforms. Governance challenges include retaining adequate accounting and internal audit capacity across government, and weak link between budgeted and actual performance.	Establishment of Medium-Term Expenditure Framework as a basis for government budgeting, adoption of International Public Sector Accounting Standards and implementation of smart Integrated Financial Management Information System. Regular oversight through the Office of the Auditor General, which is deemed independent and effective. Ongoing Bank support on public financial management and accountability.	Moderate
<b>Entity level</b> REMA and the RDB have experience implementing World Bank-financed projects. However, the MoE, Meteo, and RWB do not have experience implementing World Bank-financed projects.	The World Bank to provide support and training on World Bank FM and disbursement procedures to all project staff before effectiveness and as needed during project implementation.	Substantial
<b>Project level</b> There may be challenges executing, monitoring, and coordinating the various complex project activities.	A detailed PIM to be prepared that clarifies roles, responsibilities, and authority of all stakeholders in the project.  Dedicated teams at the MoE, the RDB, Meteo Rwanda, REMA, and the RWB in charge of day-to-day coordination, while the National Steering Committee provides overall oversight.	Substantial
<b>Control Risk</b>		<b>Substantial</b>



<b>Budgeting</b> Unreliable budget forecast and misallocation of expenditure among different financiers	The MoE, the RDB, Meteo Rwanda, REMA, and the RWB to strictly follow national budget procedures and timelines.  Engage all project stakeholders effectively early during the planning and budgeting process (Steering Committee, the MoE, the RDB, Meteo Rwanda, REMA, the RWB, and the World Bank).  Ensure that annual work plans and budgets are in line with the Procurement plan to prevent any delays. The AWPB will be prepared with adequate details showing financiers and proportion of financing for each activity, to guide finance teams in expenditure allocation.	Substantial
<b>Accounting</b> Existing accounting capacity at each of the implementing agencies needs to be enhanced through the recruitment of additional FM staff. Also, complex financial reporting and expenditure allocation as there are multiple sources of funds.	There is currently a budgeting and FM expert at the MoE, and an additional FM specialist shall be recruited. There will also be a need to hire an FM specialist at each implementing agency of the project. Accountant will be designated for districts as needed. The staffing arrangement can be revisited as needed following the Bank's assessment  Enroll the project in the respective FM systems of the implementing agencies.	Substantial
<b>Internal controls and internal audit</b> Due to the complexity of the project, there is a risk of some funds not being used for the intended purpose.  Ineffective audit function due to inadequate coverage of project activities.	A detailed PIM to be prepared that clarifies roles, responsibilities, and authority of all stakeholders in the project.  Each of the implementing agencies' internal audit functions must include the project activities as part of their annual work plans and produce a report based on risk assessment of the project.	Substantial
<b>Funds flow</b> Potential funds flow delays may affect delivery of critical project activities.	Open Designated Accounts denominated in US dollars in National Bank of Rwanda for the MoE, the RDB, Meteo Rwanda, REMA, and the RWB. Open Project accounts denominated in Rwanda francs for each of the six implementing Districts, as needed.  Funds disbursed by the World Bank to the ceiling to the DA which will be spelled out in the DFIL.	Moderate
<b>Financial reporting and monitoring</b> Unreliable interim financial report (IFRs) and delay in submitting the IFRs.	Each implementing agency enrolls the project activities into the Integrated Financial Management Information System and produces reports from thereon.	Substantial



	Monthly management reviews of FM reports should mitigate unreliability of IFRs	
<b>External auditing</b> Delay in submitting the audit report.	The Auditor General should be engaged on time to ensure the audit reviews start early so that reports are delivered on time.	Moderate
<b>Fraud and corruption</b> Risk of fraud and corruption.	Monitor the GRM. Few cases of fraud detected under programs financed by government's own funds and correctives measures have previously been taken.	Moderate
<b>Overall Risk</b>		<b>Substantial</b>

**Table 5: FM Action plan**

No.	Action	Timeline	Responsibility
1	Prepare annual work plan and budget with clarity on components, categories and financiers	Annually, March 31	All implementing entities
2	Prepare FM section of the PIM to detail out internal control processes and roles and responsibilities of entities	Effectiveness condition	MoE with the other implementing entities
3	Recruit one FMS for MoE  For the other implementing entities finalize the recruitment of FMSs and assignment of dedicated accountant at the districts (as needed)  Until recruitment is finalized, each implementing entity to assign a focal finance person for the project at all implementing entities	Part of the Effectiveness condition  Six months after effectiveness  Immediately after project effectiveness	All implementing entities
4	Enroll the project into IFMIS for proper recording of transactions	After effectiveness	All implementing entities
5	Internal audit (IA) to be conducted based on the risk assessment of the project by the IA unit and share with the Bank the reports during supervision missions	ongoing	All implementing entities
6	Act on internal and external audit report findings	Within a month after the receipt of the audit report	All implementing entities

138. **Based on the risk assessment, on site semi-annual FM implementation support and supervision missions will be carried out.** During these visits, follow up will be made on internal and external audit reports and action taken thereon;



transaction reviews and overall assessment of the adequacy of the FM Systems will be carried out. Desk review of quarterly IFRs and annual audit reports will be conducted. Capacity building initiatives will be carried out at project effectiveness and regularly thereon.

### **(III) Procurement**

139. The MoE has an established a single PIU (SPIU) to implement projects. It has two qualified and experienced procurement staff and is assessed to be adequate to manage project procurement in addition to their current responsibilities. The MoE has a well-established internal tender committee and internal approval arrangements.

140. The RDB has established an SPIU staffed with one procurement staff and internal tender committee. The existing procurement staff cannot manage procurement of the project in addition to the current workload. Therefore, there is a need to hire one additional well-experienced procurement staff, dedicated to implementation of procurement under the project.

141. REMA has established an SPIU staffed with two procurement staff and two internal tender committees serving not only the Single PIU but the whole institution. The current two procurement staff are not adequate to manage procurement under the project. Hence there is a need to hire one additional procurement staff dedicated to the project procurement implementation.

142. The RWB has a SPIU with two well-experienced procurement staff and an internal tender committee. The qualifications of the procurement staff are adequate to manage procurement of the project. However, given the workload of RWB and the scope of the project, the number of existing procurement staff is not sufficient and RWB SPIU will hire an additional procurement staff to support the VCRP Project.

143. Meteo Rwanda does not have a SPIU and hence there is a need to establish a dedicated PIU, which will be effective condition of the project. It is agreed that Meteo Rwanda will form a PIU with a project coordinator, a radar software and data processing specialist, a numerical weather prediction specialist, an environmental and social safeguard specialist, and one procurement specialist to be seconded and one FM specialist. Currently, Meteo Rwanda has one procurement staff and an internal tender committee. The procurement staff has the required experience and is assessed to be adequate to manage procurement of the project in addition to the current workload and hence will be seconded for the project.

144. All the implementing agencies have reasonable experience in implementing projects funded by development partners. However, some agencies have never implemented a World Bank-financed project and hence lack experience and knowledge of the World Bank Procurement Regulations. Hence, there is a need for robust training at an early stage of the project implementation.

145. The key procurement risks identified are (a) insufficient number of staff to implement procurement activities of the project, (b) limited in-house procurement capacity to handle procurement transactions of large and complex procurements, (c) bidders' perceptions of requirements and payments, (d) delays in procurement decision-making, (e) a multitude of technical partners which causes a threat to ownership and sustainability of assets/services, (f) interruptions during project implementation due to heavy rains and landslides, and (g) high rate of price fluctuation and logistics and transport costs due to distance from sea ports. The proposed mitigation measures are for implementing agencies: (a) hiring adequate number of qualified and experienced procurement staff where necessary, (b) engaging technical/user departments in establishing requirements and specifications, (c) putting in place mechanisms by which payments are



made in a timely manner and ensuring that this is made clear to the bidders, (d) incorporating environmental and social framework instruments in the bidding documents and putting in place an efficient contract management system, (e) close coordination and monitoring by MoE PCU (i) Forming a project steering committee chaired by MOE at senior management level being members and technical team reporting monthly to the steering committee and (ii) develop a project implementation manual (PIM) where roles and responsibilities of each stakeholder and procedures to be followed are clearly prescribed, and , (f) Follow the provisions of the emergency Management Plan developed for the project, and (g) Put in place an adequate contract management mechanism and provide clauses on price adjustments as per World Bank regulation and Rwanda Procurement law. In addition, the MoE, in coordination with the World Bank, will prepare tailored training on World Bank Procurement Regulations and STEP.

#### (IV) Resources requirements

**Table 6: VCRP Financing for each subcomponent (US\$ millions)**

Components and subcomponents		IDA	EIB	PROGREEN	Total
<b>1</b>	<b>Flood risk management</b>	<b>13.9</b>	<b>87.2</b>	-	<b>103.1</b>
1.1	Flood Risk Reduction	5	87.2	-	94.1
1.2	FEWS	8.9	0	-	9.0
<b>2</b>	<b>Landscape restoration and catchment management</b>	<b>6.6</b>	<b>15.8</b>	<b>9.5</b>	<b>32.2</b>
2.1	Catchment Restoration	3	15.8	2	20.8
2.2	Ecological Restoration	2.5	0	3.5	6
2.3	Livelihood development	1.1	0	4	5.1
<b>3</b>	<b>VNP expansion and livelihood restoration</b>	<b>26.4</b>	-	-	<b>26.6</b>
3.1	Green Villages	23	-	-	23.2
3.2	Livelihood Restoration	3.4	-	-	3.4
<b>4</b>	<b>Project Management, TA and Monitoring and evaluation</b>	<b>3.1</b>	<b>7</b>	<b>2.5</b>	<b>13.1</b>
<b>5</b>	<b>CERC</b>	<b>0</b>	-	-	<b>0</b>
<b>Total</b>		<b>50.0</b>	<b>110.0</b>	<b>12.0</b>	<b>172.0</b>

**Table 7: Total size of investments needed for the Volcanoes region (US\$ millions)**

Components	Phase 1	Phase 2	Phase 3	Total budget
Component 1: Flood risk management	117,948,924	86,584,638	64,123,864	<b>268,657,426</b>
Component 2: Landscape restoration and catchment management	92,313,333	40,755,780	25,478,046	<b>158,547,159</b>
Component 3: VNP expansion and livelihood restoration	27,424,501	-	-	<b>27,424,501</b>
Component 4: Project Management, TA and Monitoring and evaluation	4,500,000	2,393,105	1,646,895	<b>8,540,000</b>
Operations	11,081,991	8,415,872	1,790,955	<b>21,288,818</b>
Contingency fees 2percent	5,065,375	2,762,988	1,860,795	<b>9,689,158</b>
<b>Totals</b>	<b>258,334,124</b>	<b>140,912,383</b>	<b>94,900,555</b>	<b>494,147,062</b>