FULLY DEVELOPED PROPOSAL FOR SINGLE COUNTRY

PART I: PROJECT/PROGRAMME INFORMATION

Title of Project/Programme: Strengthening local adaptation actions for climate resilience in drought-prone food basket sites of Rwanda

Country: Rwanda
Thematic Focal Area: Agriculture
Type of Implementing Entity: Multilateral Implementing Entity
Implementing Entity: United Nations Development Programme
Executing Entities: Rwanda
Amount of Financing Requested: **$ 4,937,397.09** (in U.S Dollars Equivalent)
Letter of Endorsement (LOE) signed: Yes x No ☐
NOTE: The LOE should be signed by the Designated Authority (DA). The signatory DA must be on file with the Adaptation Fund. To find the DA currently on file check this page: https://www.adaptation-fund.org/apply-funding/designated-authorities
Stage of Submission:
☐☐ This proposal has been submitted before including at a different stage (concept, fully-developed proposal)
X This is the first submission ever of the proposal at any stage
In case of a resubmission, please indicate the last submission date: Click or tap to enter a date.

Please note that fully-developed proposal documents should not exceed 100 pages for the main document, and 100 pages for the annexes.

Project/Programme Background and Context

1.1 General overview

Rwanda, a small, landlocked nation in East-Central Africa, is distinguished by its diverse topography, ranging from low-lying western plains to the mountainous Virunga region in the northwest. This elevational variation creates a temperate tropical highland climate characterized by two main rainy seasons (February–June and September–December) and two dry periods (June–September and December–February) (World Bank, 2021). Despite its relatively compact size, Rwanda exhibits marked climatic heterogeneity, with western and northwestern areas receiving 1,800–2,000 mm of rainfall annually, while eastern and southern regions receive only 800–1,200 mm (Nsengiyumva et al., 2021). These patterns significantly influence the country's exposure to climate hazards and its capacity to adapt.

Rwanda is bordered by Uganda, Tanzania, Burundi, and the Democratic Republic of the Congo. As of 2023, Rwanda's population was estimated at approximately 13.8 million people, making it one of Africa's most densely populated countries (World Bank, 2023a). Kigali, the capital city, serves as the administrative, economic, and cultural center and reflects Rwanda's broader ambitions toward modernization and urban resilience.

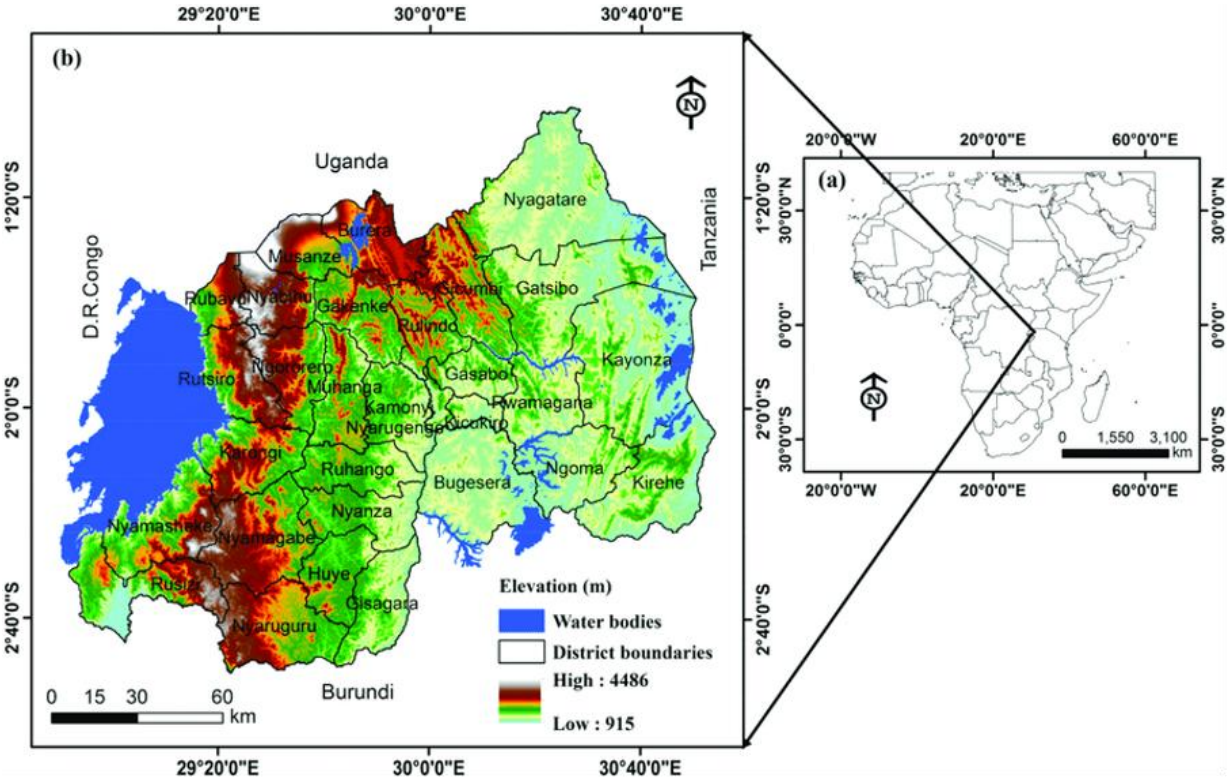


Figure 1:Location map of Rwanda: (a) a map of Africa for Rwanda localization; (b) a map of Rwanda with 30 districts and elevation in meters (adopted from Nsengiyumva et al, 2018)

Economically, Rwanda has undergone a dramatic transformation since the 1994 genocide. Between 2000 and 2019, the country's GDP grew at an average annual rate of 7.2%, driven by strategic reforms and investments in infrastructure, education, and health (International Monetary Fund [IMF], 2023). The country's Vision 2050 development plan aims to transition Rwanda into an upper-middle-income country by 2035 and a high-income country by 2050 through innovation, inclusive growth, and regional integration (Government of Rwanda, 2020).

Agriculture remains the backbone of the economy, employing over 60% of the labor force. Key exports include tea, coffee, and horticultural products (National Institute of Statistics of Rwanda [NISR], 2023). Despite being predominantly rain-fed and subsistence-based, agriculture is gradually modernizing through irrigation, mechanization, and value addition initiatives. The industrial sector is small but expanding, with growth in construction materials, food processing, and textiles. The services sector particularly tourism, ICT, and financial services has become increasingly prominent in Rwanda's economy. Prior to the COVID-19 pandemic, tourism was the leading foreign exchange earner, bolstered by gorilla trekking and Rwanda's positioning as a global conference destination (World Bank, 2023b).

In terms of employment, Rwanda's labor market is dominated by informal and agricultural jobs. Formal wage employment accounts for only about 10% of the labor force (ILO, 2023). The government has made youth employment a priority, investing in vocational training and entrepreneurship programs. Digital innovation hubs and tech incubators such as the Kigali Innovation City are central to Rwanda's knowledge economy aspirations (MINICT, 2023).

Socially, Rwanda has achieved notable progress in poverty reduction, gender equality, and human development. Between 2000 and 2020, the national poverty rate dropped from 58.9% to 38.2%, with extreme poverty declining from 40% to 13% (NISR, 2021). Universal health coverage has been rolled out through community-based health insurance, while school enrollment and literacy rates have improved significantly. Rwanda also leads globally in women's representation in politics, with women holding over 60% of parliamentary seats (Inter-Parliamentary Union [IPU], 2023).

Despite these gains, challenges remain. Rwanda faces high youth unemployment, income inequality, limited arable land, and exposure to climate risks such as drought and flooding. Additionally, its reliance on aid and external shocks pose vulnerabilities to its economic stability. Nonetheless, Rwanda's governance, strategic planning, and reform-minded leadership offer a compelling example of post-conflict development and economic resilience.

1.2 Climate context

Over recent decades, Rwanda has experienced increasing frequency and severity of climate-related hazards. The western and northern highlands, particularly in districts such as Rubavu, Nyabihu, and Rutsiro, are prone to intense rainfall events that trigger floods and landslides, resulting in loss of life, destruction of infrastructure, and displacement. Major events in 2020 and 2023 exemplify this trend, with over 100 fatalities and widespread damage reported (ReliefWeb, 2023). A landslide susceptibility map reveals these areas as zones of moderate to very high risk (Munyaneza et al., 2018).

Conversely, eastern Rwanda suffers from recurring droughts, these areas endure prolonged dry seasons, low rainfall, and poor groundwater retention, making them highly vulnerable to crop failure and food insecurity (Munyaneza et al., 2012). With agriculture accounting for a significant portion of Rwanda's GDP and employment, particularly among rural households, rainfall variability poses a critical risk to livelihoods and national food systems (World Bank, 2021).

A recent study by Siebert et al 2019, leveraging the Enhancing National Climate Services (ENACTS) Rwanda dataset for the period 1981–2016 reveal evolving rainfall regimes in Rwanda, characterized by a distinct seasonal bimodality and notable spatial heterogeneity. The dataset identifies two principal rainy seasons, March to May (long rains) and September to November (short rains), with peak precipitation concentrated in the western highlands, primarily due to orographic uplift. Trend assessments indicate a significant decline in March–May rainfall, particularly in the southwestern regions, whereas the September–November rainfall season shows a modest increasing trend. These shifts are influenced by changes in large-scale atmospheric circulation patterns and regional moisture transport mechanisms, including the variability of the Indian Ocean Dipole and other ocean–atmosphere interactions. Furthermore, the data suggest that while wetter regions such as the western highlands are experiencing fewer rainy days with higher rainfall intensity, the drier eastern lowlands are seeing more frequent but lighter rainfall events. Collectively, these findings indicate that Rwanda's rainfall patterns are undergoing spatially and seasonally differentiated changes, which have critical implications for agricultural planning, water resource management, and climate adaptation strategies across diverse ecological zones. Figure 2 below shows this change since 1981 to 2016.

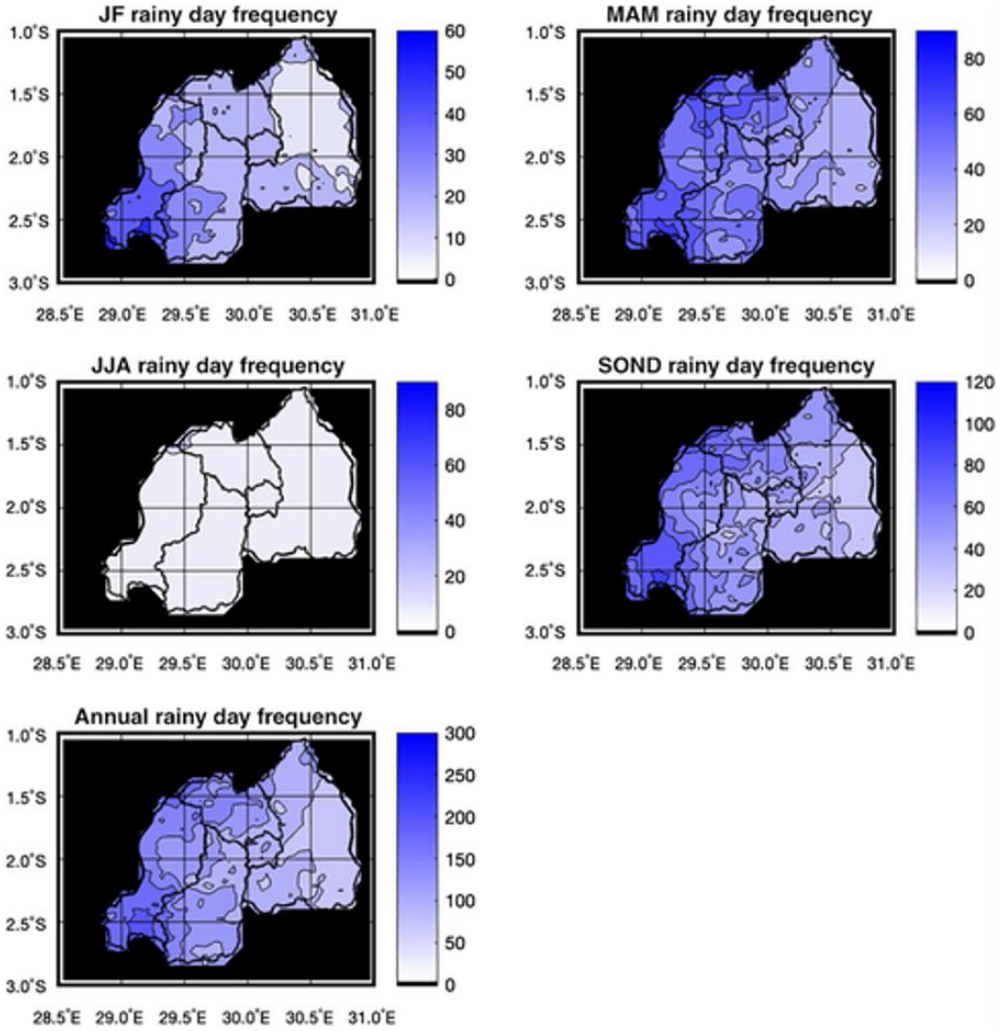


Figure 2: Figure 2: 1987–2016 rainy day frequency climatologies (>1 mm) based on the current ENACTS data for Rwanda.

(a) The annual rainy day frequency, (b) January–February rainy day frequency, (c) March–May rainy day frequency, (d) June–August rainy day frequency and (e) September–December rainy day frequency. Isolines are spaced every 10 days for (a–d) and every 25 days for (e) (adopted from Siebert et al 2019).

Temperature-related stresses are also increasing in Rwanda, compounding existing vulnerabilities. Historical data shows a clear warming trend across the country. According to observations from 1901 to 2020 (Figure 3), Rwanda has experienced a long-term increase in average annual temperature. Although variability exists across decades due to both internal and interdecadal climate dynamics, the general trend is upward. For instance, regional analysis shows that from 1985 to 2015, central-east Africa, including Rwanda, recorded average warming rates of approximately 0.29°C per decade.

Nationally, Rwanda's average annual temperatures range from 15°C to 17°C in the high-altitude areas and up to 30°C in the eastern and southwestern lowlands. The period from 1971 to 2016 showed a particularly marked increase in temperatures: between 1.4°C and 2.6°C in Rwanda's south-western and eastern regions. Moreover, the data also highlight episodes of more rapid warming; for instance, between 2012 and 2014 alone, average temperatures increased by 0.79°C, indicating a concerning trend of inter-annual variability.

These changes are not just statistical anomalies; they carry direct ecological and public health consequences. The narrowing diurnal temperature range and the rising frequency of extreme temperature days have profound implications for ecosystems and agriculture, reducing crop yields and stressing biodiversity. From a human health perspective, warmer conditions have been directly linked to the expansion of vector-borne diseases. For example, malaria prevalence has increased in formerly low-risk areas, with Rusizi, Gicumbi, Nyaruguru, and Gisagara emerging as high-risk zones, as highlighted by Uwimana et al. (2015). This is attributed to the expanded habitat range for malaria-transmitting mosquitoes, whose lifecycles and breeding patterns are temperature-sensitive.

As climate models project continued warming under all emissions scenarios, the need for temperature-adaptive interventions becomes urgent. This includes reinforcing Rwanda's disease surveillance systems, deploying early-warning mechanisms, and investing in climate-resilient agriculture and urban infrastructure that can withstand rising thermal stress.

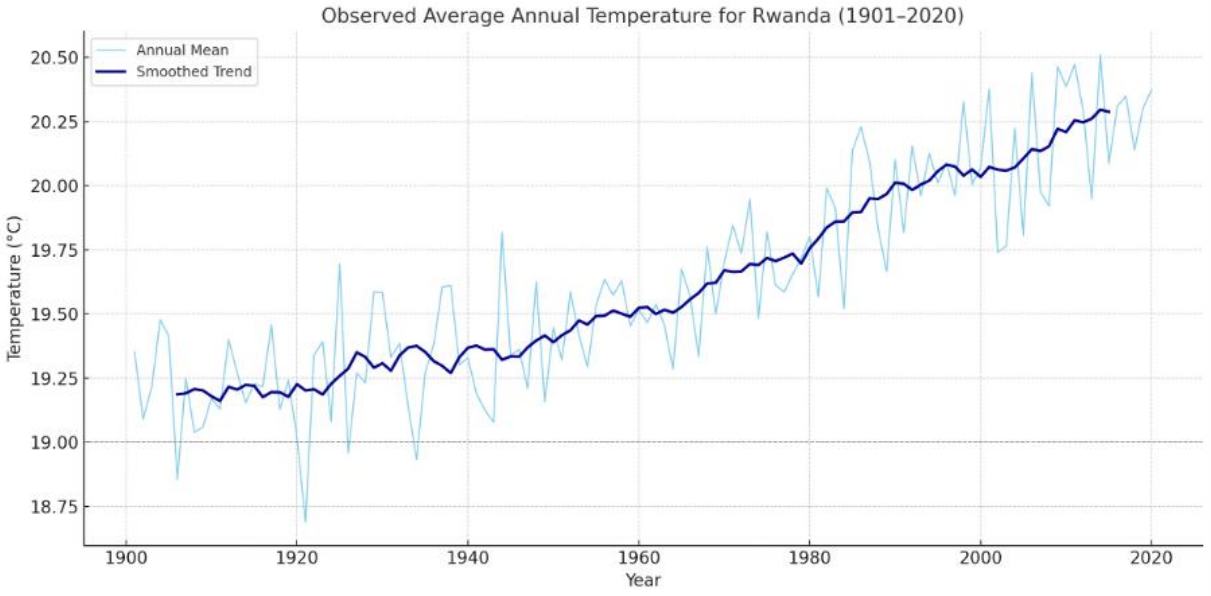


Figure 3: Observed Average Annual Temperature for Rwanda, 1901–2020, (Data adopted from World Bank, 2021)

The implications of these climatic changes are compounded by Rwanda's socio-economic vulnerabilities. Rural poverty, inadequate infrastructure, and dependency on rain-fed agriculture constrain the adaptive capacity of communities. While Rwanda ranks 19th globally in climate vulnerability, its adaptive readiness is comparatively better (71st), indicating both the urgency and the potential for effective intervention (Notre Dame Global Adaptation Initiative, 2024).

1.3 Social economic context

1.3.1 National overview

Rwanda has undergone a remarkable socio-economic transformation over the past two decades. Following the devastation of the 1994 genocide against the Tutsi, the country embarked on a deliberate and comprehensive process of national reconstruction, governance reform, and economic recovery. Today, Rwanda is widely regarded as a development success story in sub-Saharan Africa, characterized by strong institutions, consistent growth, and visionary planning frameworks such as Vision 2020 and its successor, Vision 2050.

Between 2000 and 2019, Rwanda's economy grew at an average annual rate of 7.5%, placing it among the fastest-growing economies globally during that period (World Bank, 2022). Growth has been broad-based, driven primarily by agriculture, services, construction, and, more recently, the digital economy and manufacturing sectors. These gains have translated into significant reductions in poverty: the national poverty headcount fell from 58.9% in 2000 to 38.2% by 2016/17 (NISR, 2018).

Despite these advances, Rwanda remains a low-income country with an estimated gross national income (GNI) per capita of USD 850 in 2022 (World Bank, 2023). The government aims to transition Rwanda into an upper-middle-income country by 2035 and a high-income economy by 2050 through sustained investment in human capital, green growth, and digital innovation (GoR, 2020).

1.3.2 Demographics and human capital

Rwanda has a rapidly growing and youthful population of approximately 13.5 million, with over 60% under the age of 25 (NISR, 2022). The annual population growth rate stands at 2.3%, and the country's total population is projected to reach 22 million by 2050. This demographic profile presents both a challenge and an opportunity. If well-managed, it offers the potential for a demographic dividend. However, it also places enormous pressure on social services, land, and employment systems.

The government has invested heavily in education and health systems. Net primary school enrollment is above 95%, and secondary education completion rates continue

to improve. Rwanda has also achieved near-universal health insurance coverage through the Mutuelles de Santé community-based health insurance scheme. However, challenges remain in rural access to secondary education, malnutrition (with stunting rates at 33% among children under five), and limited access to quality tertiary education and vocational training (UNICEF, 2021).

1.3.3 Economic structure and rural economy

Agriculture remains the dominant sector, employing around 65–70% of the labor force and contributing roughly 24–30% to GDP (MINAGRI, 2020). It is primarily smallholder-based, with most farms under one hectare and reliant on rainfall. Despite being subsistence-oriented, agriculture is the backbone of rural livelihoods and food security.

In recent years, the government has prioritized agricultural commercialization, value chain development, and climate-smart agriculture. Programs such as the Strategic Plan for Agricultural Transformation (PSTA5), Land Use Consolidation (LUC), and Crop Intensification Program (CIP) aim to modernize the sector and enhance rural incomes. Investments have also been made in irrigation, livestock improvement, seed systems, and rural infrastructure (MINAGRI, 2020).

The services sector, which includes trade, transport, finance, ICT, and tourism, has become the largest contributor to GDP. Kigali is positioning itself as a regional hub for innovation, conferences, and green urban development. Nevertheless, this urban-centric growth has not yet fully trickled down to rural regions, where poverty, food insecurity, and vulnerability to climate shocks persist.

1.3.4 Territorial inequality and regional development

While Kigali and other secondary cities such as Huye and Musanze have seen rapid infrastructure growth, many rural areas still lag behind in terms of service delivery and economic opportunities. The Eastern Province, for instance, presents both strategic potential and structural disadvantage: it is rich in agricultural land but suffers from erratic rainfall, poor infrastructure, and higher rates of poverty (REMA, 2021).

To address these disparities, the government has adopted territorial planning as part of NST2 and Vision 2050. This includes the District Development Strategies (DDS) and efforts to operationalize Food Basket Zones, where priority investments in agriculture, logistics, and value addition are being channeled.

1.3.5 Climate resilience and green growth

Rwanda is extremely vulnerable to climate variability, particularly in the form of floods, droughts, and soil erosion. These hazards disproportionately affect the rural poor,

whose livelihoods are heavily dependent on natural resources. In response, the government has mainstreamed climate resilience into national planning through frameworks such as the Green Growth and Climate Resilience Strategy (GGCRS) and the updated Nationally Determined Contribution (NDC).

Rwanda's long-term development ambition is underpinned by a commitment to green, inclusive, and climate-resilient growth. Through national initiatives like Rwanda Green Fund and international partnerships with the Green Climate Fund and UNDP, the country is investing in renewable energy, sustainable land use, ecosystem restoration, and green infrastructure.

1.4 Land use consolidation, agri-hubs and the food basket model

Land fragmentation has long been a structural constraint to agricultural transformation in Rwanda. With over 70% of the population relying on subsistence farming and the average landholding size below 0.6 hectares, the country's agricultural productivity has historically been low and highly vulnerable to climatic shocks. In response to this, the Government of Rwanda launched the Land Use Consolidation (LUC) initiative in 2008 under the broader Crop Intensification Program (CIP) as a transformative measure to increase food security and optimize land use.

Excerpt: Food Basket Zones in Rwanda

Rwanda's designated food basket zones are agriculturally strategic regions identified for their high potential to contribute to national food security and rural livelihoods. These zones are prioritized under Rwanda's Strategic Plan for Agriculture Transformation (PSTA 5) due to their favorable agro-ecological conditions, production intensity, and contribution to staple crop output. Key food basket districts include areas in the Eastern, Southern, and Western provinces, such as Nyagatare, Kayonza, Gatsibo, Kamonyi, Ruhango, and Nyamagabe, among others.

Despite their significance to the national food system, these regions face growing vulnerabilities from climate-induced shocks, particularly prolonged droughts, erratic rainfall, and land degradation. Smallholder farmers who form the backbone of food production in these zones often lack access to timely climate information, resilient technologies, and market linkages to adapt effectively.

Any meaningful support to Rwanda's climate resilience agenda must prioritize food basket zones, as disruptions in these areas have direct and cascading effects on national food availability, household nutrition, and poverty reduction goals. Strengthening adaptation capacity in these zones is therefore not only a local priority, but a national imperative.

LUC was designed to enable farmers with adjacent small plots to voluntarily grow the same priority crops over a contiguous area, thereby unlocking economies of scale. By consolidating production, the government and development partners could efficiently distribute inputs such as improved seeds and fertilizers, deploy mechanization services, streamline extension support, and facilitate post-harvest management. This approach complemented other CIP elements such as subsidized inputs, irrigation infrastructure, and market linkages.

Over time, LUC has delivered measurable improvements in crop yields and national food security. According to the Ministry of Agriculture and Animal Resources (MINAGRI), consolidated land increased from just over 28,000 hectares in 2008 to more than 500,000 hectares by 2020 (MINAGRI, 2020). Yields for key crops such as maize, rice, and Irish potatoes improved significantly, contributing to the country's progress in reducing hunger and undernutrition. Rwanda's performance in the Comprehensive Africa Agriculture Development Programme (CAADP) Biennial Review has consistently reflected these gains.

However, the LUC model has also faced operational and policy challenges. Critics point to insufficient farmer consultation in some cases, a tendency toward monocropping that undermines biodiversity and soil health, and limited attention to agroecological diversity. Some farmers also expressed concerns about losing autonomy over land use decisions, especially in areas where enforcement was top-down.

Building on LUC, Rwanda has introduced Agri-Hubs, an ambitious pillar of the Strategic Plan for Agricultural Transformation (PSTA 5, 2024–2029), to modernise production, cut post-harvest losses and expand exports. Each hub covers at least 500 ha and comes equipped with precision irrigation, mechanization, and storage or processing facilities, typically managed by private investors or cooperatives. Smaller "Food Basket Sites" (≥ 5 ha) receive government-backed training and technology until they become self-sustaining. Together these hubs consolidate fragmented plots into efficient units, targeting a 50 percent boost in staple-crop yields while widening market access. The flagship Gabiro Agribusiness Hub in Eastern Province—16,000 ha overall, with 5,600 ha in Phase 1 embeds drip irrigation, pumping stations, roads and training centres, effectively offering "ready-to-farm" plots with reliable water and power, generating thousands of jobs and showcasing how large-scale farming can spur rural development.

To address these gaps and reposition agriculture as a driver of rural transformation, the government has since transitioned to a more holistic and territorially integrated approach: the Food Basket Model. This model builds on the foundational elements of LUC but shifts the focus from merely increasing production to building inclusive, climate-resilient, and market-oriented agricultural zones.

The Food Basket approach identifies and prioritizes specific regions based on agro-ecological potential, infrastructure, and market proximity as strategic investment zones for national food security. These zones benefit from targeted interventions including: expansion of solar-powered irrigation schemes, development of agro-processing and storage infrastructure, cooperative strengthening and inclusive governance structures, and integration of climate-smart agricultural practices and technologies.

Moreover, the Food Basket Model emphasizes multi-stakeholder engagement, with a stronger role for private investors, farmer organizations, and local governments in planning and implementation. It also aligns with national frameworks such as Vision 2050, the Green Growth and Climate Resilience Strategy (GGCRS), and the updated Nationally Determined Contribution (NDC), which prioritize sustainable intensification, territorial equity, and food systems resilience.

1.5 Climate policies and frameworks

Rwanda's vulnerability to climate change is profound, stemming from its mountainous terrain, high dependence on rain-fed agriculture, and a rural population exceeding 70%. In response, the country has developed a layered and coherent framework of climate change policies, strategies, and institutional arrangements. These are anchored in its international commitments under the United Nations Framework Convention on Climate Change (UNFCCC) and cascaded through national development plans, sectoral strategies, and sub-national frameworks.

1.5.1 Fifth Strategic Plan for Agriculture Transformation (PSTA 5)

The proposed project is strongly aligned with the strategic priorities and intervention pathways outlined in Rwanda's Fifth Strategic Plan for Agriculture Transformation (PSTA 5). Under Priority Area I – Modernization of Agriculture and Animal Resources Production for Climate-Resilient Agri-Food Systems, PSTA 5 emphasizes the importance of Rwanda's food basket zones, including Kayonza, Gatsibo, and Nyagatare. These districts are critical for national food security, contributing significantly to maize, beans, meat, and milk production. However, they are also among the most vulnerable to climatic shocks. In recognition of this, PSTA 5 calls for tailored, localized interventions that enhance the resilience and productivity of these agro-ecological zones. This directly echoes the project's focus on delivering localized weather and climate information services, drought-resilient agronomic practices, and inclusive farm business literacy training.

A specific and highly relevant strategic intervention under Output 1.2.3 of the PSTA5 – Access to animal feed improved highlights the acute challenges facing Rwanda's animal feed sector, including the high cost and poor quality of inputs, limited processing capacity, and the adverse effects of climate variability. PSTA 5 promotes the adoption of innovative and climate-resilient solutions such as hydroponic fodder systems, circular economy models, and enhanced fodder conservation techniques like silage production. The proposed project responds directly to these national priorities by anchoring hydroponic fodder production at Milk Collection Centers (MCCs), facilitating milk-for-fodder exchange schemes, and supporting MCCs to store excess fodder as silage. Furthermore, the project promotes composting from farm waste, in line with the circular economy and sustainable soil health strategies outlined in PSTA 5.

PSTA 5 also calls for the strengthening of agricultural extension systems, including the integration of digital technologies to improve outreach, especially in remote and climate-vulnerable districts. The project's component on Climate-Responsive Agricultural Advisory and Extension Services mirrors this approach by developing mobile-enabled platforms, farmer radio content, and digital extension manuals tailored to the literacy levels and needs of smallholder farmers. Some of the priority actions highlighted in the PSTA 5 and well aligned with the proposed project are summarized in the table 1 below.

PSTA 5 Priority Area (Exact Title)	Key Strategic Intervention (as per PSTA 5 wording)	Aligned Project Component(s)	Alignment Justification
Priority Area I: Modernization of agriculture and animal resources production for climate-resilient agri-food systems	"Encourage PPP models promoting investment and entrepreneurship to produce alternative sources of animal feed including circular economy concepts such as insects for animal protein, food waste, hydroponics for climate resilient grasses"	Climate-Resilient Agricultural Technologies and Livelihoods	Project supports hydroponic fodder systems at MCCs, aligned with national push for alternative climate-resilient feed sources
	"Support to farmers in fodder production and conservation including acquisition of the machinery used in fodder harvesting and processing"	Climate-Resilient Agricultural Technologies and Livelihoods	Project supports silage-making at MCCs and fodder storage infrastructure with access facilitated through milk-for-fodder exchange models
	"Strengthen delivery of extension services tailored to each food basket site"	Climate-Responsive Agricultural Advisory and Extension Services	Project deploys district-specific digital advisory tools and farmer learning platforms, designed for Eastern Province food basket districts
Priority Area II: Inclusive markets and post-harvest management for sustainable agri-food systems	"Support development of post-harvest handling and processing infrastructure adapted to food basket priorities and tailored to each value chain and market access zone"	Climate-Resilient Agricultural Technologies and Livelihoods	Project invests in post-harvest drying technologies and silage systems at local MCCs to reduce losses in drought-prone zones
	"Strengthen capacities of farmer cooperatives for collective marketing and aggregation"	Agroecological Knowledge and Farm Business Literacy	Project builds business literacy, provides digital tools (e.g., laptops), and embeds agronomists in cooperatives to support value chain participation
Priority Area III: Strengthening agri-food systems enablers for effective and efficient delivery	"Promote access to weather and climate information tailored to each food basket zone using early warning systems, radio, and mobile technologies"	Localized Weather and Climate Information Services (WCIS)	Project supports mobile-enabled WCIS, agro-meteorological bulletins, and localized forecasting for farmers in target districts

	"Enhance digitalization of extension and advisory services, and develop integrated digital platforms to link farmers, service providers, and markets"	Climate-Responsive Agricultural Advisory and Extension Services	Project deploys mobile-based and radio-integrated advisory platforms to deliver targeted CSA guidance to farmers
	"Promote participatory planning and development of decentralized systems for evidence-based decision making at district and sector levels"	Local Institutional Capacity for Adaptation Delivery	Project trains district governments and cooperatives in adaptation planning, fiduciary reporting, and climate finance access
Cross-Cutting Priority Areas	"Integrate gender equality and youth engagement in all programmatic areas"	All components	All project windows specifically prioritize inclusion of women and youth in design, training, and implementation phases
	"Promote climate change adaptation and mitigation through agroecology, soil and water conservation, and sustainable intensification"	Agroecological Knowledge and Farm Business Literacy	Project promotes composting, IPM, and agroforestry to build soil resilience and foster regenerative agricultural systems
	"Foster innovation and uptake of digital solutions across the agri-food system"	WCIS, Extension, Institutional Capacity	Project champions digital solutions across advisory, planning, climate information, and cooperative management tools
	"Strengthen local institutions' capacity for adaptation planning and service delivery through inclusive mechanisms"	Local Institutional Capacity for Adaptation Delivery	Project builds technical and financial capacity of district governments, cooperatives, and CSOs through embedded support and digital tools

1.5.2 Nationally Determined Contribution (NDC) – Updated 2020

The cornerstone of Rwanda's international climate ambition is its updated NDC, submitted in 2020. It pledges a 38% reduction in greenhouse gas emissions by 2030 compared to business-as-usual, conditional on international support. Mitigation efforts focus on energy, transport, waste, and industrial processes. Critically, the adaptation component targets vulnerable sectors including agriculture, water, land use, and disaster risk management. The NDC promotes climate-smart agriculture, improved irrigation, early warning systems, and soil and water conservation measures all aimed at enhancing rural livelihoods and food security.

1.5.3 National Adaptation Programme of Action (NAPA) – 2006

Rwanda's NAPA was its first formal adaptation roadmap under the UNFCCC. It identified urgent actions such as rainwater harvesting, afforestation, and crop diversification to improve resilience in agriculture-dependent communities. While many of its projects have since evolved into broader programs, NAPA laid the foundation for integrating climate considerations into rural development.

1.5.4 Revised Green Growth and Climate Resilience Strategy (GGCRS)

The GGCRS is Rwanda's flagship national climate strategy. The revised 2022 version focuses on four thematic areas: green industrialization and trade, urban climate resilience, natural resource management and vibrant and climate-resilient rural livelihoods. Under the vibrant and climate-resilient rural livelihoods, GGCRS prioritizes: increased productivity through climate-smart inputs and practices, social protection for climate-vulnerable populations, farmer access to weather and market information, sustainable livestock and pasture management, enhanced agricultural water management and irrigation. The GGCRS envisions Rwanda becoming climate-resilient and carbon-neutral by 2050, with agricultural transformation at the heart of this vision.

1.5.5 National Environment and Climate Change Policy (2019)

This policy establishes the legal and institutional framework for environmental governance. It promotes mainstreaming climate resilience in all sectors and recognizes the strategic importance of agriculture for rural poverty reduction and ecosystem stability. It calls for efficient land use, protection of arable soils, and restoration of degraded agricultural landscapes.

1.5.6 National Climate and Nature Finance Strategy (2024–2030)

This strategy provides the financing roadmap to implement climate actions, particularly in agriculture, forestry, and water. It seeks to mobilize $11 billion by 2030 through a mix of domestic resources, climate funds (e.g., GCF, Adaptation Fund), and private sector investments. A significant share of the funding is earmarked for resilient rural development and food systems transformation.

1.5.7 Sub-national and sectoral implementation

Rwanda's decentralized governance model positions districts as key actors in climate action through the integration of climate resilience into District Development Strategies (DDS). Supported by institutions like MINAGRI and partners such as UNDP, GIZ, and the World Bank, districts implement localized adaptation measures including agroforestry, renewable energy, and farmer field schools. Climate resilience is also embedded in national sectoral policies such as the Urbanization, Energy, and Agricultural policies ensuring cross-sectoral alignment.

Mainstreaming climate change into planning processes is led by MINECOFIN in collaboration with the Ministry of Environment and REMA, supported by development partners. A major innovation is the adoption of Climate Budget Tagging (CBT), enabling tracking of climate-related spending across sectors and districts, thereby enhancing climate finance accountability and mobilization.

This project builds on these systems, aligning with national frameworks while strengthening local institutions and cooperatives to deliver inclusive, transparent, and context-responsive adaptation actions.

1.5.8. Rwanda's National Strategy for Transformation (NST2, 2024–2029)

This strategy considers climate resilience and sustainable agriculture as key national priorities. It outlines targeted actions such as scaling up irrigation, adopting climate-resilient seed varieties, implementing integrated soil fertility and water management, and promoting conservation agriculture. NST2 further highlights the importance of restoring ecosystems through reforestation, expanding agroforestry, and building institutional capacity for early warning and disaster preparedness. These priorities directly align with the proposed project. The project's focus on hydroponic fodder systems, composting, farmer-led adaptive learning, and digital climate information systems reinforces NST2's vision of climate-resilient food systems. Additionally, the project's emphasis on strengthening cooperatives and district institutions complements NST2's call for inclusive, decentralized, and evidence-based climate action.

1.6 Governance and institutional arrangements

Rwanda has established a robust, coherent, and increasingly decentralized governance framework to address the complex and evolving challenges of climate change. The country's climate governance structure is marked by high-level political commitment, a growing institutional ecosystem, and progressive integration of climate objectives into national and subnational development agendas.

1.6.1 Legal and policy framework

Rwanda's climate governance is anchored in several legal instruments and national development frameworks that confer institutional mandates and define responsibilities. The most relevant include:

- The Environment and Climate Change Policy (2019), which integrates climate considerations into all levels of governance and across sectors.

- The Law No. 48/2018 establishing the Rwanda Environment Management Authority (REMA), which gives REMA the mandate to coordinate environmental protection and climate policy implementation.
- Ministerial Orders and Presidential Instructions related to environmental standards, natural resource management, and disaster risk reduction.
- Rwanda's Vision 2050 and National Strategy for Transformation (NST2) further embed climate resilience and green growth as cross-cutting pillars of national development.

1.7 Institutional arrangements

Rwanda has adopted a whole-of-government approach to climate governance, with distinct mandates assigned across a range of national and local institutions. Key actors include:

a) Ministry of Environment (MoE)

The Ministry of Environment serves as the lead policy institution for environment and climate change. It oversees climate diplomacy, sets strategic direction, and coordinates cross-sectoral policy coherence. It also supervises REMA and other affiliated agencies such as the Rwanda Forestry Authority, the National Land Authority and Rwanda Meteorology Agency. MoE serves as the Implementing Entity for Adaptation Fund and GCF.

b) Rwanda Environment Management Authority (REMA)

REMA is the national climate change focal point to the UNFCCC and GEF. While serving as the NDA for GCF. It has the technical mandate to coordinate, monitor, and report on climate action across the country. REMA plays a central role in:

- Developing and updating the NDC, NAP, and national climate reports
- Integrating climate adaptation into District Development Strategies (DDS)
- Facilitating climate risk assessments and monitoring frameworks
- Coordinating environmental impact assessments and safeguards

REMA also hosts the National Climate Change Committee (NCCC), a multi-stakeholder platform that brings together sectoral experts, development partners, civil society, and academia.

c) Ministry of Finance and Economic Planning (MINECOFIN)

MINECOFIN is increasingly influential in climate governance, particularly through its stewardship of mainstreaming, climate budgeting and the National Climate and Nature Finance Strategy (2024–2030). It ensures climate-responsive public investment and engages with donors and the private sector to mobilize climate finance.

d) Rwanda Green Fund (RGF)

Established in 2012, RGF is Rwanda's primary climate finance vehicle. It supports the implementation of climate-smart projects across the country and is accessible to both government and non-government entities. It also serves as the national Executing Entity (NIE) for the Green Climate Fund (GCF) and other international funds enabling private and public investment in climate change adaptation and mitigation initiatives. To date, FRGF has financed over 50 projects, including those focused on watershed restoration, green settlements, renewable energy, and climate-resilient agriculture.

e) Ministry of Agriculture and Animal Resources (MINAGRI)

MINAGRI is pivotal in operationalizing adaptation strategies, especially those targeting smallholder farmers. It collaborates with REMA to develop climate-resilient seed systems, promote irrigation, and implement agroforestry and soil conservation initiatives. MINAGRI is a central actor in ensuring the project's success and its alignment with national climate and development goals.

f) Local Governments (Districts)

With Rwanda's decentralized governance model, districts play a central role in implementing climate interventions on the ground. District Development Strategies (DDS) now include climate-smart targets that are fully aligned with national frameworks such as the Green Growth and Climate Resilience Strategy (GGCRS) and the Nationally Determined Contribution (NDC). Local governments employ environmental officers who coordinate local adaptation and mitigation actions, including project design and implementation. They work closely with the Rwanda Green Fund (RGF) to develop bankable green projects that respond to local climate risks and development needs. In addition, districts collaborate directly with key national institutions namely the Ministry of Finance and Economic Planning (MINECOFIN), the Ministry of Environment (MoE), and the Rwanda Environment Management Authority (REMA) to mainstream climate change across local planning, budgeting, and service delivery systems.

1.8 Coordination Mechanisms and Intersectoral Governance

A. National Climate Change Committee (NCCC)

Chaired by the Permanent Secretary of the Ministry of Environment, the NCCC is a multi-sectoral advisory body. It facilitates coordination among ministries, development partners, private sector actors, civil society organizations, and academia. The committee supports policy harmonization and reviews major climate proposals and reports.

B. Technical Working Groups (TWGs) &Sector Working Group

Several sub-sector-specific Technical Working Groups (TWGs) operate under the coordination of the Rwanda Environment Management Authority (REMA), covering key areas such as climate finance, monitoring, reporting and verification (MRV), adaptation, and sustainable land use. These TWGs play a critical role in shaping Rwanda's national positions for submissions to the UNFCCC and in supporting the implementation of sectoral climate action plans. Complementing these are broader Sector Working Group (swg) for Climate, Environment and Natural Resources chaired by the Ministry of Finance and Economic Planning (MINECOFIN) and the Ministry of Environment (MoE). These WGs bring together government institutions, development partners, civil society, and the private sector to provide strategic guidance, promote alignment across sectors, and ensure coherence in policy development and resource mobilization for climate change and environmental sustainability.

C. Inter-Ministerial Coordination

Formalized inter-ministerial committees and regular joint planning sessions ensure alignment across sectors such as agriculture, water, energy, infrastructure, and finance. Climate risks are increasingly treated as shared development risks rather than isolated environmental concerns.

1.8.1 Integration into Planning and Budgeting

Rwanda has institutionalized climate mainstreaming within its national and district-level planning frameworks. This includes:

- Climate Public Expenditure and Institutional Reviews (CPEIRs), which track climate spending and guide budget alignment.
- Environmental and Climate Mainstreaming Guidelines, used by line ministries and districts to integrate climate risk and mitigation options into Sector Strategic Plans (SSPs) and DDS.
- Program-based budgeting, where climate indicators are embedded into results frameworks of line ministries and district plans.

1.8.2 Role of Civil Society, Private Sector, and Development Partners

Civil society organizations play a growing role in public awareness, grassroots advocacy, and capacity building for climate resilience, particularly at the community level. They facilitate participatory planning processes, promote climate-smart practices, and act as key channels for local knowledge and feedback. Meanwhile, the private sector is increasingly engaged through green business incubation hubs, deployment of

renewable energy solutions, and investment in climate-resilient agriculture and supply chains.

Development partners particularly UNDP, the World Bank, GIZ, and the African Development Bank have been instrumental in providing financial and technical assistance for institutional strengthening, project implementation, and policy development. UNDP, in collaboration with the Ministry of Environment and REMA, has supported the mainstreaming of climate change into District Development Strategies (DDS), climate budgeting processes, and capacity development for local governments and civil society. It has also played a lead role in strengthening access to climate finance and facilitating the development of Rwanda's National Adaptation Plan (NAP). Other UN agencies such as FAO, UNEP, and WFP have supported climate-resilient agriculture, environmental restoration, and community-based adaptation projects, complementing national and local efforts toward achieving inclusive and sustainable climate resilience.

2 Problem statement

Agriculture remains the bedrock of rural livelihoods in Rwanda, particularly in the Eastern Province districts of Kayonza, Gatsibo, and Nyagatare. These three districts are vital to the country's food and dairy systems, collectively contributing over 35% of the national cattle herd and a significant share of staple crop production including maize, beans, cassava, and soybeans (MINAGRI, 2024). Despite their strategic importance, farmers in this region continue to face systemic constraints that hinder their ability to increase productivity, withstand climate shocks, and participate meaningfully in market systems.

One of the most pressing challenges is the limited access to timely, localized, and actionable climate information. While climate change is increasingly impacting rainfall patterns, temperature extremes, and the frequency of droughts, smallholder farmers in these districts lack tailored advisories that can guide planting, harvesting, irrigation scheduling, and pest control. Although Rwanda has made strides in developing national climate information systems (Meteo Rwanda, 2023), the localization and dissemination of this data remain inadequate. In many cases, farmers rely on outdated traditionalknowledge or general radio weather forecasts that are too broad to inform micro-level decisions. This information gap leads to poor timing of agronomic operations, crop losses, and increased vulnerability to climatic risks (REMA, 2021).

In tandem, the digital divide remains a barrier to agricultural modernization. Despite the government's digital transformation efforts (Ministry of ICT, 2020), the uptake of mobile-based agricultural applications, e-commerce platforms, and farm-level decision-support

tools remains low in the three districts. Farmers have limited exposure to technologies that can enhance productivity, marketing, and financial management. The lack of digital literacy and accessible platforms tailored to the local context undermines efforts to turn smallholder farming into a viable business enterprise.

Livestock farmers, especially dairy producers, face a dual challenge of feed scarcity and seasonal volatility in milk production. The majority of farmers deliver their milk to Milk Collection Centers (MCCs) which are often underutilized due to fluctuations in supply. One of the root causes is inadequate access to nutritious and affordable animal fodder, particularly during dry seasons. This challenge is compounded by land constraints and the degradation of grazing areas (MINAGRI, 2024). There is a clear opportunity to enhance feed availability through hydroponic fodder systems, a climate-resilient, space-efficient technology that can be established within the MCCs themselves. This would not only stabilize milk supply but also convert MCCs into integrated hubs for livestock innovation and farmer support.

Another structural gap lies in the weak technical backstopping available to farmers. As part of the Food Basket strategy, the government has identified these three districts as priority zones for climate-resilient, market-oriented agriculture (MINAGRI, 2024). However, effective implementation requires regular on-site guidance from agronomists, livestock experts, and business advisors. The current ratio of extension officers to farmers is extremely low, leaving many households unsupported in implementing improved practices. Without targeted investments in expert deployment, farmers will struggle to meet productivity and sustainability targets envisioned in the Strategic Plan for Agriculture Transformation (PSTA 5) (MINAGRI, 2024).

Furthermore, while there is general awareness about the benefits of modern agriculture, most farmers lack business management skills. They view agriculture as a means of survival rather than a commercial venture. Training programs on cost-benefit analysis, budgeting, record-keeping, cooperative governance, and value chain dynamics are rare or poorly structured (MINAGRI, 2020; NISR, 2018). This limits farmers' capacity to engage with markets, negotiate better prices, or access finance. Enhancing their business acumen is a precondition for sustainable rural transformation.

Access to agricultural inputs also remains a persistent challenge. Many farmers cannot afford or do not have timely access to improved seed varieties, bio-fortified crops, crop protection products, or veterinary drugs. This undermines crop and livestock productivity, especially for women and youth who face additional financial and institutional barriers (PSTA 5, 2024). Moreover, the continuous use of chemical fertilizers is contributing to soil degradation, particularly in the sandy and shallow soils common across the Eastern Province. There is an urgent need to promote organic soil fertility management through composting, bio-fertilizers, and integrated nutrient

management (REMA, 2021; FONERWA, 2022). However, farmers lack both the knowledge and infrastructure to transition from synthetic to organic inputs effectively.

A critical structural advantage in these districts is the organization of farmers under cooperatives within the Food Basket model. These cooperatives are responsible for managing consolidated farm blocks, coordinating production schedules, facilitating joint input procurement, and supporting collective marketing efforts. This institutional arrangement enhances efficiency and provides a strategic entry point for delivering farmer support services. Through these cooperatives, it becomes easier to target farmers with climate advisories, distribute digital tools, introduce hydroponic technologies, and coordinate training on agronomic and business practices. Moreover, cooperatives support peer learning and accountability, enhancing adoption rates for new technologies and practices. Strengthening these cooperatives with the right technical and financial support will therefore amplify the reach and impact of the proposed interventions.

3. Geographic scope

The districts of Kayonza, Gatsibo and Nyagatare in the eastern part of the country are some of districts worst hit by the climate impacts and epitomise the intersection of climatic stress and socioeconomic importance (see figure 4 below).: They supply 35 % of the national cattle herd and a significant share of maize, bean and horticultural output. The 2019 national vulnerability index classifies Nyagatare as the most climate-vulnerable district in Rwanda, while Kayonza and Gatsibo are categorised as medium but still above the national median (REMA, 2019). Household surveys in 2024 reported that 89 % of respondents observed declining rainfall and 88 % linked income losses directly to climate shocks, underscoring limited coping capacity at farm level (Habakubaho, Mhache & Saria, 2024). These indicators indicate the need for climate adaptation in Eastern Province from a sectoral concern to a national development priority. Effective responses must combine support to local farmers to access climate and weather information on a timely basis, support farmers adopt climate responsive production systems and also focus on enhancing the farmer support ecosystem.

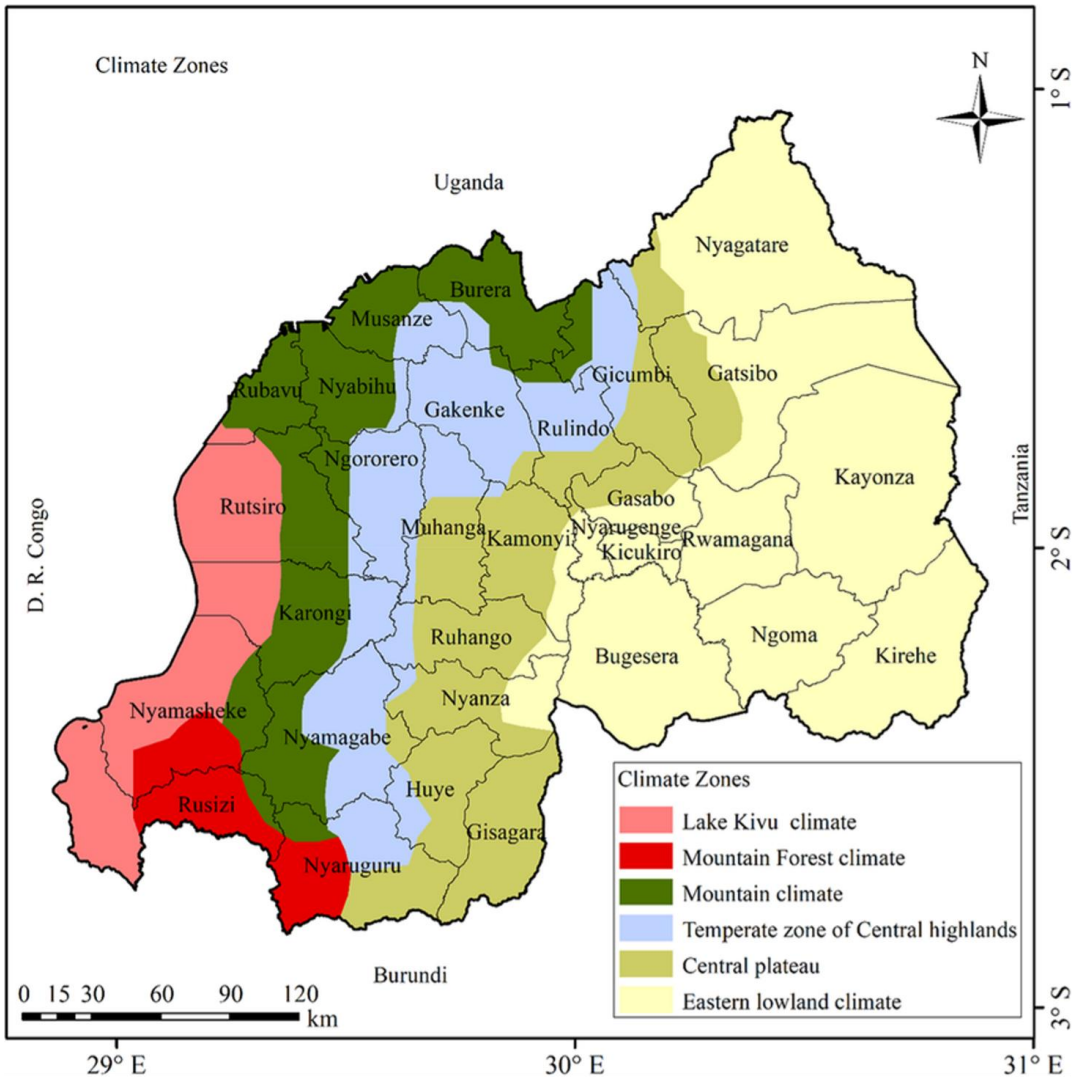


Figure 4: Rwanda climate zones (adopted from Sebaziga et al, 2024)

4.0 Current interventions and Gaps

The Government of Rwanda (GoR) has noted the heightened climate-change vulnerability of Kayonza, Gatsibo and Nyagatare and the systemic risks this poses to national food security and the country's long-term development trajectory. In response, GoR working with the Green Climate Fund, IFAD and other partners, has launched a suite of investments in the three districts, summarised in Table 1 below:

Project Name	Lead Organizations & Funding	Primary Focus Areas	Key Activities Relevant to Farmers	Target Districts/Impact

Transforming Eastern Province through Adaptation (TREPA)	IUCN, GoR (RFA, Enabel, CIFOR-ICRAF, Cordaid, World Vision); GCF	Landscape restoration & climate-resilient ecosystems	Reforestation, agroforestry, restoration of pasturelands, soil erosion control, promotion of climate-resilient agricultural practices, enhanced climate information access, capacity building for farmer groups.	All 7 districts of Eastern Province, including Kayonza, Gatsibo, Nyagatare. Aims to reach 75,000 smallholder farmers.
Participatory Integrated Climate Services for Agriculture (PICSA)	CIAT, Meteo Rwanda, MINAGRI/RAB	Empowering farmers with climate information for informed agricultural decisions	Training farmers on gathering, analyzing, and interpreting climate information (e.g., planting times, crop choices, inputs). Integrates with national extension services ("Twigire Muhinzi").	Kayonza (and other districts nationwide).
Promoting Climate Smart Agriculture for Improved Rural Livelihoods	CIFOR-ICRAF	Promoting climate-smart agriculture in drought-prone areas	Promoting agroforestry for carbon adaptation/mitigation, advocating for irrigation, encouraging drought-resistant crops.	Eastern Province, including buffer zones of Akagera National Park (Nyagatare, Gatsibo, Kayonza).
East Africa Climate Resilience Enhancement (ECREA)	Alliance of Bioversity International & CIAT; UK FCDO/Met Office	Strengthening coping and adaptive capacities through improved Weather & Climate Information Services (WCIS)	Building farmer capacity to interpret rainfall forecasts, implementing PICSA-lite, Radio Listeners Clubs, Agro-Climate Advisory Committees.	Rwanda (and other East African countries), with activities in Gatsibo, potentially extending. Reaching over 100,000 Rwandan farmers.
DeSIRA Agroforestry Research Project	IUCN, Ghent University, ICRAF; EU	Enhancing smallholder farmers' capacity to cope with climate change through innovative agroforestry & efficient tree resource use	Training farmers on agroforestry's role in increasing yields, efficient input use, agronomic practices, and tree management. Promoting diverse agroforestry options.	Eastern Province and peri-urban areas, with specific interventions noted in Gatsibo.
Training on Climate Smart Agriculture (CSA)	African Development Bank Group	Capacity building for champion farmers on various CSA practices	Training on drought-tolerant crops, agroforestry, irrigation/water harvesting, conservation agriculture (tillage, erosion control, soil fertility, water management), and fodder management.	Kayonza, Kirehe, Gatsibo, and Nyagatare.
National Adaptation Planning (NAP) Project	REMA, Ministry of Environment, districts (Nyagatare); GEF	Building capacity for climate change adaptation planning, funding, implementation, and monitoring	Ecosystem-based adaptation activities like planting bamboo along Umuvumba River in Nyagatare (Kagitumba Sector) to protect farmlands. Aimed at increasing adaptive capacity.	Nyagatare, Kirehe, Rusizi, and Gasabo (specific focus on Nyagatare for farmer resilience).

Table 1: A summary of ongoing projects and interventions in Kayonza, Gatsibo and Nyagatare.

Transforming Eastern Province through Adaptation (TREPA, 2021–2027) targets the restoration of 60,000 ha of degraded land, expansion of climate-smart agroforestry, and extension of small-scale irrigation to 75,000 households. The Kayonza Irrigation & Integrated Watershed Management Project II (KIIWP-II, 2022–2028) aims to bring an additional 2,285 ha under irrigation and provide drought-resilient livestock water points across eight dryland sectors of Kayonza. In parallel, the planned Muvumba Multipurpose Dam in Nyagatare is expected to secure urban water supply, irrigate 7,380 ha, and help manage downstream flood risks.

Despite these efforts, major technical and financial gaps remain particularly in the dairy value chain, farmer-led extension services, and adaptive planning systems. The 2017 Livestock Master Plan anticipated that climate-smart input packages and training would reach just 60% of dairy producers by 2022, leaving over 40,000 farm households with limited access to quality fodder, veterinary care, and water infrastructure. This aligns with PSTA 5's Output 1.2.3, which identifies critical challenges in animal feed production and storage, and calls for hydroponic solutions, PPPs in feed systems, and machinery support.

Moreover, PSTA 5 estimates that full implementation of its modernization and climate-resilient livestock strategies would require investments exceeding RWF 230 billion (approx. USD 200 million) under Priority Area I alone. Yet, current financing covers only a fraction of this need, particularly for decentralized fodder systems, feed conservation, and farm-level irrigation. Similarly, Output 3.1.1 identifies a need for scaled-up digital advisory services and ICT-based climate information platforms, budgeted at over RWF 6 billion (USD 4 million), most of which remains unfunded.The proposed project directly addresses these unfunded needs by advancing community-based fodder production (hydroponics, silage), embedding agronomists in cooperatives, strengthening weather and climate information systems, and digitizing farm business operations.

Project/Programme Objectives

Main objective:

To strengthen the climate resilience of vulnerable smallholder farming communities in Rwanda's drought-prone food basket zones in the districts of Kayonza, Gatsibo, and Nyagatare, by enabling inclusive access to localized climate information services, scaling up climate-smart agricultural technologies, enhancing agroecological and business capacities, and improving institutional delivery systems for local adaptation.

Specific objectives

The specific objectives for the projects are to;

1. **Strengthen access to localized climate information services for resilient farming decisions.** This will be done by co-designing and deploying inclusive, localized weather and climate information services that enable smallholder farmers to make timely, climate-informed decisions on crop and livestock production.
2. **Enhance uptake of digital, climate-resilient agricultural technologies and inputs for climate smart agriculture**. This will be done by promoting the adoption of innovative, climate-smart technologies such as hydroponic fodder systems, organic composting, and water-efficient irrigation through farmer cooperatives and milk collection centers. In addition, this objective will support the cooperatives acquire the necessary ICT tools for effective management of their operations.
3. **Strengthen agroecological knowledge and farm business literacy for smallholder farmers resilience**.To do this the project will equip smallholder farmers with knowledge and practical skills in regenerative agriculture, agroforestry, and farm business planning to strengthen productivity, sustainability, and market engagement.
4. **Strengthen institutional capacities for adaptation planning and service delivery.** This will be done by enhancing the capabilities of local cooperatives, district authorities, and extension systems to plan, finance, and deliver inclusive, gender-responsive, and accountable adaptation interventions

Project/Programme Components and Financing:

Project/Programme Components	Expected Concrete Outputs	Expected Outcomes	Amount (US$)
Component 1: Strengthened access to localized climate services for resilient farming decisions	**Output 1.1.1.** At least 10,000 smallholder farmers (including 50% women and 30% youth) regularly access seasonal forecasts, early warnings, and localized advisories through multiple delivery channels. **Output 1.1.2:** Feedback and validation mechanisms established in all 5 implementation sites to ensure user-centered co-production and refinement of climate advisories (Farmer feedback loops (e.g., suggestion boxes, SMS polls, community review meetings). Quarterly participatory sessions to assess usefulness and accessibility of information.) **Output 1.2.1**. A machine-learning enabled platform for hyper localized climate forecasting developed and operational in the three target districts. (Forecasts tailored to at least 4 agro-ecological zones across Kayonza, Gatsibo, and Nyagatare.Daily to seasonal forecasting	**Outcome 1.1.;** Smallholder farmers, including women and youth in drought-prone food basket districts, access and use accurate, timely, and actionable climate information for resilient farming decisions. **Outcome 1.2:** Enhanced availability and use of AI/ML-driven, hyperlocalized weather and climate forecasts tailored to agro-ecological zones. **Outcome 1.3:** Frontline service providers, cooperative	USD $ 1,181,075

	calibrated using local agro-met data and satellite inputs.System integrates with MINAGRI's digital platforms and Meteo Rwanda datasets. **Output 1.3.1.**At least 300 frontline actors (extension officers, cooperative leaders, sector agronomists) trained in interpreting and disseminating WCIS in climate-vulnerable food basket districts. **Output 1.3.2.** WCIS tools and interpretation guides integrated into local agricultural planning and extension systems in at least 5 sites across the 3 districts.	leaders, and local institutions have strengthened capacity to interpret, communicate, and institutionalize WCIS.	
Component 2: Enhance uptake of climate-resilient agricultural technologies and inputs for climate smart agriculture	**Output 1.2.1:** At Least 10 climate-resilient hydroponic fodder production units established and operational across the five implementation sites, serving 10 cooperatives/MCCs. *(One unit per cooperative or MCC hub, managed collectively by ~250–300 farmers each. Systems designed for high water efficiency and year-round production. Operated by trained cooperative members with local technician oversight.)* **Output 2.1.2:** At least 2,000 cooperative members (including 50% women and 30% youth) and 1,000 additional smallholder farmers trained on climate-smart fodder production techniques, including hydroponics and drought-tolerant forage varieties. *(Training modules delivered via field schools, demo plots, and mobile-based content. Topics include nutrient management, water-efficient fodder systems, and rotational usage. Linked to digital advisories from WCIS (Component 1).)* **Output 2.2.2:** At least 10 silage pits or foliage storage shelters constructed and managed by cooperatives in high-exposure drought-prone sites. *(*Infrastructure tailored to local climate and fodder availability. Built with community labor and technical support, co-financed where feasible. Target: reduce post-harvest losses by at least 30% per site.) **Output 2.2.2:** Over 3,000 smallholder farmers (at least 50% women, 30% youth) trained on low-cost fodder preservation and storage techniques, including silage making, hay baling, and crop residue treatment. *(Training embedded in broader agro ecological literacy sessions. Women and youth-focused modules on household-level storage options. Linked to increased dry-season livestock productivity metrics.)* **Output 2.3.1:** Input distribution and bulk procurement systems established in all 5 implementation sites for climate-resilient fodder seeds, root splits, and nutrients. (*Cooperative-led purchasing models to ensure affordability and last-mile delivery. Inputs linked to training and*	**Outcome 2.1:** increased adoption of climate resilient livestock feed systems in drought prone districts of Rwanda Food Baskets **Outcome 2.2.** Reduced post harvest fodder losses through improved preservation technics/technologies and storage **Outcome 2.3:** Enhanced smallholder farmers access to climate smart inputs for fodder and adaptive finance mechanisms	$920,350

	WCIS-based planting calendars. At least 10,000 farmers benefit from input access over project duration.) **Output 2.3.2:**At least 1,500 farmers (50% women, 30% youth) supported access to adaptive finance tools, such as input credit or revolving group savings schemes.*(Piloted with SACCOs, MFIs, or cooperative-based internal lending mechanisms.Linked to fodder investment (hydroponics, preservation tools, inputs).Includes financial literacy training and business coaching for farmer groups)*		
Component 3: Strengthened agroecological knowledge and farm business literacy for smallholder farmers resilience	**Output 3.1.1:**At least 5 community demonstration plots established (1 per site) showcasing a package of agroecological and regenerative farming practices. **Output 3.1.2:** At least 5,000 farmers (of which 50% are women and 30% youth) trained in climate-resilient agroecological practices tailored to specific agro-ecological zones. **Output 3.2.1**:At least 3,000 farmers (50% women, 30% youth) trained on farm business planning, savings, cooperative governance, and enterprise development. **Output 3.2.2:**Agro-business coaching and mentorship programs piloted in all 5 sites for at least 500 emerging agri-entrepreneurs. **Output 3.3.1:**Extension packages co-developed with farmers, integrating traditionalknowledge, women's experiences, and climate-resilient practices into agroecological training modules. **Output 3.3.2**: At least 100 frontline extension agents and cooperative leaders trained in gender-responsive facilitation, participatory learning, and traditionalknowledge integration.	**Outcome 3.1:** Smallholder farmers adopt climate-resilient agroecological practices tailored to their local **Outcome 3.2.** Smallholder farmers, including women and youth, improve their financial literacy and farm enterprise management skills. **Outcome 3.3**. Local extension systems integrate traditionalknowledge and gender-responsive approaches to improve climate adaptation.	$1,231,049.84

Component 4: Strengthened institutional capacities for adaptation planning and service delivery	**Output 4.1.1**:At least 75 district- and sector-level officials from Kayonza, Gatsibo, and Nyagatare trained in local adaptation planning, budgeting, and mainstreaming. (Includes sector agronomists, district environment officers, and cooperative support units.) **Output 4.1.2:**Toolkits and operational guidelines developed and distributed for local adaptation delivery and coordination. **Output 4.2.1:**At least 5 community-led Local Adaptation Action Plans (LAAPs) developed and validated one per implementation site**.** **Output 4.2.2:**Functional multi-stakeholder adaptation coordination platforms established in all 3 districts. **Output 4.3.1:**A local adaptation MEL framework developed and piloted in the three target districts, aligned with national M&E systems. **Output 4.3.2:**Annual district-level learning reviews conducted to reflect on progress, capture lessons, and revise adaptation strategies.	**Outcome 4.1.** District-level government and sector agencies equipped to plan and deliver local adaptation. **Outcome 4.2.** Local adaptation plans and coordination platforms established. **Outcome 4.3**. Monitoring, evaluation and learning systems for local adaptation are institutionalized.	$363,400
Component 5	Project Baselines, M&E, Learning and Reporting		$241,975
6. Project/Programme Execution cost			$629,176.88
7. Total Project/Programme Cost			$ 4,567,026.72
8. Project/Programme Cycle Management Fee charged by the Implementing Entity (if applicable)			$370,370.37
Amount of Financing Requested			$4,937,397.09

Projected Calendar:

Milestones	Expected Dates
Start of Project/Programme Implementation	1st January 2026
Mid-term Review (if planned)	June 2027
Project/Programme Closing	30th December 2028
Terminal Evaluation	30th October 2028

PART II: PROJECT/PROGRAMME JUSTIFICATION

A. Describe the project/programme components

Rwanda's Eastern Province, particularly the districts of Kayonza, Gatsibo, and Nyagatare, is increasingly vulnerable to climate change impacts, including prolonged droughts, erratic rainfall, and rising temperatures. These climatic hazards threaten the agricultural livelihoods of thousands of smallholder farmers, degrade natural ecosystems, and exacerbate food insecurity in what is considered the country's food basket region. In response, this project has been designed to deliver an integrated suite of concrete, locally tailored adaptation activities that directly strengthen the adaptive capacities of vulnerable farming communities, cooperatives, and local institutions.

The project takes a modular but synergistic approach, structured around five interlinked components each representing a window of opportunity for community-driven, supported adaptation initiatives. These components were selected based on extensive stakeholder consultations and alignment with national climate and agricultural strategies, including the Green Growth and Climate Resilience Strategy, the National Determined Contribution (NDC), the Strategic Plan for Agriculture Transformation (PSTA5), and district development plans.

Each component serves as a pathway to embed climate resilience at different layers of the agricultural system from farm-level decision-making and agronomic practices to institutional planning and service delivery. The emphasis is on deploying proven and innovative solutions, such as AI-enabled weather and climate information services, production and storage of fodder, agroecological techniques, and business literacy for farmers, while also building the capacity of local institutions to manage and sustain these efforts.

Together, the combination of these activities forms a comprehensive climate adaptation programme that reduces current vulnerabilities and builds long-term resilience by empowering communities to anticipate, absorb, and transform in the face of future climate shocks. This project will primarily be implemented through a decentralized execution model led by MINAGRI. Farmer cooperatives and community-based organizations in targeted districts will directly benefit from structured support packages that will be identified by District teams in alignment with national priorities and local needs assessments. The project's components are briefly introduced below.

Component 1: Localized Weather and Climate Information Services (WCIS)

This component will support digital agricultural advisory tools and community-based extension models specifically tailored to the realities of selected food basket zones of Nyagatare, Gatsibo and Kayonza Districts in Eastern Rwanda. Eligible initiatives may include the development of mobile-based platforms, interactive voice response systems, community radio programming, and climate-smart extension manuals, all

integrated into Rwanda's national agricultural extension framework. The overarching goal is to reach underserved farming populations including women, youth, and persons with disabilities with timely, inclusive, and practical agronomic advice to support resilient planning and the adoption of sustainable practices.

To ensure maximum relevance and usability, all digital tools and content will be designed through participatory co-creation processes that integrate the needs, languages, and literacy levels of local communities. This user-centred design approach will help overcome access barriers, particularly among low-literacy populations, and foster greater uptake and trust in climate information services.

Moreover, these digital tools will be anchored at the level of local cooperatives and farmer organizations, which serve as trusted intermediaries in agricultural service delivery. The project will support selected cooperatives with the necessary ICT infrastructure such as tablets, internet connectivity, and solar-powered devices to operationalize and house these tools. Cooperative focal points will be trained in basic digital literacy and content facilitation, ensuring that advisory tools are effectively utilized, maintained, and localized.

By embedding digital services within the existing cooperative ecosystem, this component enhances both sustainability and access, while also reinforcing the role of farmer-led institutions as key vehicles for inclusive adaptation. The integration of digital and community-based extension models will create a hybrid service delivery system capable of responding to both climate shocks and long-term agricultural transformation needs.

Component 2: Climate-resilient fodder production and storage technologies and livelihoods

This component focuses on enhancing livestock resilience and rural livelihoods through the uptake of locally validated climate-resilient technologies and practices, with a particular emphasis on sustainable fodder production and storage. Interventions under this window will prioritize technologies that support productivity and income diversification in key agricultural value chains identified by MINAGRI, such as milk, meat, maize, beans, and cassava. However, the central emphasis will be placed on dairy systems, where fodder insecurity remains a critical constraint exacerbated by prolonged droughts, erratic rainfall, and land degradation.

A cornerstone of this approach will be the deployment of hydroponic fodder production systems at strategically located Milk Collection Centers (MCCs). These MCCs serve as vital nodes in the dairy value chain, where smallholder farmers aggregate and market their milk. By equipping MCCs with hydroponic fodder systems, an innovation that requires minimal land and water inputs, farmers will gain reliable access to high-

nutrient feed even during extreme weather conditions. Hydroponics has been successfully piloted in similar agro-climatic zones and has proven to reduce feed shortages, improve milk yields, and support livestock health without contributing to land degradation.

Under the project, a barter-based system will be introduced whereby farmers can trade a portion of their milk deliveries for fodder produced at the MCCs. This creates a closed-loop system that improves access to inputs while reinforcing the economic sustainability of MCC operations. In cases where fodder production exceeds immediate demand, the MCCs will process the surplus into silage a storage form that preserves feed quality and ensures availability during dry spells. The silage will be made accessible to cooperative members under the same milk-for-fodder arrangement, providing a buffer against feed crises and supporting year-round livestock productivity.

Additionally, MCCs will be supported to collaborate closely with local cooperatives in promoting circular economy practices, including the conversion of livestock and on-farm organic waste into compost. This process will improve MCC waste management and supply organic fertilizers to support regenerative agriculture in the surrounding “food baskets” clusters of land managed by cooperatives for staple crop and fodder production. Farmers will be trained on composting methods, nutrient recycling, and soil health management, reinforcing agroecological principles that enhance resilience at the landscape level.

Other technologies supported under this component may include drought-tolerant seeds, post-harvest drying and storage infrastructure, and low-cost agro-processing equipment to reduce food and feed losses. These interventions will be designed and selected through a demand-driven process, ensuring they are locally relevant, gender-sensitive, and environmentally sound.

Component 3: Agroecological knowledge and farm business literacy

This component seeks to transform farming from a subsistence activity into a sustainable, climate-resilient, and commercially viable enterprise by strengthening the knowledge and business capacity of smallholder farmers and their cooperatives. It promotes an integrated approach that combines regenerative agriculture, farmer empowerment, and cooperative institutional strengthening, all aimed at building resilience to climate shocks while enhancing productivity and rural incomes.

At the food basket zone level, interventions will prioritize the dissemination and uptake of climate-resilient agronomic practices through targeted training and peer-based learning. These practices will include organic composting, integrated pest management, soil fertility restoration, agroforestry, conservation agriculture, and diversified cropping systems suited for drought-prone environments. The project will

support farmer-to-farmer exchanges, field demonstrations, and community innovation hubs, providing practical platforms for experiential learning and innovation diffusion.

To ensure that farmers are technically empowered and financially astute, this component will integrate farm business literacy training. Farmers in cooperatives will be trained in farm budgeting, financial planning, value addition, basic bookkeeping, supply chain management, and marketing strategies. These skills will help producers evaluate their return on investment, plan for shocks, and improve their engagement in competitive markets. Special emphasis will be placed on ensuring inclusion of women (at least 50%) and youth (at least 30%), with content designed in local language and adapted to different literacy levels.

Crucially, the project will embed qualified agronomists within participating cooperatives for an initial period of two years. These agronomists will serve as in-house technical advisors, supporting the cooperatives to improve their service delivery, guide members on climate-smart practices, monitor on-farm performance, and help transition the cooperatives towards evidence-based business models. During this period, agronomists will also build the capacity of cooperative leadership and staff, ensuring knowledge transfer and the institutionalization of good practices. It is envisioned that by the end of the two-year period, the cooperatives will have improved their revenue and governance structures sufficiently to retain the agronomists through their own internal financing, signaling a sustainable transformation.

To complement human capacity, the project will equip cooperatives with essential digital and operational tools, including laptops, internet access, basic data management systems, and digital dashboards for member tracking and business analytics. Cooperatives will be trained to routinely collect and analyze data related to input use, productivity, pricing, member engagement, and environmental indicators. This data-driven approach will support more strategic decision-making, improve transparency, and increase overall efficiency and profitability.

Component 4: Local institutional capacity for adaptation delivery

While farmers are at the frontline of climate impacts, their ability to adapt and thrive is significantly influenced by the broader institutional ecosystem in which they operate. These institutions ranging from local cooperatives to district authorities and national agencies play a critical role in shaping policies, allocating resources, and implementing programmes that directly affect agricultural productivity, access to climate information, and the resilience of farming systems. This component is therefore designed to strengthen the institutional architecture at all relevant levels to ensure that adaptation delivery is not only efficient and accountable but also responsive to the evolving needs of smallholder farmers.

At the local level, the project will work with cooperatives and community-based organizations (CSOs) in the food basket zones to build their internal capacity for governance, financial management, climate planning, and inclusive service delivery. Many cooperatives in Kayonza, Gatsibo, and Nyagatare operate with limited capacity, often relying on informal systems for decision-making and record-keeping. Through targeted interventions, these institutions will receive training in areas such as climate risk assessment, project planning, budget tracking, fiduciary compliance, and performance monitoring. Special attention will be paid to ensuring that these organizations develop and operationalize gender-sensitive governance structures and inclusive feedback mechanisms to improve transparency and community trust.

In parallel, the project will engage district authorities and sector offices who are critical actors in decentralized service delivery and local development planning. Interventions may include technical assistance to district planning units to integrate climate risk data and farmer feedback into Imihigo (performance contracts), develop climate-smart agricultural investment plans, and enhance coordination mechanisms between sectors such as agriculture, environment, livestock, and water. By building the analytical and strategic planning capacity of these entities, the project ensures that local governments are not only implementers but co-creators of climate-resilient solutions that reflect ground-level realities.

To ensure robust reporting and adaptive management, the project will support the digitization of grant management and reporting systems, particularly for cooperatives accessing funds through a decentralized execution model. Digital tools will be deployed to track disbursements, capture project milestones, and generate automated performance dashboards that feed into district and national monitoring systems. This will be complemented by training on the use of these tools, fostering a culture of evidence-based decision-making and accountability.

Additionally, the project will promote multi-stakeholder learning platforms where local farmers, cooperative leaders, district officials, researchers, and civil society actors can co-design solutions, share lessons, and align interventions. These platforms will be instrumental in identifying systemic bottlenecks and driving joint problem-solving that transcends sectoral silos.

Finally, initiatives under this component will establish or strengthen inclusive feedback and grievance redress mechanisms, ensuring that local adaptation processes remain citizen-driven and responsive to marginalized voices, particularly women, youth, and persons with disabilities. These systems will serve both as channels for monitoring project impact and as accountability tools for institutions.

Delivery Model- Decentralized Execution Model

This project will be delivered through a decentralized execution model led by the Ministry of Agriculture and Animal Resources (MINAGRI), working closely with its decentralized structures and local government authorities in Kayonza, Gatsibo, and Nyagatare. The approach focuses on strengthening the capacity of farmer cooperatives and producer groups to adopt climate-resilient agricultural practices and access tailored support services, without relying on competitive grant mechanisms or open calls for interventions.

Instead of issuing grants directly, MINAGRI will aggregate cooperative-level needs through participatory assessments facilitated by Agronomy Officers stationed in each district. These officers will work directly with farmer groups to identify context-specific needs related to climate-resilient agriculture, agroecological practices, and farm business literacy. These needs will inform bundled packages of technical assistance and inputs to be procured and delivered through qualified service providers. These may include NGOs, national training institutions, and agricultural input distributors, selected through transparent procurement processes.

Support will be targeted to cooperatives that are duly registered and engaged in crop or livestock production in the identified food basket zones. Approximately 2,000 livestock farmers and 8,000 crop farmers will benefit directly from customized support packages that may include hydroponic fodder systems, drought-tolerant seeds, composting units, bio-inputs, and agronomic training. In addition, over 25,000 smallholder farmers are expected to benefit indirectly through improved access to advisory services, climate information, and cooperative-based knowledge sharing.

Delivery of services will be aligned with Rwanda's Nationally Determined Contribution (NDC), Green Growth and Climate Resilience Strategy (GGCRS), and Agricultural Transformation Strategic Plan. This ensures coherence with national climate and agricultural objectives while allowing for flexibility in responding to localized priorities.
Agronomy Officers, funded by the project and embedded within the district agricultural teams, will play a pivotal role in facilitating continuous engagement with cooperatives, coordinating delivery logistics, and monitoring performance. This decentralized coordination approach leverages existing public systems, avoids the creation of parallel implementation structures, and reduces administrative overhead.

MINAGRI will oversee the full lifecycle of service delivery from needs identification, procurement, and implementation to follow-up support and performance monitoring. District agribusiness development officers and local civil society actors may also be engaged to ensure inclusive participation of women, youth, and vulnerable groups.
UNDP, as the Multilateral Implementing Entity (MIE), will provide fiduciary oversight, quality assurance, and compliance support, including adherence to the Adaptation Fund's Environmental and Social Policy (ESP) and Gender Policy.

This decentralized execution approach builds on Rwanda's successful decentralized agricultural extension model and enhances climate resilience by embedding support for cooperatives directly within government planning and implementation processes.

Description of Key Project Components

Component 1: Strengthened access to localized climate services for resilient farming decisions

This component will have several sub-components which are;

Sub-Component 1.1:Participatory design and delivery of localized climate information services

Under this subcomponent aims the project aims to strengthen the adaptive capacity of smallholder farmers and livestock herders in Rwanda's drought-prone food basket districts of Kayonza, Gatsibo, and Nyagatare by improving their access to accurate, timely, and actionable weather and climate information services (WCIS). The project will build on existing systems managed by Ministry of Agriculture and Animal Resources (MINAGRI), with data integration from METEO Rwanda, working collaboratively with the district authorities, local leaders, and farmer cooperatives to ensure that the delivery of WCIS responds directly to local realities.

The project will employ a participatory approach, to support the co-development and contextualization of digital advisory tools and climate information products. This includes the translation of national forecasts into locally relevant seasonal bulletins, cropping calendars, and tailored advisories aligned to specific agro-ecological zones.

The Participatory Integrated Climate Services for Agriculture (PICSA) methodology will be deployed to guide climate services delivery, with a strong emphasis on farmer engagement, co-learning, and the integration of traditional knowledge into advisory content.

To ensure accessibility, WCIS products will be delivered in Kinyarwanda and disseminated through appropriate communication channels including SMS, IVR, USSD, local radio, and in-person cooperative meetings. The project will particularly prioritize the use of inclusive and low-cost formats that reach women, youth, and farmers in remote or low-literacy settings. These efforts will be complemented by the institutionalization of WCIS delivery within district and sector-level extension services. The project will also work to strengthen the capacity of extension officers, cooperative leaders, and MCC staff to ensure that climate-smart advice is routinely integrated into farm-level decision-making, agribusiness planning, and livestock management. The

project will aim to integrate WCIS into everyday farm decision-making and bridge the gap between scientific data and on-farm action. This is designed to contribute to longer-term resilience by supporting the institutionalization of climate advisory services and strengthening public-private-community partnerships for data dissemination and innovation.

To ensure that localized climate information and advisories are effectively used by targeted smallholder farmers and herders in Rwanda's drought-prone food basket districts, this subcomponent will focus on deploying a robust, inclusive system for the timely and accessible dissemination of weather and climate information. Building on the forecasts and advisory content proposed under Subcomponent 1.1, this workstream will support the establishment of multiple, user-friendly communication channels to deliver relevant information to smallholder farmers in formats that are easily understood and acted upon.

The approach will leverage both digital and analog communication tools to reach diverse farmer profiles, including those in remote areas and those with limited digital literacy or connectivity. Dissemination channels will include SMS, Interactive Voice Response (IVR), USSD codes, AI-powered chatbots, and radio broadcasts all delivered in Kinyarwanda and aligned with seasonal cropping calendars. These tools will be developed in close partnership with METEO Rwanda, local ICT innovators, and farmer cooperatives to ensure content is tailored to the information needs and realities of target communities.

In-person dissemination through cooperative meetings, Milk Collection Centers (MCCs), and sector-level extension services will reinforce digital delivery, providing multiple access points for farmers to receive, validate, and apply the advisories. The project will prioritize an audio-first and gender-sensitive design to ensure women and youth often the most excluded from digital services are effectively reached. Trusted intermediaries, such as cooperative leaders and district extension officers, will be equipped to serve as conduits for relaying climate information through their existing networks.

Activities:

1. Conduct district-level climate information needs assessments (disaggregated by gender and production systems).
2. Deliver PICSA-based training workshops with farmers, cooperatives, and extension officers.
3. Develop and distribute location-specific seasonal bulletins and cropping calendars with METEO Rwanda.
4. Use in-person channels (farmer meetings, cooperatives) for outreach in low-connectivity and low-literacy communities.

5. Partner with district offices to ensure continuous integration of WCIS into extension service routines.
6. Partner with ICT innovators to provide Multi-Channel Dissemination of Climate Information and Forecasts adapt mobile platforms (SMS, USSD, IVR, radio, and apps) for delivering METEO Rwanda advisories in Kinyarwanda.

Sub-Component 1.2. Pilot concept for AI/ML-enhanced localized weather and climate advisory tools and services and infrastructure support

To improve the reliability, granularity, and relevance of localized weather and climate forecasts for Rwanda's drought-prone food basket districts, this subcomponent will support both the deployment of next-generation forecasting infrastructure and the integration of Artificial Intelligence (AI), Machine Learning (ML), and remote sensing technologies into MINAGRI Extension Services Platform building on data from METEO Rwanda's weather forecasting systems. The AI driven WCIS services for farmers will be offered by MINAGRI through its extension Services Platforms which will be one of the many services that the platform will provide to farmers.

This foundational data will enable the development of hyper-local advisory products using AI/ML techniques trained on historical and real-time datasets, satellite imagery, and farmer-generated inputs. The project will partner with local universities (e.g Carnegie Mellon University in Rwanda), Rwanda Information Society Authority (RISA) which governs the AI development in Rwanda and leading local innovation hubs together with METEO Rwanda to co-design forecasting algorithms that translate raw data into actionable, field-level forecasts tailored to specific cropping systems and seasonal windows. These AI-enhanced tools will help reduce uncertainty, improve lead times, and equip farmers to anticipate and respond to climate risks with greater confidence.

To ensure long-term sustainability, local technicians and district extension officers will be trained on data interpretation, and digital dashboard management. Partnerships with district governments will enable co-management of installed infrastructure, helping embed these innovations into local planning and extension routines. This subcomponent also lays the foundation for future scaling of AI-powered climate services across Rwanda and supports the institutionalization of next-generation forecasting as a public good critical to climate adaptation.

Through the linkages with advanced analytics with robust field infrastructure, this investment ensures that farmers in vulnerable regions not only receive more accurate forecasts but also benefit from climate services that are locally relevant, technically sound, and institutionally embedded.

Activities:

1. Co-design AI/ML-based and integrate climate models with METEO Rwanda, local universities, and local innovators an integrate into MINAGRI Extension Services Platform.
2. Train algorithms using satellite data and farmer-reported variables.
3. Partner with local digital innovators (e.g. Farmonaut, University of Rwanda) to build user-facing digital platforms (mobile apps, chatbots, USSD).
4. Integrate data streams into METEO Rwanda's national forecasting and analytics systems.
5. Conduct back-testing and expert validation of AI-enhanced forecasts for reliability.
6. Deploy pilot in targeted communities and cooperatives with support from local extension officers.
7. Monitor AI model performance and user satisfaction throughout the pilot period and document lessons and readiness for scaling the AI-enhanced model.

Sub-Component 1.3. Capacity strengthening, feedback loops, and adaptive learning

Effective use of enhanced WCIS tools requires strengthening the capacity of last-mile intermediaries and frontline service providers. Under this subcomponent, the project will ensure the effective and sustained use of localized climate information services (WCIS), this subcomponent focuses on building the technical capacity of frontline actors while institutionalizing community-driven learning and feedback systems. These investments are essential for embedding climate information into day-to-day agricultural decision-making and for strengthening the trust, relevance, and long-term sustainability of the services provided.

The project will deliver targeted training programs for district agricultural officers, livestock and water specialists, cooperative leaders, and Milk Collection Center (MCC) staff. These intermediaries play a pivotal role in translating forecasts and advisories into actionable insights for farmers. Training will cover the interpretation of climate data, use of AI- and ICT-enabled advisory tools, seasonal planning, and strategies for communicating climate risks at the community level. Delivery methods will be tailored for adult learners and will include a strong emphasis on participatory methods, gender equity, and accessibility for low-literacy users.

To catalyze peer-to-peer diffusion and farmer ownership of the tools, the project will establish Climate Champion networks within cooperatives and farmer groups. These will comprise progressive farmers, youth leaders, and trained extension volunteers who will organize model farm demonstrations, seasonal planning forums, and local learning exchanges. Climate Champions will also serve as key conduits for feedback collection and troubleshooting of digital tools, helping bridge gaps between innovation developers, service providers, and end-users.

In parallel, the project will institutionalize adaptive learning processes by embedding structured feedback mechanisms such as participatory scorecards, seasonal review meetings, and digital surveys to track the usability, equity, and behavioral uptake of WCIS services. These mechanisms will inform real-time adjustments to advisory content, communication formats, and service delivery strategies. Regular feedback summaries will be shared with METEO Rwanda, MINAGRI, and partners to drive continuous improvement and inform national scale-up efforts.

Together, these efforts will strengthen the technical backbone of WCIS delivery, foster a culture of farmer-led learning, and ensure that climate services evolve in response to community needs and the realities of a changing climate.

Activities:

1. Design and deliver training modules for district extension officers and cooperative leaders on interpreting and communicating WCIS.
2. Train existing district extension officers in charge of agriculture, RAB extension officers, METEO Rwanda officers, cooperative leaders, and MCC staff on WCIS use and interpretation.
3. Develop and deploy participatory feedback tools (surveys, community scorecards, digital polls).
4. Organize quarterly community climate forums to validate forecasts, present updates, and refine content based on feedback.
5. Compile and share lessons learned with METEO Rwanda, MINAGRI, and partners for ongoing improvement.
6. Develop tailored user guides and visual aids for interpreting advisories and facilitate learning exchanges between districts or cooperatives piloting WCIS tools.

Component 2: Enhance uptake of digital climate-resilient agricultural technologies and inputs for climate smart agriculture

This component aims to increase the climate resilience of smallholder farmers by enabling access to drought-tolerant crop varieties, innovative technologies (e.g. hydroponics, improved fodder systems), and efficient post-harvest practices. The objective is to improve food security, preserve yields during climate shocks, and increase income stability for vulnerable farming households.

Subcomponent 2.1: Scale up the deployment of hydroponic fodder systems through farmer cooperative/ Milk Collection Centers for improved livestock production

The targeted food basket zones in the districts of Kayonza, Gatsibo, and Nyagatare experience prolonged periods of drought and heat stress, resulting in severe fodder shortages that compromise livestock productivity and resilience. Most smallholder farmers in these districts practice mixed farming, relying heavily on livestock, particularly cattle, for milk production and livelihoods. In response to increasing climate pressures, this subcomponent aims to scale up the deployment of hydroponic fodder production systems as a climate-resilient, water-efficient solution to sustain livestock feed during dry seasons.

Building on successful pilot initiatives previously supported by UNDP, the project will expand the installation of large-scale hydroponic fodder systems through farmer-managed cooperatives operating Milk Collection Centers (MCCs). These systems enable the year-round production of high-nutrient fodder using minimal space and water, significantly reducing dependency on conventional rangelands and ensuring continuous milk production during climate stress periods.These water-efficient, climate-smart systems allow for the continuous cultivation of high-nutrient fodder using minimal land and no soil, thereby reducing dependence on natural rangelands and securing feed supply during climatic extremes. The intervention builds on successful pilot efforts previously supported by development partners, with lessons adapted for wider application and institutionalization.

The project will begin with assessments of existing MCC infrastructure and cooperative readiness to design context-appropriate systems. Following this, it will support procurement and installation of hydroponic units, and deliver hands-on training for cooperative leaders and member farmers on system operations, maintenance, and nutrient optimization.

To ensure long-term sustainability and equitable access, each cooperative will be supported to develop localized cost-sharing and governance models, enabling both member and non-member farmers to benefit. Furthermore, partnerships with local veterinary services and livestock extension officers through MINAGRI will be capacitated to provide extension services to assist smallholder farmers in enhancing fodder production with improved herd nutrition and health monitoring, to enhance the overall resilience of livestock systems in drought-prone zones.

To reduce vulnerability and ensure reliable feed availability throughout the year, the project will scale up the deployment of hydroponic fodder production systems through milk-producing cooperatives operating Milk Collection Centers (MCCs). Implementation will begin with assessments of existing MCC infrastructure and cooperative readiness to ensure the hydroponic systems are appropriately sized and configured for local conditions. The project will then support the procurement and installation of modular hydroponic units and provide technical training for cooperative staff and smallholder herders on system operation, maintenance, and fodder management practices.

To ensure equity and sustainability, participating cooperatives will be supported to develop cost-sharing models and inclusive management frameworks that allow both members and surrounding non-member farmers to access fodder. Linkages with veterinary and livestock extension services under MINAGRI will be strengthened to integrate improved feeding systems with broader animal health and productivity support, ensuring holistic improvements in herd resilience and milk yields.

By introducing year-round, drought-resilient fodder systems within cooperative-based structures, this subcomponent will not only safeguard livestock-dependent livelihoods but also create replicable models for climate adaptation within Rwanda's dairy sector.

Key Activities:

1. Conduct cooperative-level needs assessments to determine infrastructure suitability and design parameters for hydroponic integration.
2. Support the procurement and installation of at least 10 hydroponic fodder units at strategically selected MCCs across the three districts.
3. Train cooperative staff, herders, and milk producers in system operations, routine maintenance, and fodder quality control.
4. Develop cooperative-level cost-sharing and management models to ensure inclusive access and financial sustainability.
5. Facilitate partnerships with local livestock and veterinary services to integrate hydroponic feed with broader herd management and productivity support.

Subcomponent 2.2. Improve post-harvest handling and storage solutions primarily for animal fodder

Climate variability in Rwanda's drought-prone food basket districts not only affects production levels but also leads to significant post-harvest losses especially for fodder and perishable crops that are essential for livestock and household food security. This subcomponent addresses the critical need for improved post-harvest handling, preservation, and storage solutions to safeguard farmers' gains and ensure the continuity of livestock feeding and food availability during dry spells.

Building on existing cooperative infrastructure and technical support systems, the project will support the introduction and scale-up of improved post-harvest storage technologies such as fodder silage pits, solar dryers, and low-cost, ventilated storage sheds. These will be deployed particularly in sites where hydroponic and conventional fodder production is being supported, ensuring that surplus feed produced during rainy periods can be safely preserved for use during drought.

The initiative will also strengthen farmer capacity in post-harvest management practices such as proper drying, baling, and fermentation techniques through practical trainings led by livestock extension officers and cooperative leaders. Additionally, the project will promote the use of climate-smart packaging materials and community-based storage models that ensure equitable access and reduce spoilage.

Where appropriate, the project will integrate small-scale processing innovations (e.g. chaff cutters, pelletizers) that help convert crop residues and excess fodder into storable and transportable feed, enhancing efficiency and reducing waste. These interventions will not only increase fodder availability and livestock productivity during stress periods but also stabilize farmer incomes by reducing seasonal volatility and asset loss.

By improving fodder storage and extending shelf life, this subcomponent reinforces the resilience of mixed farming systems and supports year-round livestock productivity across the targeted districts.

Key Activities:

1. Conduct post-harvest infrastructure assessments in MCCs and cooperatives to identify fodder storage gaps and opportunities for technology integration.
2. Support the construction and/or upgrading of silage pits, solar dryers, and ventilated fodder storage sheds in areas with active hydroponic or fodder production.
3. Train farmers, cooperative staff, and MCC managers on drying, baling, fermentation, and safe storage techniques to preserve feed quality and minimize spoilage.
4. Promote community-based storage models that allow collective management and equitable access to preserved fodder, especially for vulnerable households.
5. Introduce low-cost chaff cutters, pelletizers, and basic processing tools to convert excess fodder and crop residues into storable and transportable feed.
6. Facilitate farmer field demonstrations on fodder preservation techniques and integrate post-harvest training into livestock extension curricula.
7. Pilot use of climate-resilient packaging materials and storage containers for improved shelf-life and handling of preserved fodder.
8. Develop cooperative-led maintenance schedules and management plans for shared storage infrastructure and processing equipment.

Component 3: Strengthened agroecological knowledge and farm business literacy for smallholder resilience

This component aims to build the knowledge, skills, and systems that empower smallholder farmers particularly women and youth in Rwanda's drought-prone food basket regions to adopt sustainable agroecological practices and improve their farm enterprise management. While previous components focus on inputs, technologies, and climate information, this component addresses the human and behavioral dimension of resilience: farmers' capacity to adapt, innovate, and thrive under changing climatic and market conditions.

Agroecological principles such as crop diversification, organic soil improvement, and integrated pest management are foundational to long-term agricultural sustainability. However, uptake remains limited due to knowledge gaps, labor constraints, and limited access to practical training. Simultaneously, many smallholder farmers lack basic skills in farm budgeting, market planning, and financial literacy, limiting their ability to treat farming as a resilient business.

This component will therefore integrate climate-resilient agronomic extension with foundational business literacy and strengthen the delivery of farmer education through local institutions. The project will also embed gender- and traditional knowledge-sensitive content into extension systems to ensure culturally rooted, inclusive adaptation learning.

It will support local training institutions, cooperatives, and extension officers to roll out practical agroecological and business modules tailored to priority value chains. Through a combination of demonstration plots, farmer field schools, peer-to-peer exchanges, and mobile-based content, the project will enable farmers to build their capacity in adaptive farm planning, improve productivity, and diversify income sources.This component is structured around three interlinked subcomponents:

Subcomponent 3.1. Farmers adopt sustainable agronomic and agroecological practices.

This subcomponent focuses on equipping smallholder farmers in Kayonza, Gatsibo, and Nyagatare with the knowledge and skills to adopt agroecological practices that build long-term soil health, improve water efficiency, and enhance climate resilience. In the context of recurring droughts, erratic rainfall, and land degradation, agroecology offers a practical, low-cost pathway for farmers to sustain productivity while regenerating the natural resource base upon which their livelihoods depend.

The project will work through MINAGRI extension systems, local cooperatives, and district agronomists to promote climate-smart agronomic techniques such as crop rotation, intercropping, composting, mulching, cover cropping, and organic pest management. These practices will be tailored to local agro-ecological conditions and integrated into demonstration plots, farmer field schools, and cooperative-led training programs.

To encourage adoption, the project will establish community-based agroecological learning hubs anchored in farmer cooperatives or Milk Collection Centers (MCCs), where farmers can observe and practice sustainable land management techniques in real field settings. These hubs will serve as innovation spaces for peer learning, experimentation, and mentoring, particularly for women and youth who are often excluded from formal extension outreach.

Recognizing that behavior change requires ongoing support, the project will embed agroecological extension into routine advisory services by training local extension agents and progressive farmers as lead trainers. It will also explore the use of visual guides, mobile content, and short-form radio messaging in Kinyarwanda to reinforce key practices and reach low-literacy users.

Over time, this subcomponent will foster a shift in local farming systems from input-intensive to knowledge-intensive where adaptation and regeneration go hand-in-hand. It will also strengthen the foundations for integrated soil and water management under Component 2, creating positive spillover effects for food security, income stability, and ecosystem restoration.

Key activities

1. Establish agroecological learning hubs staffed with agronomists and demonstration sites within each district to serve as centers for technical capacity provision (By agronomists) training, experimentation, and peer exchange.
2. Recruit and embed Agronomy Officers at district level and build the capacity of cooperative leaders, and lead farmers to deliver continuous training on climate-smart and regenerative agronomic practices.
3. Integrate agroecological principles and practices into farmer field schools and existing extension services to promote adoption at scale.
4. Develop and disseminate farmer-friendly information materials and local media content to reinforce agroecological practices, particularly for low-literacy users.

5. Facilitate cross-learning and exchange visits among cooperatives to promote farmer-led innovation and replication of successful agroecological approaches.

Subcomponent 3.2. Improved financial and enterprise management skills among farmers.

This subcomponent aims to improve the capacity of smallholder farmers, especially women and youth to manage their farms as resilient enterprises by strengthening their knowledge of business planning, financial management, and market engagement. As climate change increases production risks and cost volatility, the ability to plan financially, assess risks, and diversify income sources becomes critical for sustaining rural livelihoods.

The project will work through MINAGRI, local extension officers, and farmer cooperatives to design and deliver practical training modules on key business skills, including record keeping, budgeting, cash flow management, loan application procedures, cost-benefit analysis, and marketing strategies. These trainings will be delivered in accessible formats and local language (Kinyarwanda), using participatory methods that blend classroom-style sessions with hands-on practice in real farm settings.

To support women and youth in particular, the project will develop tailored curricula that address the specific constraints they face such as limited asset ownership, restricted access to finance, and mobility limitations. This will be complemented by peer mentorship programs linking emerging agripreneurs to successful farmer-led enterprises and cooperatives already practicing business-oriented farming.

In parallel, the project will promote linkages with savings and credit cooperatives (SACCOs), microfinance institutions, and digital finance platforms to improve farmers' access to working capital and adaptation-relevant financial services. Where appropriate, digital recordkeeping tools will be piloted with youth-led cooperatives and groups to improve transparency and planning, and to support long-term engagement with formal financial institutions.

Ultimately, this subcomponent will contribute to a new generation of entrepreneurial farmers who not only adapt to climate risks but thrive in the face of them transforming smallholder agriculture into a viable business for rural prosperity.

Key Activities

1. Develop and deliver practical, localized training modules on farm financial literacy, business planning, and market engagement through MINAGRI and cooperative networks.

2. Design tailored curricula and mentorship schemes for women and youth to address structural barriers to enterprise development.
3. Facilitate partnerships with SACCOs, microfinance institutions, and digital finance providers to improve access to working capital and climate-smart financial services.
4. Pilot the use of digital recordkeeping and budgeting tools within women and youth-led and progressive farmer groups to build long-term financial planning capacity.
5. Support peer-to-peer learning exchanges between emerging agripreneurs and established farmer enterprises to promote experiential learning and enterprise growth.
6. Provide support for establishment of gender sensitive ICT hubs at community level to provide learning hubs for cooperative members.

Subcomponent 3.3. Innovative and gender-responsive knowledge integrated into extension delivery.

This subcomponent focuses on strengthening the cultural relevance, equity, and local legitimacy of climate adaptation efforts by systematically integrating innovative knowledge systems and gender-responsive approaches into agricultural extension and advisory services.

In the targeted districts of Kayonza, Gatsibo, and Nyagatare, farmers, especially elders, women, and local leaders possess deep contextual knowledge of agroecological rhythms, traditional soil and water management practices, seed selection, and natural indicators for seasonal forecasting. However, this knowledge is often undervalued or excluded from formal extension systems. At the same time, current advisory services do not consistently address the differentiated needs, constraints, and decision-making roles of women and youth, limiting their impact and inclusivity.

To address this gap, the project will support MINAGRI and its decentralized structures to conduct participatory assessments and documentation of traditional practices that have demonstrably contributed to resilience and ecosystem restoration in the region. These practices will then be validated and integrated into extension materials, model farm demonstrations, and farmer field schools. Special attention will be paid to identifying low-cost, accessible practices that align with agroecological principles and can be scaled alongside modern innovations.

The project will also invest in building the capacity of frontline extension staff particularly at sector and cell levels to apply gender-transformative approaches in their service delivery. This includes using gender analysis tools, facilitating inclusive dialogue, and adjusting training content and schedules to accommodate women's caregiving roles and mobility limitations.

Through this dual integration of traditional and gender-responsive knowledge, the project aims to create extension systems that are more trusted, relevant, and empowering—ensuring that diverse farmer voices and experiences shape adaptation solutions, and that traditional wisdom complements scientific innovation in building climate-resilient agriculture.

Key activities

1. Facilitate participatory documentation and validation of traditional agroecological knowledge and climate adaptation practices through community dialogues and field visits.
2. Integrate validated traditional practices into extension training modules, farmer field school curricula, and demonstration plots across targeted districts.
3. Develop and disseminate gender-responsive training materials and tools that reflect differentiated roles, constraints, and adaptation strategies of women and youth.
4. Build the capacity of frontline extension officers to apply inclusive facilitation techniques, gender analysis, and culturally grounded advisory approaches.
5. Promote community-based knowledge exchange platforms that elevate the voices of elders, women, and youth in shaping extension content and delivery.

Component 4: Local institutional capacity for adaptation planning and delivery

This component aims to build the long-term resilience of Rwanda's drought-prone food basket districts by equipping local institutions with the systems, tools, and capacities needed to plan, coordinate, and implement climate adaptation actions at the local level. Anchored within MINAGRI's decentralization framework, the component supports district governments and local sector agencies in Kayonza, Gatsibo, and Nyagatare to play a more proactive, informed, and inclusive role in managing climate risks and facilitating community-led adaptation.

Local government structures are closest to the communities experiencing the impacts of climate variability and are well-positioned to embed adaptation into local development plans, allocate resources more responsively, and engage citizens in shaping priority interventions. However, limited institutional capacity, technical knowledge gaps, and weak coordination platforms currently hinder effective delivery of adaptation actions.

Subcomponent 4.1. District-level government and sector agencies equipped to plan and deliver local adaptation.

This subcomponent focuses on building the capacity of district and sector-level authorities to mainstream climate adaptation into development planning and public expenditure management. The project will support district environment and agriculture officers, planning units, and sector staff with training, technical assistance, and planning tools to integrate climate risks into Imihigo (performance contracts), District Development Strategies (DDS), and annual budgets. It will also promote climate-responsive public investment by helping local authorities cost and prioritize adaptation actions aligned with national climate policies and Rwanda's NDC.

Special attention will be given to participatory planning approaches that ensure women, youth, and vulnerable groups are actively engaged in local adaptation planning processes. Practical tools and templates will be developed or adapted for district teams to identify risks, prioritize actions, and align them with community needs and agroecological realities.

Key Activities

1. Deliver tailored training and technical assistance to district planners, agriculture, and environment officers on integrating climate risks into local development plans, Imihigo, and budgets.
2. Support the adaptation and roll-out of climate risk screening and costing tools aligned with national frameworks (e.g., NDC,NST2).
3. Facilitate participatory adaptation planning sessions with community representatives, local authorities, and sector agencies to ensure inclusive priority setting.
4. Develop practical planning templates and guidance materials to help districts align adaptation actions with food basket zones and vulnerable groups' needs.
5. Strengthen coordination mechanisms between district governments, sector agencies, and national institutions to improve vertical integration of adaptation priorities.

Subcomponent 4.2. Local adaptation plans and coordination platforms established.

This subcomponent aims to reinforce institutional linkages between local adaptation efforts in Rwanda's drought-prone food basket districts and national climate change governance structures. While communities and districts are on the frontlines of climate risk, their priorities are often insufficiently reflected in national decision-making and resource allocation processes. This disconnect weakens the effectiveness, scale-up potential, and sustainability of local adaptation investments.

To address this gap, the project will support the establishment and operationalization of multi-stakeholder coordination platforms at the district level. These platforms

comprised of district officials, sector agencies, farmer cooperatives, civil society organizations, and private sector actors will serve as vehicles for joint planning, implementation tracking, and policy dialogue on locally led adaptation actions.

At the national level, the project will facilitate structured engagement between district adaptation actors and key national institutions such as MINAGRI, MINECOFIN, MoE,REMA, and the Rwanda Green Fund (RGF), with the aim of aligning local actions with national adaptation plans (e.g., NDC implementation frameworks). Periodic policy roundtables and learning exchanges will be organized to surface district-level experiences, foster peer-to-peer learning, and inform adaptive improvements to policy and financing mechanisms.

A knowledge management system will also be supported to document, package, and disseminate local adaptation innovations, challenges, and results. By elevating local voices and evidence into national fora, this subcomponent will contribute to a more coherent and responsive adaptation ecosystem in Rwanda ensuring that lessons from the ground help shape the direction of national climate action.

Key activities.

1. Establish and operationalize multi-stakeholder district coordination platforms on climate adaptation in Kayonza, Gatsibo, and Nyagatare.
2. Facilitate quarterly learning and coordination meetings among district officials, sector agencies, cooperatives, and civil society actors to review adaptation priorities and implementation progress.
3. Support the development of district-level adaptation coordination guidelines aligned with national policy frameworks (e.g., GGCRS, NDC, NST2).
   Organize biannual national-local policy dialogues and learning exchanges to integrate district experiences and innovations into national adaptation planning and resource allocation processes.
4. Develop a knowledge management and exchange framework to document, curate, and disseminate locally led adaptation practices and lessons learned.

Subcomponent 4.3. Establish/Strengthen monitoring, evaluation and learning systems for local adaptation

To ensure that adaptation actions deliver measurable impact and promote continuous improvement, this subcomponent will support the development of robust MEL systems for climate resilience at the local level. Districts will be assisted to develop results frameworks, indicators, and reporting tools aligned with national adaptation metrics and the Adaptation Fund’s performance framework.

The project will also build local capacity to track progress on adaptation outcomes, including shifts in behavior, reduced vulnerability, and improved service delivery. Citizen feedback mechanisms, community scorecards, and participatory learning reviews will be institutionalized to ensure accountability and generate practical insights for adaptive management.

Together, these efforts will enable local governments to become credible and capable adaptation actors, better able to plan, deliver, and sustain climate resilience investments over time.

Key activities.

1. Support district governments to develop localized results frameworks, indicators, and MEL tools aligned with national adaptation strategies and the Adaptation Fund's performance framework.
2. Train district planning and sector staff on climate adaptation outcome tracking, data collection, and reporting using both quantitative and qualitative methods
3. Institutionalize participatory monitoring tools such as community scorecards, farmer feedback forums, and reflective learning sessions to capture behavioral change and service delivery impact.
4. Develop simple digital or paper-based systems for routine data collection, analysis, and reporting on adaptation outcomes at the district and sector levels.
5. Facilitate cross-district MEL learning exchanges to harmonize practices and share lessons on what works in locally led adaptation.
6. Ensure MEL data is regularly synthesized and shared with national institutions (e.g., MINAGRI, REMA) to inform adaptive policy, planning, and resource allocation.

B. Economic, Social, and Environmental Benefits for Vulnerable Communities with Safeguards Against Negative Impacts

Economic, social, and environmental benefits with focus on vulnerable groups

This project is designed to deliver tangible and sustained economic, social, and environmental benefits to the most vulnerable communities in Rwanda's Eastern Province particularly in Kayonza, Gatsibo, and Nyagatare districts. These districts form part of Rwanda's core agricultural food basket but are increasingly affected by recurrent drought, erratic rainfall, and land degradation, which disproportionately affect smallholder farmers, women-headed households, and youth engaged in agriculture.

Economic Benefits

Across all four components, the project supports livelihood stabilization and enhancement by reducing climate risks and improving agricultural productivity and market participation.

- Climate-smart agricultural practices including composting, intercropping, cover cropping, and agroforestry will reduce dependence on costly external inputs, increase soil fertility, and stabilize crop and fodder yields over time. This is particularly beneficial for women and youth with limited capital for fertilizer or chemical inputs.
- Hydroponic fodder systems, post-harvest storage improvements, and solar irrigation will reduce livestock feed shortages during drought periods, improve milk productivity, and protect household income from seasonal volatility. Based on pilot studies, hydroponic systems can reduce feeding costs by up to 20% per MCC.
- Training in farm business management and access to financial services (SACCOs, microfinance, digital tools) will enhance farmer resilience through improved savings behavior, risk planning, and income diversification.
- The targeted inclusion of youth-led and women-led cooperatives will address historically low access to finance.
- The introduction of climate information services, including AI-enhanced localized forecasts, will enable more timely planting and input decisions, directly reducing crop failure rates and increasing labor efficiency. Time and cost savings are expected to exceed 20% per household per season.
- These interventions are projected to benefit approximately 10,000 smallholder farmers directly and 25,000 indirectly across the three districts, with at least 50% of direct beneficiaries being women and 30% being youth.

Social benefits

The project is expected to deliver strong social co-benefits, particularly for vulnerable and marginalized populations, by improving food security, social cohesion, and local empowerment:

- Agroecological learning hubs, farmer field schools, and cooperative-based training will increase access to knowledge for groups often left out of formal extension notably illiterate farmers, women caregivers, and pastoral communities. Training will be offered in Kinyarwanda and use visual and peer-based learning formats to ensure accessibility.
- Community storage infrastructure and post-harvest management systems will ensure year-round availability of livestock feed and reduce asset depletion during droughts a critical safety net for female-headed households who often rely on livestock for daily income and nutrition.
- By embedding gender-responsive and traditional knowledge systems into extension delivery, the project restores cultural legitimacy and local trust in agricultural services. This is particularly important in contexts where elders and

women possess traditional climate coping strategies that are currently undervalued.
- Through district- and sector-level planning support, the project ensures that adaptation decisions reflect community priorities, including those of people with disabilities, youth that are typically underrepresented in public planning processes.

Over time, these interventions are expected to reduce climate-related displacement risks, improve community cohesion, and strengthen local capacity for self-determined development.

Environmental benefits

The project promotes long-term ecosystem regeneration and climate resilience through capacity building in sustainable land, water, and biodiversity management:

- Regenerative land-use practices such as mulching, agroforestry, and organic soil fertility management will reduce erosion, rebuild soil carbon stocks, and enhance landscape-level resilience to climate shocks.
- Fodder silage pits, solar dryers, and low-emission storage technologies will reduce methane emissions from decomposing biomass and minimize post-harvest losses.
- Where applied, agroforestry systems will provide shade, enhance habitat for pollinators, and increase biodiversity on degraded or overgrazed lands.

Together, these efforts will contribute to:

- A reduction in land degradation across select food basket zones
- A measurable improvement in soil health indicators
- Increased carbon sequestration from agroecological practices,
- And improved ecosystem services such as pollination, water regulation, and erosion control.

Avoidance of Negative Impacts and Compliance with Environmental and Social Safeguards and Gender Policy. This project has been designed to maximize positive environmental, social, and economic outcomes while minimizing and managing any potential adverse impacts. It aligns fully with the Environmental and Social Policy (ESP) and Gender Policy of the Adaptation Fund and leverages Rwanda's robust national frameworks to operationalize safeguards.

Environmental and Social Safeguards

All project activities will be screened for environmental and social risks in line with the Adaptation Fund's Environmental and Social Management Framework (ESMF) and the AF's 15 ESP principles. The project is expected to fall under Category B, indicating potential adverse impacts that are minor to moderate, site-specific, and manageable

with mitigation measures. Safeguards will be operationalized through the following key steps:

- Initial Screening and Risk Categorization: All site-level activities (including hydroponic installations, irrigation systems, fodder storage, and learning hubs) will undergo environmental and social screening prior to implementation. This will determine whether an Environmental Management Plan (EMP), Abbreviated Resettlement Action Plan (ARAP), or other safeguards instrument is required.
- Use of Existing Safeguard Tools: The project will use tools and templates developed under FONERWA's ESMF, which are aligned with national legislation and the AF ESP. This includes guidance on environmental screening, stakeholder consultation, grievance redress mechanisms, and monitoring.
- Avoidance of High-Risk Activities: The project will explicitly exclude any Category A activities, such as those involving involuntary resettlement, physical displacement, or major infrastructure construction. All interventions are designed to be community-scale, nature-based, and adaptive.
- Capacity Support: District-level planners and project implementers will receive targeted training on AF safeguard standards, risk screening, and mitigation planning. A dedicated Environmental and Social Safeguards Officer will be embedded in the project team to oversee compliance.
- Participatory Safeguards Oversight: Local communities will be engaged in impact identification, risk monitoring, and design of mitigation measures through community scorecards, feedback sessions, and inclusive planning workshops.

Where physical infrastructure is involved (e.g. hydroponics and silage facilities), environmental screening will be complemented by:

- Site-specific EMPs;
- Authorization from REMA or RDB (Rwanda Development Board) where applicable;
- Use of chance finds procedures to protect cultural heritage if uncovered during construction.

Gender policy compliance

Gender integration is central to the project design and delivery and is consistent with Rwanda's national gender policy and the Adaptation Fund's Gender Policy and Action Plan. The project has applied a gender-responsive approach in its:

- **Targeting:** At least 50% of direct beneficiaries will be women, with specific support to female-headed households, women-led cooperatives, and young women in agriculture.
- Project outreach will prioritize women who lack access to land, finance, or decision-making roles in current cooperative structures.

- **Design of Activities:** Trainings will be scheduled and delivered in a manner that accommodates women's caregiving roles and time constraints.
- Gender-transformative practices will be embedded in extension materials, including modules on intra-household decision-making, equitable benefit sharing, and reproductive roles.
- **Institutional Capacity:** A national gender expert from MINAGRI will be part of the core team and will provide oversight during project implementation and reporting.
- District-level staff and partners will be trained on gender analysis tools, gender-responsive budgeting, and inclusive facilitation techniques.
- **Safeguards and Accountability**: All ceproposals/tenders will include a gender action plan, sex-disaggregated indicators, and results tracking.
- A grievance redress mechanism will be accessible to all project participants, including anonymous reporting channels for gender-based concerns.
- The project will also draw on the National Gender Policy to mainstream gender issues into the project and other mainstreaming tools to ensure gender considerations are institutionalized across the entire project cycle from community planning and implementation to monitoring and impact evaluation.

Social and Environmental Risk Management in Practice

To further institutionalize safeguards and accountability:

- A dedicated safeguards budget line is included in the project budget for training, oversight, and corrective action.
- All implementing partners will be required to submit safeguards screening forms, risk management plans, and gender action plans prior to activity approval.
- Safeguards performance will be monitored through quarterly reports, field audits, and midterm reviews, with findings feeding into an adaptive learning system for continuous improvement.

C. Describe or provide an analysis of the cost-effectiveness of the proposed project/programme.

This project is designed to maximize impact per dollar while ensuring equitable, locally embedded, and sustainable adaptation outcomes. The total budget of USD 4.93 million is strategically allocated to deliver high-value interventions across four core components and a dedicated project management unit. The project's architecture emphasizes the catalytic use of resources, scaling of proven technologies, and optimization of delivery platforms to ensure efficiency, sustainability, and replicability.

Component 1: Localized Climate Information Services – USD 1,181,075

This component finances the participatory design, generation, and dissemination of

climate and weather information tailored to local agricultural needs. Key investments include multi-channel dissemination platforms (USD 175,000), translation and graphic design for seasonal bulletins (USD 15,000), and training workshops using the PICSA methodology (USD 69,525). Fixed infrastructure costs—such as AI/ML-based model development (USD 250,000)—are frontloaded and designed for scalability. For example, once data systems and digital channels are deployed, marginal costs for reaching additional farmers become negligible, making this one of the most cost-efficient components on a per-beneficiary basis. With an estimated reach of over 25,000 farmers in total, the per-farmer cost drops below USD 5 annually. The component builds on and complements METEO Rwanda and RAB systems, reducing duplication and maximizing existing institutional investments.

Component 2: Climate-resilient agricultural technologies – USD 920,350

This component provides catalytic support for smallholder farmers to adopt climate-smart production systems. Major investments include hydroponic fodder systems (USD 300,000 allocated for district-level procurement and cooperative access), chaff cutters and feed storage equipment, and low-pressure irrigation technologies. Each hydroponic unit, budgeted at ~USD 10,000, serves 200 farmers, translating to a unit cost of USD 50 per farmer. Combined with additional technologies like ventilated storage and pelletizers, this ensures year-round fodder access, stabilizing livestock productivity in drought-prone areas. Capital investments are further supported by agronomy expert training (USD 54,000) and targeted agro-input support delivered through cooperatives, increasing the long-term sustainability and cost-sharing potential of the interventions.

Component 3: Agroecological practices and farm business literacy – USD 1,231,050

This component strengthens knowledge and behavioral change for resilient farming through participatory training in agroecological methods, regenerative soil health, and business literacy. Workshops and clinics (e.g., USD 176,175 for outreach meetings, USD 30,000 for women & youth agribusiness clinics, and additional sessions on cooperative governance) are delivered via cascade training models and supported by local agronomy officers. Training delivery costs are maintained under USD 50 per person per day, with 30–40 participant cohorts and use of community venues. Lead farmers are trained to become peer educators, with each expected to pass knowledge to at least 3–4 others, effectively lowering the per-beneficiary cost. The use of digital content (e.g., PDF guides, WhatsApp lessons) and localized adaptation content ensures low-cost knowledge diffusion across communities.

Component 4: Strengthening local institutional capacities – USD 363,400

This component focuses on embedding adaptation planning and monitoring within existing district-level institutions. Key investments include technical support to Joint Action Development Forums (JADFs), training sessions for cooperative governance, and stakeholder planning workshops across the three target districts. By avoiding the creation of new governance structures, the project minimizes administrative costs and ensures that support systems are maintained beyond the project lifecycle. Leveraging existing local government structures and leadership platforms ensures integration into Rwanda's planning frameworks, creating a high return on relatively modest upfront investments. Additionally, agronomy expert fees and district coordination inputs (e.g., USD 99,519 for consultation and mentoring) are shared across multiple subcomponents, lowering the institutional cost burden per intervention.

Component 5: Project, baseline, monitoring & evaluation and learning – USD 241,975

The project's Monitoring and Evaluation (M&E) framework is designed to ensure rigorous accountability, learning, and adaptive management while maintaining a lean and cost-effective structure. Totaling USD 241,975, the M&E budget is well within the Adaptation Fund's recommended threshold (5% of the total budget) and supports a combination of baseline assessments, independent evaluations, ongoing outcome tracking, and performance reporting.

A comprehensive baseline study (USD 46,550) will establish starting values for key outcome indicators including income, yield, and resilience metrics providing a robust foundation for results measurement. This will be complemented by an independent mid-term evaluation (USD 31,975) to assess progress and enable timely course corrections, and a final terminal evaluation (USD 71,550) to capture lessons learned, inform sustainability strategies, and assess long-term impacts. These evaluations include stakeholder consultations and field-based assessments, ensuring contextual accuracy and legitimacy.

Ongoing outcome monitoring (USD 25,000 across five years) enables targeted annual surveys and mini-studies such as assessing hydroponic adoption or yield variability to supplement routine monitoring. This enhances the project's ability to track behavioral and systemic change at the community level.

To coordinate M&E activities, the budget includes part-time staff support (USD 36,000 over 24 months), ensuring data collection and reporting are continuous and integrated across components. Additional line items include the preparation of mandatory Adaptation Fund reports (USD 3,000 over three years) and field travel for PMU and UNDP oversight missions (USD 27,900), which allow for hands-on verification and quality assurance.

This strategic combination of periodic independent assessments, continuous local data collection, and embedded staffing results in a highly efficient M&E system. It minimizes redundancy, leverages existing government and project infrastructure, and ensures that every dollar invested in M&E contributes directly to learning, course correction, and improved deliver

Project Management Costs

Project management are within the Adaptation Fund's recommended cap of 15% of the total budget. This includes USD 370,370 allocated for UNDP's Implementing Entity role, with the balance covering project personnel, data systems, field monitoring, learning events, and evaluation. A lean Project Management Unit (PMU) embedded in MINAGRI will coordinate technical execution, while existing district structures will support data collection. The use of adaptive, performance-based MEL frameworks and digital cost-tracking tools ensures timely and accountable reporting. The project's MEL strategy incorporates outcome harvesting and participatory M&E, promoting efficiency in results reporting and real-time learning feedback loops.

1. **Alignment of resources with high impact, low-cost interventions**

The project's design prioritizes efficient use of resources by directing over 85% of its total budget approximately USD 4.2 million out of USD 4.94 million towards field-level investments that deliver tangible resilience benefits to smallholder farmers, cooperatives, and local institutions. These resources support infrastructure, services, and knowledge systems across four core components, with only 15% allocated to project management and monitoring and evaluation (M&E), aligning with Adaptation Fund cost norms.

The project specifically targets interventions that offer strong returns on investment and cost efficiencies over time. For example, the hydroponic fodder systems costing an average of USD 50,000 each, inclusive of installation and training are expected to serve cooperatives of approximately 200 livestock farmers each. This translates to a per-farmer cost of just USD 250. Given the high cost of feed during drought periods, this investment is expected to yield positive returns within 12 to 18 months through increased livestock productivity and reduced input expenses.

Similarly, the digital Weather and Climate Information Services (WCIS) system (USD 1.18 million) delivers location-specific advisories to over 25,000 farmers, reducing per-user costs to below USD 5 annually after initial set-up. Once the system is established, dissemination costs are marginal, making it one of the most scalable and cost-efficient adaptation investments.

Under the agroecology and farm-business literacy component (USD 1.23 million), the project employs a cascade training model that trains lead farmers and cooperative leaders, who in turn train their peers. Training delivery costs are kept under USD 50 per person per day by using local venues, grouping participants in cohorts of 30 to 40, and embedding sessions within existing extension networks. Peer-to-peer learning and digital modules further reduce long-term costs by spreading knowledge organically and minimizing the need for repeated large-scale training sessions.

Investments are strategically aligned with existing delivery systems including MINAGRI Rwanda's infrastructure, district development platforms, and cooperative governance structures thereby reducing the need for new institutions and maximizing the use of Rwanda's established public service networks.

2. Integration, synergies, and economies of scale

The project leverages a highly integrated delivery model that aligns activities across components to generate shared outcomes and reduce duplication. For instance, WCIS and agroecological training are delivered jointly, using common mobilization efforts and shared facilitation resources. This bundling approach is expected to reduce outreach and coordination costs by up to 30%.

Climate advisories are embedded within routine agricultural extension services, increasing the relevance of climate information while avoiding parallel outreach efforts. A single digital platform is used both for disseminating WCIS and for delivering farm-business training modules, significantly reducing technology investment and maintenance costs. In addition, pooled procurement of inputs and services—such as hydroponic kits, seeds, and training materialsat the district level secures volume discounts and reduces per-unit delivery costs.
These design synergies ensure that investments serve multiple functions, enabling the project to stretch each dollar further while increasing the depth and sustainability of impact.

3. Value for money in targeting and reach

The project aims to directly benefit at least 10,000 farmers with an additional 25,000 indirect beneficiaries reached through information spillover, shared use of inputs, and public access to digital tools. More than 300 community leaders, cooperative managers, and local officials will also be strengthened through targeted institutional support.

The average cost per direct beneficiary is projected to be less than USD 180 well below typical benchmarks for rural adaptation projects in Sub-Saharan Africa, which often range from USD 200 to 300 per person. The project further enhances its value-for-

money proposition by targeting communities in Rwanda's most drought-prone food-producing regions, ensuring that resources are deployed where vulnerability is highest and the potential for impact is greatest.

In addition to the immediate outputs, the project is expected to generate long-term public goods including open-source WCIS tools, standardized training curricula, and scalable institutional models that will remain accessible and replicable beyond the project lifespan, amplifying its return on investment.

4. Leveraging co-financing, in-kind contributions, and policy alignment

While the project does not require formal co-financing, it is designed to be catalytic:

- Local communities and cooperatives will contribute land, labour, and logistical support.
- MINAGRI and district authorities will align staff time, data, and infrastructure to project implementation.
- The project directly contributes to the implementation of national plans such as the Strategic Plan for Agriculture Transformation (PSTA5), the Green Growth and Climate Resilience Strategy, and Rwanda's Nationally Determined Contributions (NDCs) enhancing the likelihood of long-term domestic financing continuity.

5. Replicability and long-term sustainability

The interventions selected are proven, cost-efficient, and replicable:

- Hydroponics and digital WCIS tools are modular and can be scaled to other districts with minimal adaptation.
- Cooperative-based delivery platforms reduce the need for expensive external facilitation.
- Institutional strengthening activities build local ownership, reducing long-term dependency on donor financing.

The project demonstrates strong cost-effectiveness by maximizing coverage, leveraging local systems, promoting sustainability, and prioritizing high-impact, low-cost interventions. With an average cost of less than USD 180 per direct beneficiary, the project delivers robust, integrated adaptation benefits that can be sustained and scaled across other vulnerable regions of Rwanda and beyond. embedding adaptive practices in national systems and local governance structures, the project ensures that resilience-building does not end with the project period.

D. Describe how the project/programme is consistent with national or sub-national sustainable development strategies, including, where appropriate, national adaptation plan (NAP), national or sub-national development plans,

poverty reduction strategies, national communications, or national adaptation programs of action, or other relevant instruments, where they exist.

This project is fully aligned with Rwanda's national and sub-national sustainable development frameworks, particularly in the areas of climate resilience, agriculture transformation, and rural livelihoods. The project contributes directly to the implementation of the country's , Nationally Determined Contribution (NDC), and Vision 2050, and supports priorities identified in sectoral plans such as the Strategic Plan for Agriculture Transformation (PSTA5), the Green Growth and Climate Resilience Strategy (GGCRS), and the National Strategy for Transformation (NST1 and NST2).

Nationally Determined Contribution (NDC, 2020): The project advances Rwanda's NDC targets by promoting climate-response agriculture, improving water and soil management, and facilitating early warning systems. It contributes to adaptation goals under the agriculture and land use sectors while fostering community ownership and local financing models, in line with the NDC implementation framework.

Vision 2050 and National Strategy for Transformation (NST2): Rwanda's long-term vision is to become a climate-resilient and high-income country by 2050. This project supports that aspiration by targeting food security, sustainable livelihoods, and green technology adoption in vulnerable rural regions, which are strategic priorities under Vision 2050 and NST2.

Revised Green Growth and Climate Resilience Strategy (GGCRS): The project complements the GGCRS by enhancing the resilience of rural livelihoods, expanding climate information services, and scaling up nature-based solutions such as regenerative agriculture. The emphasis on inclusive and locally led adaptation also supports GGCRS implementation pillars.

Strategic Plan for Agriculture Transformation (PSTA5, 2024–2029): All four components of the project respond directly to PSTA5's thematic areas—ranging from climate-resilient productivity growth to value addition, knowledge systems, and institutional governance in agriculture. By working through cooperatives and local institutions, the project strengthens the delivery of PSTA5 outcomes.

District Development Strategies (DDS) for Kayonza, Gatsibo, and Nyagatare: The project is tailored to district-specific vulnerabilities and priorities, particularly in supporting food security, livestock productivity, and access to agricultural extension services. These align with each district's DDS, which incorporate climate resilience and adaptation as key cross-cutting goals.

Rwanda Green Fund and Climate and Nature Finance Strategy (2024–2030): The project complements national efforts to mobilize and disburse climate finance through

local institutions, as emphasized in Rwanda's Climate and Nature Finance Strategy. It is also eligible for co-financing and alignment with Rwanda Green Fund programming focused on resilient rural development.The table below summarizes this alignment.

FRAMEWORK/ STRATEGY	RELEVANT PRIORITIES	ALIGNMENT WITH PROJECT
NATIONALLY DETERMINED CONTRIBUTION (NDC, 2020)	Agriculture, water, land use, early warning systems, local adaptation	Supports CSA, AI-based WCIS, drought resilience, and local adaptation delivery
VISION 2050 / NST**1** & NST2	Rural transformation, food security, inclusive green growth	Strengthens climate-smart agriculture and institutional capacity in vulnerable rural areas
GREEN GROWTH & CLIMATE RESILIENCE STRATEGY (GGCRS, 2022)	Climate-resilient rural livelihoods, adaptation planning, agroecology, green tech	Promotes agroecological practices, composting, hydroponics, and local adaptation governance
STRATEGIC PLAN FOR AGRICULTURE TRANSFORMATION (PSTA5, 2024–2029)	Priority Area I: Modernization of agriculture and animal resources production for climate-resilient agri-food systems	Project supports hydroponic fodder systems at MCCs, aligned with national push for alternative climate-resilient feed sources. Project deploys district-specific digital advisory tools and farmer learning platforms, designed for Eastern Province food basket districts
DISTRICT DEVELOPMENT STRATEGIES (KAYONZA, GATSIBO, NYAGATARE)	Food security, resilience, extension capacity, climate-responsive planning	Activities directly target these DDS priorities through localized interventions and stakeholder ownership
CLIMATE AND NATURE FINANCE STRATEGY (2024–2030) / Rwanda Green Fund	Local adaptation finance, community ownership, results-based delivery	Mobilizes decentralized execution modality for local actors, supporting national access to climate finance

E. Describe how the project/programme meets relevant national technical standards, where applicable, such as standards for environmental assessment, building codes, etc., and complies with the Environmental and Social Policy of the Adaptation Fund

1. Environmental assessment and EIA requirements

The project aligns with Rwanda's national environmental assessment framework as stipulated in Law No. 48/2018, which mandates that all public and private investments undergo screening and, where necessary, environmental impact assessment (EIA) under the supervision of the Rwanda Environment Management Authority (REMA). For this project, all initiatives at the local level will be subject to environmental and social screening using relevant EIA Guidelines and Environmental Checklist Tools. This ensures that activities such as irrigation expansion, construction of hydroponic units, or composting facilities are designed and implemented with adequate mitigation measures for soil erosion, biodiversity impacts, and water use. The project will work closely with REMA and district environmental officers to ensure compliance, facilitate necessary approvals, and monitor implementation of safeguards throughout the project cycle.

2. Agricultural input and land use standards

Given the project's strong focus on climate-smart agriculture, it will fully comply with Rwanda's national standards governing soil health, crop production, and agro-inputs. All agricultural activities including the use of compost, bio-fertilizers, hydroponic fodder, and improved seeds will follow the Organic Agriculture Standards issued by the Rwanda Agriculture and Animal Resources Development Board (RAB) and enforced through the Fertilizer and Agrochemical Regulatory Framework. Additionally, project activities will align with Rwanda's Land Use Master Plan (2017–2050) and associated District Land Use Plans, which prescribe zoning regulations and ecological limits for farming and infrastructure activities. This ensures that all on-farm and cooperative-level interventions promote sustainable land stewardship and do not contribute to land degradation or violation of ecological buffers such as wetlands or protected areas.

3. Building Codes and Construction Norms

All infrastructure interventions under this project will be designed and implemented in full compliance with Rwanda's National Building Code (2021), which outlines standards for structural integrity, site suitability, and safety. These regulations are administered by the Rwanda Housing Authority (RHA) and Ministry of Infrastructure (MININFRA) and are mandatory for all development works involving civil construction. Special emphasis will be placed on ensuring that buildings and structures are climate-resilient, using locally appropriate materials and techniques that can withstand heat, flooding, and drought stress. In line with Rwanda's Universal Accessibility Standards, infrastructure designs will incorporate gender-responsive and disability-friendly features to ensure equitable use by all community members. The project will also ensure that any new construction meets local permitting requirements, including district-level approvals and site inspection procedures. Where applicable, design templates and bills of quantities (BoQs) will be validated by licensed engineers and reviewed for environmental sustainability.

4. Public procurement and financial management

The project will operate under the regulatory framework established by Law No. 62/2018 on Public Procurement, ensuring full transparency, competitiveness, and value-for-money in all procurement and financial processes. This applies to both the procurement undertaken by the Ministry of Agriculture and Animal Resources (MINAGRI) as the executing entity, and by selected local actors (e.g., cooperatives and CSOs) managing District-Delivered Intervention Packages. All tenders, including those for equipment (e.g. hydroponic systems), services (e.g., training providers, consultants), and construction works, will follow the guidelines of the Rwanda Public Procurement Authority (RPPA). Financial management will comply with national fiduciary standards and be reinforced by support from UNDP as the Implementing Entity, which will ensure that funds are tracked and accounted for in accordance with the Adaptation Fund's fiduciary principles. In addition, the project will incorporate financial capacity assessments and training for local partners to build their procurement literacy, reporting capacity, and accountability systems. This guarantees responsible stewardship of public climate finance and reduces fiduciary risk.

5. Gender, inclusion, and social safeguards

The project adopts a rights-based and inclusive approach in line with The Adaptation Fund's Environmental and Social Policy (ESP). Special attention is given to ensuring that women, youth, and marginalized groups, often excluded from digital and financial services, are equitably involved in all project phases. Gender considerations are mainstreamed across project activities, from the design of hydroponic units at Milk Collection Centers (ensuring time-saving benefits for women), to the delivery of tailored weather advisories via mobile and radio channels. Moreover, all activities will be assessed and implemented in line with the Environmental and Social Policy (ESP) of the Adaptation Fund, which includes 15 principles such as protection of natural habitats, traditional rights, public health, and cultural heritage. A robust Grievance Redress Mechanism (GRM) will be established within cooperatives and district offices to address complaints and ensure transparency. Participatory monitoring, disaggregated data collection, and regular gender audits will further reinforce accountability and equity in adaptation delivery.

F. Describe if there is duplication of project/programme with other funding sources, if any.

The proposed project complements ongoing climate and agricultural initiatives in Kayonza, Gatsibo, and Nyagatare by addressing critical gaps in digital climate advisory services, hydroponic fodder systems, and local adaptation planning. While several interventions focus on land restoration, agroforestry, and water access, few

incorporate AI-powered weather and climate information services (WCIS), cooperative-led technology deployment, or institutional fiduciary capacity building. The project builds synergies by leveraging existing infrastructure and training platforms while ensuring non-duplication through innovative delivery models. This integrated approach ensures added value, alignment with national priorities, and sustainability beyond the project lifecycle. The table below summarizes some of the current project and how it aligns with the current project.

Project	Description	Duration	Synergies	Non-Duplication
Transforming Eastern Province through Adaptation (TREPA)	Landscape restoration and climate-resilient ecosystem building through reforestation, agroforestry, and capacity building.	2021 to 2027	Aligns with components on agroecological practices, capacity building, and digital climate services.	Lacks focus on hydroponics, AI-driven WCIS, and cooperative-based technology deployment.
Participatory Integrated Climate Services for Agriculture (PICSA)	Empowering farmers with localized climate information and decision-support through the PICSA methodology.	Ongoing	Supports climate information dissemination under Component 1 of the project.	Does not include AI-based forecasting, hydroponics, or institutional capacity for adaptation finance.
Promoting Climate Smart Agriculture for Improved Rural Livelihoods	Promotes agroforestry, irrigation advocacy, and drought-tolerant crops for adaptation in drought-prone areas.	Ongoing	Reinforces agroecology, CSA practices, and community engagement components.	Lacks focus on digital advisory services and hydroponic livestock feed solutions.
East Africa Climate Resilience Enhancement (ECREA)	Builds adaptive capacities using enhanced WCIS tools including PICSA-lite and agro-climate committees.	Ongoing	Supports WCIS dissemination and farmer training under Component 1.	Does not use AI/ML forecasting or integrate climate-resilient agri-tech like hydroponics.

DeSIRA Agroforestry Research Project	Research and training on diverse agroforestry options and tree management to enhance climate resilience.	2021 and ongoing	Complements agroecological training, peer learning, and biodiversity restoration.	Limited focus on weather information systems and livestock resilience innovations.
Training on Climate Smart Agriculture (CSA)	Capacity building for lead farmers on CSA practices like irrigation, agroforestry, and conservation agriculture.	Ongoing	Reinforces training and extension service support under Components 2 and 3.	Does not address digital WCIS, AI integration, or institutional fiduciary strengthening.
National Adaptation Planning (NAP) Project	Institutional support and ecosystem-based adaptation planning, especially in Nyagatare.	Ongoing	Supports Component 4 on adaptation planning and ecosystem restoration.	Focuses on policy and planning, not direct farm-level technologies or digital systems.

G. If applicable, describe the learning and knowledge management component to capture and disseminate lessons learned.

The project will integrate a robust and participatory Learning and Knowledge Management (LKM) strategy to ensure that lessons learned are systematically captured, synthesized, and disseminated across all implementation levels—from farmer groups to national policy institutions. This component is designed to reinforce adaptive project management, strengthen evidence-based policy making, and enable replication and scaling of successful climate adaptation models in Rwanda and beyond.

The project adopts a dual approach: (i) embedding learning processes directly into field activities (embedded learning), and (ii) establishing dedicated platforms and tools for the structured documentation, validation, and dissemination of results (strategic learning). Knowledge generation is not viewed as a standalone task but as an iterative process woven into implementation, feedback, and redesign cycles. The approach also responds to Rwanda's National Adaptation Plan (NAP) and National Strategy for

Transformation (NST2) goals of promoting a learning society and innovation in agriculture and climate resilience.

Embedded learning and adaptive feedback loops

At the local level, the project will establish continuous feedback and learning loops within participating cooperatives, district agricultural offices, and Milk Collection Centers (MCCs). Farmer field schools, climate champion networks, and seasonal climate forums will serve as iterative learning spaces where project beneficiaries can share experiences, troubleshoot challenges, and refine techniques related to hydroponics, composting, agroforestry, or climate information services.

The Participatory Integrated Climate Services for Agriculture (PICSA) methodology, already piloted in Rwanda, will be adapted and expanded to include AI-driven forecast interpretation and crop-livestock planning modules. These forums will generate localized knowledge on how farmers perceive and respond to climate information, enabling real-time refinement of advisory services. Digital feedback tools such as interactive voice response (IVR) surveys and WhatsApp-based polling will be deployed to capture farmer perspectives, measure user satisfaction, and identify adoption barriers. This information will be synthesized by implementing teams and shared with METEO Rwanda and MINAGRI for the continuous improvement of services.

Systematic knowledge capture and analysis

This project will be delivered through a decentralized execution model led by the Ministry of Agriculture and Animal Resources (MINAGRI), working closely with its decentralized structures and local government authorities in Kayonza, Gatsibo, and Nyagatare and will include a knowledge capture component. Each partner (e.g., cooperatives, CSOs) will be supported to document their experiences, including methodologies used, challenges faced, adaptation outcomes achieved, and lessons learned. Standardized reporting templates and reflection workshops will be used to ensure consistency in documentation. District-level knowledge focal points will be designated to aggregate and validate case studies and innovation profiles, which will then be submitted to MINAGRI and the UNDP implementing team for synthesis and cross-site analysis.

Special studies will be conducted on priority themes such as the effectiveness of AI-driven WCIS tools, gendered adoption of hydroponics, and the performance of different regenerative agriculture models. These studies will generate data that will inform scaling strategies, refinement of digital tools, and potential policy reform.

Dissemination and policy uptake

Validated knowledge products, including policy briefs, case studies, infographics, and farmer training videos, will be disseminated through multiple channels. These include national agricultural extension portals, cooperative radio shows, agricultural trade fairs, and MINAGRI-hosted policy dialogues. The project will also create a digital knowledge hub linked to the MINAGRI and other institutions' websites, hosting adaptation learning content in English, French, and Kinyarwanda.

To support broader policy uptake, annual learning symposiums will be held, bringing together stakeholders from government, research institutions, civil society, and the private sector. These events will serve as opportunities to showcase innovations, debate findings, and co-develop recommendations for integration into the National Adaptation Plan (NAP) implementation framework, district development strategies, and future funding proposals.

H. Describe the consultative process, including the list of stakeholders consulted, undertaken during project preparation, with particular reference to vulnerable groups, including gender considerations, in compliance with the Environmental and Social Policy and Gender Policy of the Adaptation Fund.

Stakeholder mapping and prioritization

The process began with a comprehensive stakeholder mapping exercise, which identified key actors at the national, district, and community levels. Special attention was given to groups that are disproportionately affected by climate change, including: Smallholder farmers and landless agricultural workers, Women-headed households, Youth and unemployed graduates, Persons with disabilities. This mapping informed a multi-tiered engagement strategy that ensured representation and active participation from these groups throughout project design.

Community-level consultations

Five community consultations were carried out across the proposed project locations. These sessions used:

- Participatory Rural Appraisal (PRA) methodologies and were conducted in Kinyarwanda to ensure accessibility. Venues were chosen to accommodate women, persons with disabilities, and remote rural dwellers.
- To address gender dynamics and social norms, the consultations incorporated: Gender-segregated focus group discussions (FGDs) for women and girls,
- Dedicated sessions for youth groups and informal community leaders, Facilitators trained in inclusive communication and gender-sensitive facilitation techniques, these dialogues enabled communities to articulate their adaptation

needs, barriers to technology adoption, and recommendations for sustainable livelihood strategies.

Sectoral and institutional engagement

A parallel stream of consultations was conducted with government institutions, academic bodies, and civil society organizations. These sessions were held both in-person and virtually, allowing for broader participation of national-level stakeholders and decision-makers who may not have been able to travel due to ongoing obligations or restrictions.

Virtual and in-person meetings were particularly effective in engaging high-level policymakers and technical specialists, and were held with: Senior representatives of Ministry of Agriculture and Animal Resources, Senior officials and experts from the Ministry of Environment, experts from METEO Rwanda, experts from the Rwanda's Green Fund, Gender focal points from the National Council for Persons with Disabilities (NCPD) and Rwanda Women's Network These engagements served to validate project alignment with national strategies such as the National Strategy for Transformation (NST2), Nationally Determined Contribution (NDC), Green Growth and Climate Resilience Strategy and the Strategic Plan for Agriculture (PSTA5) to ensure institutional ownership and support for implementation.

Thematic workshops and validation forums

Multi-stakeholder thematic workshops were convened to address priority areas relevant to the project's scope, including Gender-responsive climate adaptation, Use of artificial intelligence in climate forecasting (AI-WCIS), Sustainable regenerative agriculture,

The workshops were designed to encourage collaborative learning and iterative feedback, resulting in the refinement of project components and the co-development of key indicators and risk mitigation measures.

Gender equality and social inclusion

An in-depth gender analysis was undertaken during project design to identify structural barriers and opportunity areas for women's empowerment and gender equality. In response to the findings, the project design incorporates: Gender-disaggregated data collection and monitoring, A minimum 40% quota for female participation in all project activities, Promotion of inclusive technologies and services that reduce women's labor burdens, Integration of gender-responsive grievance redress mechanisms (GRM) to ensure equitable access to support and redress throughout the project lifecycle.

Efforts to reach persons with disabilities and marginalized ethnic groups were also integral, with specific adaptations in consultation tools and targeted outreach to representative organizations.

Environmental and social safeguards compliance

The project was screened in accordance with the 15 safeguard principles of the Adaptation Fund's ESP. Potential risks including those related to equity, biodiversity, and cultural heritage were identified and addressed through a tailored Environmental and Social Management Plan (ESMP). The ESMP outlines mitigation strategies, participatory monitoring procedures, and a grievance mechanism accessible to all stakeholders, including vulnerable and marginalized groups.

I. Provide justification for funding requested, focusing on the full cost of adaptation reasoning.

Rwanda's food security and rural livelihoods are increasingly under pressure from the impacts of climate change, particularly in the drought-prone districts of Kayonza, Gatsibo, and Nyagatare. These regions, which form the country's core food basket, are experiencing rising temperatures, longer dry spells, erratic rainfall, and frequent droughts conditions that are undermining agricultural productivity and increasing the vulnerability of smallholder farmers and herders. While Rwanda has made considerable progress in institutional climate readiness, the resources available through national channels remain insufficient to meet the scale and urgency of adaptation needs at the local level. The public budget is already stretched and cannot fully support targeted, community-led adaptation investments especially those that serve public goods or are needed by the most vulnerable populations.

This project therefore seeks Adaptation Fund (AF) financing to close a critical funding gap and scale up local adaptation actions through a decentralized executed delivery model. Under this approach the Ministry of Agriculture and Animal Resources (MINAGRI) – working closely with METEO Rwanda, the Rwanda Agriculture Board, and district authorities – will procure and deliver a pre-defined package of climate-resilient services and inputs directly to farmer cooperatives and producer groups in Kayonza, Gatsibo, and Nyagatare. AF resources will allow MINAGRI to: (i) integrate hyper-local weather and climate information services into its existing digital extension platform; (ii) roll out climate-smart technologies such as hydroponic fodder systems and silage infrastructure; (iii) finance district-level training and planning support; and (iv) equip women and youth with the knowledge and tools needed to participate meaningfully in climate-smart agriculture.

Without AF support these outcomes would remain out of reach. Rwanda's main domestic climate-finance vehicle, the Green Fund (RGF), has been invaluable for

national mitigation and large-scale ecosystem projects, yet it currently has no dedicated window for bundled, district-level adaptation support to farming cooperatives. Existing funding streams tend to favour competitive, nationally scoped calls that small rural organisations find difficult to access or co-finance. As a result, highly vulnerable food-basket districts continue to face shortages of climate-resilient inputs, advisory services, and institutional backstopping.

AF financing will enable a purpose-built a delivery mechanism that channels climate funds swiftly through MINAGRI's procurement and extension systems. Instead of launching open calls for proposals, MINAGRI will aggregate needs identified during field consultations and distribute "Cooperative Support Packages" (inputs, training, digital tools, and technical assistance) through district agronomy teams. This model leverages existing public-sector strengths, ensures consistency with national standards, and embeds capacity within local institutions, creating a scalable template for future adaptation investments aligned with Rwanda's NDC and National Adaptation Plan.

Because the target beneficiaries are among the most climate-exposed populations in Rwanda's drought corridor, the project will not require cash co-financing from cooperatives. However, in-kind contributions – land for demonstration sites, local labour for construction, community monitoring, and indigenous knowledge – will be mobilised to foster ownership and long-term sustainability.

Given that the target beneficiaries are among the most climate-vulnerable populations in Rwanda, the support packages will not require financial co-contributions. However, in-kind contributions such as land, local labor, knowledge, and coordination support will be encouraged to enhance ownership and sustainability. The proposed investment is designed to achieve high impact with limited resources by using a combination of proven interventions and innovative delivery mechanisms tailored to the rural Rwandan context.

The Adaptation Fund support is critical to bridging the current adaptation financing gap in Rwanda's drought-prone regions. It will allow for the delivery of targeted, high-impact adaptation solutions that empower local actors, protect livelihoods, and build a more resilient rural economy. Without this support, these outcomes will remain out of reach for the communities that need them most.

J. Describe how the sustainability of the project/programme outcomes has been taken into account when designing the project/programme.

This project has been intentionally designed to deliver long-term adaptation benefits for farmers and livestock herders in Rwanda's drought-prone food basket districts

Kayonza, Gatsibo, and Nyagatare. Sustainability has been integrated across all components of the project, from institutional capacity building and infrastructure design to the delivery mechanisms for climate services and agricultural technologies. By prioritizing local ownership, systems integration, and knowledge transfer, the project aims to ensure that outcomes persist and scale well beyond the duration of Adaptation Fund support.

Institutional and systemic sustainability

The project will demonstrate the viability of channeling sub-national climate finance through a decentralized execution mechanism by supporting locally-driven adaptation actions that respond directly to the needs of vulnerable communities. This pilot will show that MINAGRI, and local governments can coordinate effectively to deliver targeted climate finance, providing a proof of concept that may catalyze additional investments from bilateral and multilateral sources for local-level climate action.

Participating institutions including local governments, farmer cooperatives, and CSOs will receive targeted capacity strengthening in proposal development, financial management, monitoring, and project implementation. These skills, once developed, will remain with local actors and enable them to design and manage future projects independently, enhancing long-term absorptive capacity.

Policy and planning integration

The project is intentionally aligned with national planning systems. District-level agricultural and environmental experts will be trained and engaged throughout the programme to ensure adaptation interventions are institutionalized into Imihigo performance contracts and district development plans. This approach ensures that successful practices from digital climate services to hydroponic fodder systems—are not stand-alone pilots but embedded in long-term planning and budget frameworks.

Community ownership and social sustainability

The participatory model adopted by the project including PICSA workshops, community climate forums, and co-designed digital tools—ensures that communities play a central role in shaping and validating solutions. By enabling farmers, youth, and women’s groups to lead implementation and feedback loops, the project builds social capital, promotes inclusion, and fosters collective accountability. Local Climate Champions and peer-led learning systems will further embed resilience thinking and sustain behavior change across farming communities.

Environmental sustainability

The project promotes sustainable land and water management practices such as conservation agriculture, soil cover, efficient irrigation, and hydroponic fodder systems. These interventions reduce environmental degradation while improving productivity under stress conditions, leading to long-lasting ecosystem benefits such as soil retention, improved water efficiency, and restored vegetation. Climate-resilient infrastructure, such as community ICT hubs, will be maintained through district and cooperative structures, further reinforcing sustainability.

Economic sustainability

By increasing access to localized climate information, climate-smart inputs, and market intelligence, the project strengthens farmer decision-making and profitability under changing climate conditions. This is complemented by training in farm business literacy and financial planning. Through increased productivity, improved market linkages, and post-harvest value addition, farming households are expected to realize economic gains that reinforce adaptive capacity and reduce dependence on external aid. Cost-sharing mechanisms especially around hydroponic systems and digital tool maintenance will ensure long-term affordability and scale-up by cooperatives and district governments.

The project goes beyond delivering immediate adaptation benefits; it strengthens the enabling environment, institutions, and knowledge systems required to sustain and replicate those benefits at scale. It positions local actors (public and private) as central agents of resilience and lays a strong foundation for long-term, community-led adaptation in Rwanda's food basket districts.

K. Provide an overview of the environmental and social impacts and risks identified as being relevant to the project/programme.

A robust environmental and social safeguards system has been integrated into project design, leveraging existing national frameworks and institutional capacities.
Based on preliminary screening against the 15 environmental and social principles of the Adaptation Fund, no significant or irreversible environmental or social risks have been identified. Anticipated risks under this programme are expected to be site-specific, reversible, and manageable. As such, the overall project is categorized as Category B in accordance with the Adaptation Fund's Environmental and Social Policy. Through its participatory, inclusive design and a strong emphasis on ecosystem-based and gender-responsive approaches, the project will not only minimize risks but also deliver positive environmental and social co-benefits. These include sustainable land and water management, biodiversity protection, strengthened community cohesion, and improved livelihoods for vulnerable groups in Rwanda's drought-prone agricultural zones.

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance	Notes
Compliance with the Law	✓		The project aligns with national climate, environmental, and agricultural laws and policies, including PSTA 5, NAP, and NDCs. Implementing entities will ensure legal compliance at all levels.
Access and Equity		✓	While the project intends to promote equitable access, proactive monitoring is required to ensure women, youth, and marginalized farmers are not unintentionally excluded from digital tools or inputs.
Marginalized and Vulnerable Groups		✓	The project explicitly targets vulnerable groups (e.g., smallholder farmers, women, youth), but further safeguards are needed to ensure meaningful participation and benefits.
Human Rights	✓		Project is aligned with UNDP's human rights-based approach and will promote inclusive participation and information access at local level.
Gender Equality and Women's Empowerment		✓	Gender is a core cross-cutting theme; activities such as agroecological and farm business training will include targeted outreach to women. A Gender Action Plan should be developed.
Core Labour Rights	✓		The project will comply with national labour standards in Rwanda. No child labour or exploitative labour is expected. The project will constantly monitor beneficiaries to ensure that issues of child labour are assessed and any violations reported and dealt with in accordance to Rwandan Laws.
TraditionalPeoples	✓		Rwanda does not recognize distinct traditionalpeoples in national law;however the project will engage smallholder farmers including women and young people within guidelines of community engagement and will ensure that project interventions uphold Free, Prior and

			Informed Consent Principles in all relevant engagements.
Involuntary Resettlement	✓		No land acquisition or physical resettlement is planned. All infrastructure will be small-scale (e.g., community fodder systems) and placed on voluntarily contributed land.
Protection of Natural Habitats	✓		Project activities (e.g., agroecology) are expected to enhance rather than degrade ecosystems. No infrastructure will be built in sensitive habitats.
Conservation of Biological Diversity	✓		Project promotes agroecological approaches that are biodiversity-friendly. No introduction of invasive species or harmful practices is anticipated.
Climate Change	✓		Project directly contributes to climate adaptation in drought-prone regions. It will not result in increased GHG emissions.
Pollution Prevention and Resource Efficiency	✓		Project emphasizes low-emission agriculture and clean technologies (e.g., hydroponics). No hazardous waste will be produced.
Public Health	✓		Project will improve resilience to climate-related health risks by enhancing food security and reducing exposure to drought-related stress.
Physical and Cultural Heritage	✓		No construction is planned in areas with cultural or archaeological significance. Chance-find procedures will be applied as per national regulations.
Lands and Soil Conservation	✓		The project includes soil-friendly techniques such as agroecology and conservation agriculture. It is expected to improve not degrade soil health.

PART III: IMPLEMENTATION ARRANGEMENTS

Arrangements for project implementation.

Overall Project Governance and Oversight:

Implementing Entity (IE): The National Designated Authority, the Ministry of Environment , has endorsed UNDP Rwanda to be the Implementing Entity. UNDP Rwanda, Multilateral Implementing Entity (MIE), therefore, has the overall implementing responsibilities for fiduciary and administrative oversight and reporting to the Adaptation Fund. Additionally, UNDP Rwanda will provide technical and operational support to EE for a smooth implementation and quality assurance.

Executing Entity (EE): The Ministry of Agriculture and Animal Resources (MINAGRI) will serve as the primary Executing Entity, responsible for the day-to-day management, implementation, and reporting of project activities to UNDP. UNDP's Country Office in Rwanda will leverage its established operational policies and procedures (procurement, financial management, HR) to ensure efficient and compliant execution. MINAGRI will engage in the project sites and ensure delivery, consultation, and inclusion.

Project Steering Committee (SteerCo): A high-level Project SteerCo will be established to provide strategic guidance, oversight, and decision-making for the project.

Composition of the SteerCo:

- Chair: Minister of Agriculture and Animal Resources (MINAGRI), or a delegated representative.
- Co-Chair: UNDP Rwanda.
- Members: representatives from MINAGRI, Rwanda Agriculture and Animal Resources Development Board (RAB), Rwanda Water Resources Board (RWB), IFAD, Ministry of Local Government, (through district authorities from Gatsibo, Kayonza, and Nyagatare) representatives from farmers' cooperatives/associations (with 50% women representation), and relevant local civil society organizations.

Roles of the SteerCo:

- Review annual work plans and budgets, approve project revisions, monitor progress, ensure alignment with national policies and priorities, facilitate inter-institutional coordination, and provide strategic direction for sustainability, replication, and scale-up.
- The Steering Committee will also facilitate effective coordination among key government authorities at both the national and district levels and ensure that the project aligns with government strategies and programs.

- The Steering Committee will meet every 6 months to review progress and approve annual work plans (AWP), budgets, and any major changes in implementation.

A local steering committee will also be established through the District Administration, which will be responsible for quarterly review of progress, coordination of the project with other ongoing district initiatives, and sustainability of the project. The Committee will comprise: Agricultural Officers, Environment Officers, Land Officers, Co-operative Officers, and other units of local governments as needed.

Project Management UNIT (PMU):

A dedicated Project Management Unit (PMU) will be established within MINAGRI Rwanda and closely linked to relevant government structures. For resource and delivery efficiencies, MINAGRI will embed the PMU in a Single Project Implementation Unit - SPIU relevant to the project.

Key Personnel of the PMU:

- Project Manager: (Full-time, based in Rwanda) Responsible for overall project delivery, coordination, planning, implementation, monitoring, and reporting, ensuring adherence to funded activity agreements document, Rwandan Government policies, and Adaptation Fund requirements.
- Project Associate (extension specialist with climate-smart agricultural experience). Providing technical guidance, training, and oversight for specific project components..
- MINAGRI staff including the Project Manager for technical oversight and advisory the Agronomists at district level will provide technical support
- Project Accountant: Responsible for financial management, procurement, human resources, and logistical support.
- District level agronomists: (One per target district) Responsible for direct coordination of activities at the district and community levels, liaison with local authorities, and community mobilization.

The project will employ a combination of implementation modalities to maximize effectiveness and reach:

- National Implementation Modality: Finance will be directed to MINAGRI by UNDP for overall project management, financial oversight, procurement of major goods/services (e.g., specialized technologies, studies), international consultants, and capacity building for national partners. MINAGRI will partner with METEO Rwanda, RAB, CSOs and District Officers. This ensures adherence to UNDP's robust operational standards and the Adaptation Fund's fiduciary requirements.

- National Implementation/ Responsible Parties (RPs): UNDP will partner with relevant Rwandan government institutions (e.g., MINAGRI, RAB, RWB, District Administrations) and local CSOs/NGOs as Responsible Parties.

Examples of RP activities:

- MINAGRI/RAB: Providing agricultural extension services, training farmers on climate-resilient crop varieties (beans, sweet potatoes, maize, cassava, banana), sustainable land management practices, and integrated pest management
- RWB: Supporting water harvesting techniques (e.g., small dams, ponds), efficient irrigation technologies, and water-use planning.
- District Administrations (Gatsibo, Kayonza, Nyagatare): Facilitating community mobilization, securing land for communal infrastructure, integrating project activities into District Development Plans (DDPs), and overseeing local-level implementation.
- Farmers' Cooperatives/Associations: Direct implementation of specific adaptation actions at the community level, including collective farming, livestock management improvements, modernisation of milk collection centres (MCCs), and knowledge sharing.
- Local CSOs/NGOs: Community mobilization, awareness campaigns, gender-responsive capacity building, and facilitating access to finance for local initiatives.

Measures for financial and project risk management.

A. **Financial Flow:** Funds will flow from the Adaptation Fund to UNDP Rwanda, which will then disburse to MINAGRI as the Executing Entity, based on approved Annual Work Plans (AWPs). UNDP will manage these funds in accordance with its financial regulations and rules, ensuring transparent and accountable use.
B. **Budgeting**: Annual Work Plans (AWPs) with detailed budgets will be developed collaboratively by the PMU and RPs, approved by the Project SteerCo, and submitted to the Adaptation Fund through the IE (UNDP).
C. **Disbursements:** Funds will be disbursed to RPs based on approved work plans and liquidation of previous advances, following UNDP's standard procedures.
D. **Procurement:** All procurement of goods, works, and services will adhere to UNDP's strict procurement policies and procedures, ensuring fairness, transparency, competitiveness, and best value for money. This includes competitive bidding processes (RFQ, ITB, RFP) and robust vendor assessment.
E. **Auditing:** The project will be subject to regular financial audits in accordance with UNDP and Adaptation Fund requirements. This includes annual audits by

the UNDP Office of Audit and Investigations (OAI) or an external auditor appointed by OAI.

Project Risk Management

A comprehensive risk management plan will be developed and regularly updated, identifying potential environmental, social, financial, operational, and political risks.Mitigation measures will be put in place for each identified risk (e.g., robust financial controls for financial risks, stakeholder engagement for social risks, regular technical supervision for operational risks).A grievance redress mechanism will be established to allow stakeholders to raise concerns or complaints related to project implementation, ensuring transparency and accountability.

Risks Identified and Mitigation Strategies

Risk Category	Level (L/M/H)	Mitigation Measures
FINANCIAL RISKS		
1. Budget Overruns Insufficient funds to complete planned activities or compromising quality. Example: Costs exceeding the allocated budget due to unforeseen expenses, inflation, or poor estimation.	M-H	- Detailed Budgeting & Forecasting: Develop a comprehensive budget with realistic cost estimations, including contingencies (e.g., 5-10% contingency for unforeseen costs). - Regular Budget Tracking: Monitor expenditures against the budget on a monthly/quarterly basis - Cost Control Measures: Implement strict procurement procedures (competitive bidding, pre-qualified vendors). - Early Warning Systems: Flag significant variances from the budget immediately. - Phased Funding: Release funds in tranches based on achievement of milestones.
2. Fraud & Corruption Loss of funds, reputational damage, project failure, reduced donor confidence. Example: Misappropriation of funds, bribery, or collusion by project staff, partners, or vendors.	M-H	- Strong Internal Controls: Segregation of duties (e.g., initiator, approver, payer). - Transparent Procurement: Competitive bidding, public tender notices, clear evaluation criteria. - Regular Audits: Internal and external audits (e.g., annual, spot checks). - Code of Conduct & Ethics: Enforce strict anti-fraud/corruption policies - Whistleblower Protection: Establish a confidential and accessible grievance redress mechanism - Capacity Assessment: Conduct financial capacity assessments of all responsible parties before fund transfer.

3. Exchange Rate Fluctuations Reduced purchasing power of funds, budget shortfalls. Example: Volatility in LCY against donor currency (USD/Euro) leading to value loss	L-M	Diversified Currency Holdings: Where possible and prudent, hold funds in a mix of currencies. - - Hedging Strategies: Explore basic hedging options. - Realistic Exchange Rate Assumptions: Use conservative exchange rate projections in the budget - Flexibility Clause: Include clauses in agreements allowing for budget adjustments due to significant fluctuations.
4. Delayed Fund Disbursement Disruption of activities, loss of momentum, inability to pay vendors/staff on time. Example: Delays in receiving funds from AF or delays in disbursing funds to implementing partners.	M	- Clear Disbursement Schedules: Establish and adhere to agreed-upon disbursement schedules with donors & partners. - Timely Reporting: Submit accurate and timely financial and progress reports to trigger the next disbursements. - Sufficient Buffer: Maintain a reasonable operating buffer to cover short-term delays. - Proactive Communication: Maintain open communication with Adaptation Fund & partners regarding potential delays.
PROJECT RISKS		
1. Political/Governance Instability Disruption of activities, withdrawal of government support, insecurity for staff/beneficiaries. Example: Changes in government, policy shifts, or civil unrest impacting project implementation.	M-H	- Stakeholder Mapping & Engagement: Build strong relationships with key government officials and community leaders. - Policy Monitoring: Regularly track political developments and policy changes. - Flexibility in Design: Design aspects of the project with some adaptability to adjust to changing contexts. - Conflict Sensitivity Analysis: Conduct regular assessments to identify and mitigate potential conflicts. - Contingency Planning: Develop alternative approaches or suspension plans for severe events.
2. Climate/Environmental Risks Damage to project infrastructure, crop failure, loss of livestock, and displacement of beneficiaries. Example: Severe droughts, floods, pest	H	- Climate Risk Assessments: Integrate climate risk assessments into project planning and adaptation measures (e.g., water harvesting, drought-resistant crops). - Early Warning Systems: Link with national meteorological services for climate forecasts. - Diversification of Livelihoods: Promote diversified agricultural practices and alternative income sources. - Ecosystem-based Adaptation (EbA): Implement nature-based solutions to enhance resilience.

outbreaks, or other climate-induced events		- Insurance/Risk Transfer Mechanisms: Explore the feasibility of micro-insurance for farmers/livestock
3. Social/Community Acceptance & Conflict Non-participation, sabotage of activities, project delays, and inequitable benefits. Example: Resistance from local communities, inter-community conflicts over resources, or exclusion of vulnerable groups.	M-H	- Participatory Planning: Ensure inclusive and participatory approaches from project inception. - Stakeholder Engagement Plan: Develop and implement a comprehensive plan for ongoing engagement. - Gender Equality & Social Inclusion (GESI) Strategy: Actively engage women, youth, and other vulnerable groups; ensure equitable benefit sharing. - Grievance Redress Mechanism (GRM): Establish a clear, accessible, and transparent GRM at the community level. - Conflict Resolution Training: Provide training for project staff and community leaders.
4. Technical/Operational Challenges Project delays, poor quality outputs, and sub-optimal outcomes. Example: Failure of selected technologies, lack of local capacity, supply chain issues, or logistical hurdles.	M	- Feasibility Studies: Conduct thorough technical feasibility studies for all proposed interventions. - Context-Specific Technology Selection: Choose technologies appropriate for local conditions and capacities. - Capacity Building: Provide extensive training and ongoing technical support to local partners and beneficiaries. - Robust Supply Chain Management: Create a procurement plan well in advance, identify trustworthy suppliers, and keep track of deliveries. - Quality Assurance: Implement quality control measures for all goods and services. - Adaptive Management: Be prepared to adjust technical approaches based on monitoring data and lessons learned.
5. Partner Capacity & Coordination Inefficient implementation, duplication of efforts, missed deadlines, and sub-optimal results. Example: Weak capacity of responsible parties, poor coordination among	M	- Thorough Partner Assessment: Conduct comprehensive capacity assessments (technical, financial, institutional) before engagement. - Capacity Development Plan: Develop and implement tailored capacity-building programs for partners. - Clear Roles & Responsibilities: Define roles, responsibilities, and reporting lines in formal agreements (RPAs). - Regular Coordination Meetings: Establish regular inter-agency/partner coordination meetings (Project SteerCo, technical working groups). - Joint Planning & Monitoring: Promote collaborative planning and monitoring activities.

stakeholders, or lack of commitment.		
6. Sustainability Risk Short-term impact, dependency on external funding, and limited long-term resilience. Example: Project benefits not continuing after funding ceases, or interventions not being integrated into local systems.	M-H	- Exit Strategy: Develop a clear exit strategy from project inception, outlining transition plans. - Local Ownership: Foster strong local ownership and leadership from the beginning. - Integration into Local Plans: Ensure project activities are mainstreamed into District Development Plans (DDPs) and national policies. - Revenue Generation/Cost Recovery: Explore viable models for financial sustainability of interventions (e.g., user fees, market linkages, revolving funds). - Institutional Strengthening: Build robust institutional capacity for long-term management and maintenance.

During the entire implementation period, the Monitoring and Evaluation Officer will be responsible for risk monitoring and reporting. Issues and risks will be discussed during PMU meetings and appropriate mitigation measures will be agreed upon and approved by the Steering Committee.

The PMU will employ Risk Management Principles:

- Proactive: Identify risks early, rather than reacting to them.
- Context-Specific: Tailor risk management to the unique context of the project and its operating environment.
- Adaptive: Continuously monitor risks and adjust mitigation measures as circumstances change.
- Shared Responsibility: Risk management is everyone's responsibility, from the Project SteerCo to field staff and partners.
- Communication: Transparent and timely communication of risks and mitigation efforts among all stakeholders.

Describe the measures for environmental and social risk management, in line with the Environmental and Social Policy and Gender Policy of the Adaptation Fund.

UNDP will ensure that the PMU places a strong emphasis on robust Environmental and Social (E&S) risk management and gender mainstreaming, aligning fully with the AF's Environmental and Social Policy (ESP) and Gender Policy.

Environmental and Social Risk Management Measures

The table below detailed table outlines a robust approach to managing environmental and social risks in line with the Adaptation Fund's stringent policies, ensuring the

project "does no harm" and actively "does good" for the communities and environment in Rwanda.

AF Policy / Principle	Level (L/M/H)	Mitigation Measures	Monitoring & Reporting
1. **Overall E&S Screening & Assessment:** Unforeseen negative consequences, project delays, reputational damage.***Example****: Failure to identify potential E&S risks and impacts early in the project cycle.*	H	- **Project Categorization**: Conduct an initial E&S screening to categorize the project based on potential risks. (Given it is an LLA project, it's Category C, it only requires E&S Due Diligence) - **Conduct thorough E&S due diligence**. - **Continuous E&S Due Diligence**: For interventions or activities not fully defined at the proposal stage, implement a robust E&S due diligence process during implementation. - **Baseline Data Collection:** Establish comprehensive environmental and social baselines in target areas. ***Responsible****: UNDP Project Team (E&S Specialist), IE*	- E&S Screening Report - Baseline study reports - Project Progress Reports (E&S section)
2. **Compliance with Laws:** Legal penalties, project delays, community grievances, loss of legitimacy.***Example****: Non-compliance with national or local environmental and social laws and regulations (e.g., land use, water rights, protected areas).*	H	- **Legal & Regulatory Review:** Conduct a thorough review of all relevant national and local environmental, social, and land tenure laws and regulations. - **Obtain Permits & Approvals**: Secure all necessary environmental permits, licenses, and official approvals from relevant authorities (e.g., REMA, RWB, local government) before commencing activities. - **Capacity Building**: Ensure project staff and partners are fully aware of and trained on relevant legal requirements.***Responsible****: Project Manager, E&S Specialist, District Coordinators, Legal Counsel.*	- Records of permits and approvals. - Compliance checklists. - Audit findings related to compliance.

3. **Natural Habitats & Biodiversity:** Loss of critical habitats, species endangerment, and ecosystem degradation. Example: Project activities (e.g., new irrigation, water harvesting) negatively impacting sensitive ecosystems, protected areas, or biodiversity.	M	- **Site Selection & Avoidance**: Prioritize sites that avoid or minimize impacts on critical habitats, wetlands, or areas of high biodiversity value. - **Biodiversity Assessment**: Conduct biodiversity assessments for any potentially impacted areas. - **Mitigation Hierarchy**: Apply the mitigation hierarchy: Avoid > Minimize > Restore > Offset. - **Ecosystem-based Adaptation (EbA)**: Promote EbA solutions that enhance biodiversity and ecosystem services. - **Environmental Flow Assessments**: For water interventions, ensure environmental flows are maintained. **Responsible**: E&S Specialist, Water Management Specialist, RAB.	- ESMP, with specific biodiversity mitigation plans. - Biodiversity monitoring reports. - Satellite imagery/GIS analysis.
4. Land and Resource Use: Displacement, loss of livelihoods, social unrest, food insecurity, legal disputes.***Example****: Project activities leading to land acquisition, involuntary resettlement, restriction of access to resources, or conflicts over water/grazing rights.*	H	- **Avoidance & Minimization**: Prioritize approaches that avoid physical or economic displacement. - **Participatory Land Use Planning**: Engage communities in land use planning to identify potential conflicts and sustainable solutions. - **Free, Prior, and Informed Consent (FPIC)**: Ensure meaningful consultation and consent for any activity affecting land or resources (especially for communal lands). - **Resource Access Protocols:** Develop clear protocols for equitable access and management of shared resources (water, grazing land).***Responsible****: E&S Specialist, Community Engagement Specialist, District Authorities.*	- FPIC documentation - RPF/RAP & implementation reports. - Grievance logs related to land/resource conflicts. - Baseline land use maps.

5. **Pollution & Waste Management:** Soil and water contamination, public health risks.***Example****: Improper disposal of project-related waste (e.g., site debris, agricultural chemicals, plastic from irrigation equipment).*	L-M	- **Waste Management Plan:** Develop and implement a project-specific waste management plan covering segregation, reuse, recycling, and safe disposal. - **Environmentally Sound Practices**: Promote the use of environmentally friendly materials and methods. - **Training**: Train project staff and beneficiaries on proper waste management and safe handling of any chemicals (e.g., for crop protection).***Responsible****: Project Manager, Technical Specialists, District Coordinators.*	- Waste disposal records. -Environmental audit reports.
6. **Occupational Health & Safety (OHS**): Accidents, injuries, illness, fatalities, reputational damage.***Example****: Risks to workers (e.g., during construction of water infrastructure, irrigation, land preparation) and communities from project activities.*	M	- **OHS Plan:** Develop and enforce a comprehensive OHS plan for all project-related activities, contractors, and partners. - **Personal Protective Equipment (PPE):** Provide and ensure mandatory use of appropriate PPE. - **Safety Training:** Conduct regular safety training for all workers and community members involved in hazardous tasks. - **Emergency Preparedness:** Establish emergency response procedures for accidents***Responsible****: Project Manager, Technical Specialists, Contractors.*	- OHS incident reports. - Training attendance records. - Site inspection reports.

7. **Cultural Heritage:** Loss of cultural heritage, community opposition. ***Example**: Project activities inadvertently damaging cultural sites, archaeological remains, or sacred spaces.*	L	- **Chance Finds Procedure:** Establish and implement a "chance finds" procedure for archaeological discoveries during excavation. - **Cultural Heritage Screening:** Conduct preliminary screenings to identify known cultural heritage sites in project areas. - **Consultation:** Consult with local communities and cultural authorities regarding potential impacts. - ***Responsible**: E&S Specialist, District Coordinators.*	- Cultural heritage screening reports. -Documentation of chance finds.
Gender Policy - General			
1. **Gender Inequality & Exclusion:** Reduced project effectiveness, social injustice, failure to meet AF gender objectives.***Example**: Project activities exacerbating existing gender inequalities, or not equitably participating or benefiting.*	*H*	***Responsible**: Gender Specialist (PMU), All Project Staff, Responsible Parties*	- Gender Analysis Report. - Gender Action Plan (GAP) monitoring matrix. - Sex-disaggregated data for all indicators. - Participatory assessments on women's empowerment.

2. **Gender-based Violence (GBV):** Harm to individuals, project disruption, reputational damage.***Example****: Project activities increasing risks of GBV (e.g., changes in economic dynamics, increased mobility, presence of external workers).*	M	- **GBV Risk Assessment**: Conduct a specific GBV risk assessment for project activities. - **GBV Prevention & Response Plan**: Develop and implement a GBV prevention and response plan, including a confidential referral pathway for survivors. - **Code of Conduct**: Enforce strict codes of conduct for all project personnel and contractors, prohibiting GBV. - **Awareness Raising**: Conduct awareness campaigns within communities on GBV prevention and available support services. - **Training**: Train project staff and partners on GBV prevention, identification, and response. ***Responsible****: Gender Specialist, OHS Specialist, HR Manager*	- GBV risk assessment report. - Training records. - GRM logs (specifically monitoring GBV-related complaints, with confidentiality).
3. **Unequal Participation & Decision-Making:** Project decisions not reflecting the needs of all community members, limited buy-in, reduced sustainability.***Example****: Women or marginalized groups having a limited voice in project planning, implementation, or governance.*	M	- **Quotas/Targets**: Establish clear targets for women's participation in community groups, training, and decision-making bodies (e.g., minimum 30-50% representation). - **Flexible Meeting Times/Locations**: Organize meetings at times and locations convenient for women (e.g., close to homes, outside peak farming/domestic hours) - **Childcare Support:** Provide childcare arrangements where feasible to facilitate women's participation. - **Capacity Building:** Provide leadership and technical training specifically for women and marginalized groups. - **Women's Groups**: Engage and strengthen existing women's groups or facilitate the formation of new ones.	- Attendance records disaggregated by sex/gender. - Records of women in leadership positions. - Feedback from participatory assessments.

		***Responsible**: Community Engagement Specialist, Gender Specialist, District Coordinators*	
4. **Data & Knowledge Gaps:** Ineffective targeting of interventions, perpetuation of inequalities. ***Example**: Lack of sex-disaggregated data or specific knowledge on gendered impacts of climate change and adaptation.*	L	- **Gender-Disaggregated Data Collection**: Ensure all baseline and monitoring data are disaggregated by sex, age, and other relevant social categories (e.g., disability, marital status). - **Qualitative Research**: Conduct qualitative studies (focus group discussions, key informant interviews) to understand gender-specific vulnerabilities and coping strategies. - **Gender-Sensitive Indicators:** Develop and track gender-sensitive indicators in the project's results framework. ***Responsible**: M&E Officer, Gender Specialist, All Project Staff*	- Data collection tools/forms. - M&E reports with sex-disaggregated data. - Gender analysis reports.
Cross-Cutting Measures for E&S and Gender:			
1. **Stakeholder Engagement & Grievance Mechanism:** Lack of meaningful consultation, leading to project opposition or unaddressed harm; inability to raise concerns. ***Example**: Misinformation, distrust, unaddressed impacts, project delays/failure.*	H	- **Free, Prior, and Informed Consultation (FPIC)**: Conduct continuous, transparent, and culturally appropriate consultations with all affected stakeholders, especially vulnerable groups, throughout the project cycle. - **Accessible Information**: Provide project information in local languages and accessible formats. - **Transparent & Accessible GRM**: Establish a project-level Grievance Redress Mechanism (GRM) that is culturally appropriate, transparent, easily accessible (multiple entry points), confidential, and effective in addressing concerns in a timely manner. Ensure women and vulnerable groups feel safe to use it. - **Training**: Train local leaders and project staff on GRM procedures.	- Documentation of consultations (dates, attendees, issues raised, decisions). - GRM log (tracking complaints, resolutions, timelines). - Stakeholder feedback surveys.

		***Responsible**: Community Engagement Specialist, E&S Specialist, Gender Specialist, District Coordinators.*	
2. **Capacity Building**: Poor implementation, increased risks, missed opportunities. ***Example**: Insufficient capacity among project staff, partners, or beneficiaries to implement E&S and gender measures effectively*	M	- **Targeted Training**: Provide specific training on AF's ESP and Gender Policy requirements, E&S risk assessment, mitigation, monitoring, and gender mainstreaming for all project staff, partners, and local authorities. - **Technical Assistance**: Provide ongoing technical assistance and mentoring to responsible parties and community groups. - **Knowledge Products**: Develop user-friendly guides and tools for E&S and gender best practices. ***Responsible**: Community Engagement Specialist, E&S Specialist, Gender Specialist, District Coordinators.*	- Training attendance records & evaluation. - Capacity assessment reports (pre/post training). - Quality of E&S/gender-related reports.
3. **Adaptive Management:** Perpetuation of negative impacts, maladaptation, missed opportunities for better outcomes.***Example**: Inflexibility to adjust project activities based on new E&S or gender-related information or unforeseen impacts.*	M	- **Regular Review:** Integrate E&S and gender risk reviews into regular project management meetings (e.g., monthly PMU, quarterly Project Board). - **Monitoring & Evaluation**: Use MEL data to identify emerging E&S and gender risks or opportunities. - **Learning & Adjustmen**t: Be prepared to modify project design, activities, or mitigation measures based on monitoring findings, lessons learned, and stakeholder feedback.	- M&E reports. - Project Board meeting minutes (decisions on adjustments). - Documentation of lessons learned.

		- ***Responsible**: Project Manager, Project Board, E&S Specialist, Gender Specialist*	

Monitoring, Evaluation, and Learning (MEL) Framework Aligned with Environmental and Gender Safeguards

Robust MEL Framework: A comprehensive MEL framework will be developed at the outset of the project, including clear indicators, baselines, targets, and means of verification, aligned with the Adaptation Fund's results framework.

Data Collection: Regular data collection will occur through surveys, field visits, focus group discussions, community consultations, and reports from RPs. Gender-disaggregated data will be consistently collected.
Reporting: Quarterly Progress Reports: Submitted by the PMU to the Project SteerCo and the IE.

Annual Performance Reports (APRs): Prepared by the PMU for submission to the Adaptation Fund through the NIE, detailing progress, challenges, lessons learned, and financial expenditures.

Mid-Term Review (MTR): An independent mid-term review will be conducted to assess project progress, identify challenges, and recommend adjustments.

Terminal Evaluation (TE): An independent terminal evaluation will be conducted at the end of the project to assess overall achievement of objectives, impact, sustainability, and lessons learned.

Knowledge Management & Learning:

- Documenting best practices, success stories, and challenges.
- Facilitating South-South and North-South knowledge exchange.
- Disseminating lessons learned through workshops, publications, and online platforms.
- Integrating learning into subsequent phases or similar projects.

Results Framework for the Project Proposal, Including Milestones, Targets And Indicators

Expected Results	Indicators	Baseline	Target	Means of Verification	Assumptions/Risk
Overall Objective:To enhance the climate resilience of farming communities in Rwanda's drought-prone food basket sites through improved access to climate services, adaptive technologies, and inclusive livelihood support.					
Project Objective: Enhanced climate resilience and adaptive capacity among smallholder farmers in Kayonza, Gatsibo, and Nyagatare districts	% of smallholder farmers reporting reduced climate-related losses (e.g., crop/livestock losses due to drought or erratic rainfall). % of smallholder farmers adopting at least one climate-resilient agricultural practice or technology. % of smallholder farmers (disaggregated by gender and youth) reporting increased confidence or capacity to respond to climate risks.	No comprehensive data system currently tracks farmer-level resilience in the target districts. Current adoption of climate-resilient practices among smallholders estimated below 20%. Institutional and extension systems are largely reactive, not preventive or anticipatory.	At least 60% of smallholder farmers report reduced exposure or loss due to climate impacts (e.g., droughts, heat stress). 70% of supported farmers adopt at least one climate-resilient practice (e.g., agroecology, hydroponics, improved seed, water harvesting). 50% of smallholder farmers (including 40% women and youth)	Endline household survey with climate-resilience perception and practice adoption modules. Administrative data from MINAGRI extension services and cooperative-level tracking tools. Project MEL system records (training records, demo plots, hydroponic installations, soil & water	Assumptions: Political will and local government commitment to support project implementation remain strong. Climate shocks remain within manageable thresholds (i.e., not overwhelming project systems). Input supply chains, training platforms, and local extension staff remain functional and engaged. Risks: External shocks (e.g., prolonged droughts or floods) may undermine adoption gains. Low literacy or skepticism among farmers

			report improved capacity or decision-making confidence on climate adaptation.	practices, etc.). Focus group discussions and qualitative interviews to triangulate perception and behavioral change data.	may hinder uptake of some new practices or technologies. Market failures or inflation may reduce economic incentives for adoption of new inputs or tools. Institutional turnover at district or sector level may disrupt continuity of support.
Component 1: Strengthened Access to Localized Climate Services for Resilient Farming Decisions					
Outcome 1.1: Smallholder farmers, including women and youth in drought-prone food basket districts, access and use accurate, timely, and actionable climate information for resilient farming decisions. **Outcome 1.2:** Enhanced availability and use of AI/ML-driven, hyperlocalized weather and climate forecasts tailored to agro-ecological zones. **Outcome 1.3:** Frontline service providers, cooperative leaders,	% of farmers reporting increased use of climate information in farm decisions (disaggregated by gender) % of trained extension officers and cooperative leaders able to accurately interpret WCIS # of agro-ecological zones covered by AI/ML-enhanced forecasts Accuracy score of AI/ML forecasts validated against observed data. % increase in forecast accuracy for selected agro-ecological zones	No structured access to localized WCIS in target areas. Usage of WCIS by women and youth currently undocumented or low. Limited WCIS-specific training for frontline actors in target areas. WCIS rarely institutionalized within local planning processes.	At least 10,000 direct and 25,000 indirect smallholder farmers (including 50% women and 30% youth) regularly access seasonal forecasts, early warnings, and localized advisories through multiple delivery channels.	System analytics from METEO Rwanda and partners. Independent accuracy validation reports. Farmer user feedback surveys in pilot zones. Training attendance and completio	Sufficient quality and volume of training data is available. Digital connectivity and literacy are adequate for tech uptake. AI/ML tools are accepted by METEO Rwanda and local institutions. Extension agents and cooperative leaders have time and incentives to participate in training.

and local institutions have strengthened capacity to interpret, communicate, and institutionalize WCIS.	# of trained service providers demonstrating accurate of WCIS tools in extension service delivery.		At least 60% of smallholder farmers (including 40% of women and youth) report improved access to and regular use of WCIS, with 50% of users indicating that the information influenced changes in their agricultural practices. At least 50% of farmers in pilot areas use these forecasts. Forecast accuracy exceeds 70% based on validation tests. 300+ frontline actors (District Officers, MCC Officials, Extension Officers) trained across the 3 districts. 75% of trained actors score ≥70% in post-training	n records. Pre- and post-training evaluation results. Institutional planning documents and WCIS integration reports.	Local institutions remain committed to integrating WCIS beyond the project lifecycle. Staff turnover does not undermine capacity gains.

			assessments. WCIS included in routine planning in all 3 district offices and at least 10 cooperatives.		
Component 2: Enhance Uptake of Climate-Resilient Agricultural Technologies and Inputs for Climate Smart Agriculture					
Outcome 2.1: increased adoption of climate resilient livestock feed systems in drought prone districts of Rwanda Food Baskets **Outcome 2.2.** Reduced postharvest fodder losses through improved preservation technics/technologies and storage **Outcome 2.3:** Enhanced smallholder farmers access to climate smart inputs for fodder and adaptive finance mechanisms	# Number of smallholder farmers (sex- and youth-disaggregated) that have installed and are actively using at least one promoted technology (household hydroponic unit, micro-drip kit, or low-cost vertical garden). % increase in farmers trained on composting, agroforestry, and business planning # of targeted cooperatives/MCC with operational hydroponic fodder units Volume of preserved fodder (tons) stored using improved techniques	0 H/H 0 MCCs Low (<20% of cooperative farmers trained) TBD No hydroponic fodder production units operational	10,000 farmers (≥ 40 % women, ≥ 30 % youth-headed) 100% of selected MCCs (at least 10) have functional hydroponic fodder production systems 50% increase in preserved fodder volume from baseline Pre/post training assessments, attendance registers ≥ 20 % cost reduction in fodder production	Extension service adoption surveys; geo-tagged photos; household follow-up records. Enterprise sales records; spot audits. Cooperative records, MCC fodder inventory reports Household cost-benefit survey; receipts analysis	Cooperative buy-in remains high; spare parts and water availability remain stable Farmers have access to materials and sufficient training; rainfall variability does not undermine results Storage infrastructure is maintained; farmers adopt new preservation practices

	% increase in herd nutrition and productivity		through hydroponic systems.	Installation records, MCC monitoring reports Cooperatives/ MCC/finance partner records, input dealer sales data, farmer surveys	
Component 3: Strengthened Agroecological Knowledge and Farm Business Literacy for Smallholder Farmers Resilience					
Outcome 3.1: Smallholder farmers adopt climate-resilient agroecological practices tailored to their local **Outcome 3.2.** Smallholder farmers, including women and youth, improve their financial literacy and farm enterprise management skills. **Outcome 3.3**. Local extension systems integrate traditionalknowledge and gender-responsive approaches to	% of target farmers applying at least two agroecological practices promoted by the project. % of trained farmers who demonstrate improved recordkeeping or financial planning practices. # of extension materials or modules revised to include traditionalknowledge and gender-responsive	No data (limited current uptake or tracking of agroecological practices) No data (limited structured financial literacy programming currently tracked) No data (formal systems lack integration of traditionalknowledge or gender-responsive tools)	At least 60% of trained farmers adopt ≥2 agroecological practices. At least 50% of trained farmers demonstrate use of financial planning or market linkage strategies. At least 10 extension modules/tools revised or developed integrating traditionalor	field assessments, extension officer reports, and cooperative-level tracking. Training assessments, cooperative records, digital finance tool usage logs.	Farmers have access to adequate land and inputs. Extension agents have sufficient time and support for follow-up. Farmers are willing to share financial data and apply learnings. Traditional knowledge holders are willing to share knowledge. Extension agents are open to new facilitation

improve climate adaptation.			gender-responsive content.	Training materials, curricula review reports, participatory validation workshop outputs.	
Component 4: Strengthened institutional capacities for adaptation planning and service delivery					
Outcome 4.1. District-level government and sector agencies equipped to plan and deliver local adaptation. **Outcome 4.2.** Local adaptation plans and coordination platforms established. **Outcome 4.3**. Monitoring, evaluation and learning systems for local adaptation are institutionalized.	# of districts with adaptation integrated into DDS, Imihigo, and budgets. # of operational district adaptation coordination platforms conducting quarterly meetings. # of districts with functional MEL frameworks aligned to national adaptation strategies.	Baseline: 0 Baseline: 0 Baseline: 0	3 districts with integrated adaptation planning tools and processes 3 platforms operational and meeting quarterly by end of project 3 districts with operational MEL systems and reporting tools	District DDS, budget documents, Imihigo reports, training completion reports Meeting reports, district coordination guidelines, stakeholder attendance lists District MEL plans, data	Local governments have sufficient autonomy and staff continuity to implement capacity-building recommendations. Stakeholders remain engaged and coordination mechanisms are not disrupted by political changes or competing mandates. Data quality and consistency can be maintained; participatory tools are accepted and

				collection reports, community scorecards, learning review minutes	regularly used by communities.

A. Alignment with the Results Framework of the Adaptation Fund

Project Objective(s)[1]	Project Objective Indicator(s)	Fund Outcome	Fund Outcome Indicator	Grant Amount (USD)
To enhance the climate resilience of farming communities in Rwanda's drought-prone food basket sites through improved access to climate services, adaptive technologies, and inclusive livelihood support.	• % of smallholder farmers (10,000) adopting ≥ 1 climate-resilient practice/service (WCIS, hydroponics, drought-tolerant inputs, micro-insurance) • % of women and youth reporting improved capacity to cope with climate shocks	Outcome 4: Increased adaptive capacity within relevant development sectors	% of population with access to climate-resilient livelihoods and climate services	$ 4,937,397.09
Project Outcome(s)	**Project Outcome Indicator(s)**	**Fund Output**	**Fund Output Indicator**	**Grant Amount (USD)**
1. Smallholder farmers (women & youth included) use accurate, timely, hyper-local WCIS for resilient farming decisions.	• ≥ 10 000 farmers receiving tailored advisories through MINAGRI digital channels• ≥ 70 % of users reporting that WCIS influenced at least one cropping/livestock decision	Output 4 – Vulnerable development-sector services & infrastructure assets strengthened	4.1.1 Number & type of development-sector services modified to respond to new climate conditions (e.g., MINAGRI digital extension platform enhanced with WCIS)	1 181 075
2. Adoption of climate-resilient livestock-feed systems in drought-prone districts is increased.	• ≥ 10 cooperative hydroponic units fully operational• ≥ 2 000 livestock farmers using improved fodder systems• Post-harvest	Output 6 – Targeted livelihood strategies strengthened	6.1.1 Number & type of adaptation assets created/strengthened in support of community	920 350

	fodder losses reduced by ≥ 30 % at demonstration sites		livelihood strategies (hydroponic units, silage pits, drought-resilient forage banks)	
3. Smallholder farmers adopt agro-ecological practices and improve farm-business literacy.	• ≥ 5 000 farmers applying ≥ 2 regenerative practices six months after training• ≥ 3 000 farmers completing farm-business modules; ≥ 50 % report improved record-keeping/access to finance	Output 6 – Targeted livelihood strategies strengthened	6.2.1 Type of income sources for households generated under climate-change scenario (e.g., agro-enterprise diversification, value-added produce)	1 231 049.84
4. District-level governments and local institutions plan, finance and coordinate adaptation more effectively.	• 3 district adaptation platforms functional & meeting quarterly• 5 community-led Local Adaptation Action Plans (LAAPs) endorsed• ≥ 75 officials demonstrate increased capacity (pre/post-test)	Output 7 – Improved integration of climate-resilience strategies into country development plans	7.1 Number of policies, plans or guidelines introduced or adjusted to address climate-change risks (e.g., LAAPs integrated into district budgets)	363 400

Detailed budget with budget notes

Description	Unit	No. of Units	Cost per Unit (USD)	Total Cost (USD)	Budget Notes
Part A: Activity-Related Costs (by Subcomponent) – This covers the implementation costs for each subcomponent of Component 1, categorized into Travel & Logistics, Equipment & Infrastructure, Training & Workshops, Communication & Dissemination,. Subcomponent activities have been derived from the project description, including needs assessments, participatory tool development, dissemination of climate information, AI/ML pilot systems, and capacity building for end-users and service providers.					
Component 1: Strengthened Access to Localized Climate Services for Resilient Farming Decisions					
Subcomponent 1.1: Participatory Design and Delivery of Localized Climate Information Services					
Description	**Unit**	**No. of Units**	**Cost per Unit (USD)**	**Total Cost (USD)**	**Budget Notes**
Field missions for needs assessment (3 districts)	trip (lump sum)	9	$ 4,350.00	$ 39,150.00	Transport and accomodation for project team to Kayonza, Gatsibo, Nyagatare for initial climate info needs assessments.
Training: PICSA farmer & extension workshops (climate services & planning)	worksh op	9	$ 7,725.00	$ 69,525.00	~30 participants × 3 days × $50/day in each district; covers venue, materials, meals (no accommodation). Three trainings per year for three years
Communication: Design/printing of seasonal climate bulletins & localized cropping calendars	lump sum packag e	1	$ 15,000.00	$ 15,000.00	Includes translation to Kinyarwanda, graphic design, printing and distribution of bulletins to cooperatives.

Communication: Multi-channel climate info dissemination system (SMS, IVR, USSD, radio) adaptation	lump sum	1	$ 175,000.00	$ 175,000.00	Partnership with ICT innovators to customize mobile platforms for METEO Rwanda advisories (setup and initial content dissemination costs).
Workshops: Community outreach meetings on climate advisories (via cooperatives/MCCs)	meeting	9	$ 19,575.00	$ 176,175.00	~3 meetings per district/year in low-literacy communities to share forecasts (covers local travel, venue, and refreshments). Includes IE and EE travel costs
Consultancy services design of localized climate information services	Consultancy	1	$ 80,000.00	$ 80,000.00	Technical services
Subtotal				***$ 554,850.00***	
Subcomponent 1.2: Pilot AI/ML-Enhanced Localized Weather Forecast Tools and Infrastructure					
Infrastructure: Data integration & IT hardware (servers, telemetry) for MINAGRI Rwanda systems upgrade	lump sum	1	$ 90,000.00	$ 90,000.00	Upgrades to MINAGRI ICT infrastructure to handle new data streams and AI computations (could include server expansion, data storage, communications).
AI/ML model development for localized forecasting (with local universities, partners)	contract (package)	1	$ 250,000.00	$ 250,000.00	Partnership to develop and train AI algorithms on historical & real-time data (includes data science expertise, software development, and initial AI tool prototype).
Software/App: Development of farmer-facing digital advisory application (AI-enabled chatbot, mobile app)	lump sum	1	$ 50,000.00	$ 50,000.00	Creates user-friendly interfaces (smartphone app, USSD/IVR integration) for farmers to receive hyper-local forecasts and advisories.
Testing & Validation: Back-testing of AI forecasts and expert validation workshops	workshop series	3	$ 8,100.00	$ 24,300.00	Periodic technical workshops with METEO experts and local forecasters to evaluate AI tool accuracy and reliability (includes data analysis and field feedback).
Travel: Installation and maintenance field trips (for technical teams)	trip	6	$ 1,250.00	$ 7,500.00	Travel to sensor sites for setup and periodic calibration; training local staff in maintenance (fuel, vehicle, per diem costs).
Training: Local technicians & extension officers training on sensor maintenance & data use	session	3	$ 9,350.00	$ 28,050.00	Hands-on training per district (approx. 20 people each) on operating weather stations, basic troubleshooting, and interpreting data for advisory services.
Subtotal				***$ 449,850.00***	
Subcomponent 1.3: Capacity Strengthening, Climate Services Feedback Loops, and Adaptive Learning					
Training: WCIS interpretation training for district extension & cooperative staff	training workshop	5	$ 8,850.00	$ 44,250.00	One per district – ~30 participants each (agriculture and livestock officers, coop leaders) three day training. Covers translating forecasts into farm advice; participatory, gender-sensitive approaches.
Training: Farmer Cooperative Climate Champions training (peer educators)	workshop camp	5	$ 7,825.00	$ 39,125.00	A decentralized training of selected "Climate Champions" (progressive farmers/youth from coops) on using climate tools and leading community discussions. Includes training materials and demonstration plots setup.

Materials: User-friendly guides & visual aids for climate advisories (Kinyarwanda)	printing lot	1	$ 12,000.00	$ 12,000.00	Development and printing of simple interpretative guides (posters, infographics) to help farmers understand weather alerts and advisories.
Feedback Tools: Design and deployment of participatory feedback mechanisms (surveys, scorecards)	lump sum	1	$ 10,000.00	$ 10,000.00	Creation of feedback forms (mobile surveys via USSD/IVR, community scorecard toolkit) and analysis of results. Includes a digital feedback platform or data collection app.
Workshops: Quarterly community climate forums (feedback & co-learning)	forum sessions	12	$ 1,000.00	$ 12,000.00	4 forums per year (one per quarter) rotating across communities in each district, to review seasonal forecasts vs outcomes, gather farmers' feedback, and update advisory content.
Exchange Visits: Inter-district learning exchanges on WCIS best practices	exchange visit	4	$ 3,000.00	$ 12,000.00	Two cross-learning visits for farmers and extension staff (e.g. one visit to a successful climate services pilot site). Facilitates peer learning and replication of innovations.
Communication: Documentation and dissemination of lessons learned (briefs, reports)	lump sum	1	$ 3,000.00	$ 3,000.00	Regular compilation of feedback and lessons into briefs shared with METEO Rwanda, MINAGRI, and stakeholders; includes possibly an end-of-pilot learning workshop.
Survey: Baseline survey on climate information access/needs (3 districts)	survey exercise	1	$ 15,000.00	$ 15,000.00	Engage enumerators to survey target communities at project start (disaggregated by gender, age). Captures baseline usage of climate info and user needs/preferences.
Survey: Endline survey on WCIS uptake and impact (3 districts)	survey exercise	1	$ 15,000.00	$ 15,000.00	Post-project survey repeating baseline questions to measure changes in farmers' knowledge, behavior (e.g., % farmers using forecasts in planning).
Focus Groups: Participatory community feedback sessions (qualitative)	focus group rounds	3	$ 1,000.00	$ 3,000.00	Organized at mid-term and end (with farmers, women, youth) to discuss WCIS usefulness and suggestions. Provides context to survey data; involves translation and facilitation.
Monitoring: Ongoing user satisfaction polling (SMS polls, IVR feedback)	per quarter	12	$ 500.00	$ 6,000.00	Short mobile-based polls each quarter to gauge user satisfaction with forecasts and advisories. Data used for real-time service tweaks.
Analysis & Reporting: Climate service feedback analysis and learning reports	lump sum	1	$ 5,000.00	$ 5,000.00	Data analysis consultancy to compile feedback, extract lessons. Produces a final adaptive learning report shared with all stakeholders to inform scale-up.
Subtotal				***$ 176,375.00***	
Component 2: Enhanced Uptake of Climate-Resilient Agricultural Technologies and Practices					
Subcomponent 2.1: Scaling up Hydroponic Fodder Systems through Cooperatives/MCCs					
Travel: Site assessments & mobilization in target MCCs (feasibility checks)	trip (lump sum)	3	$ 7,100.00	$ 21,300.00	Technical team (MINAGRI engineers, UNDP) visits to 10 proposed sites for hydroponic installation to assess infrastructure needs (water supply, electricity, space).

Hydroponic fodder production units (large-scale) for cooperatives/MCCs	unit	10	$ 50,000.00	$ 500,000.00	Allocation to cooperatives/MCCs to purchase and install complete hydroponic systems (incl. greenhouse or container, trays, irrigation, initial inputs). *Unit cost ~$50k covers equipment, installation, training, and initial O&M support.*
Equipment: Ancillary equipment & inputs for hydroponics (water tanks, nutrient solution, starter seed)	lot	10	$ 1,000.00	$ 10,000.00	Basic supporting infrastructure for each unit (e.g. water storage, measuring devices) and initial consumables (nutrient mixes, seeds such as barley) to kick-start operations. May be procured centrally.
Training: Hands-on training for cooperative staff and farmers on hydroponic system O&M	training sessions	10	$ 500.00	$ 5,000.00	On-site training once each unit is installed. Involves demonstrating daily operations (soaking, germination, harvesting) and maintenance. Cost covers materials and trainer travel.
Workshop: Cooperative governance & cost-sharing planning for hydroponic units	workshop	3	$ 1,000.00	$ 3,000.00	Brings coop leaders, local officials together to develop management plans so that hydroponic fodder is accessible to members and non-members (e.g. setting fodder prices, maintenance fund).
Technical support: Linkages with livestock/veterinary extension (for feed utilization guidance)	lump sum support	9	$ 4,100.00	$ 36,900.00	Periodic visits by MINAGRI livestock specialists to advise cooperatives on integrating hydroponic fodder into feeding regimes, monitor animal health and milk yields.
Communication: Awareness and knowledge sharing on hydroponics (field day events)	event	3	$ 1,000.00	$ 3,000.00	Field days at select hydroponic sites (one per district) to demonstrate technology to other cooperatives and farmers. Includes media coverage, farmer testimonials to encourage replication.
Monitoring: Hydroponic unit performance tracking (yield & usage data collection)	unit monitored	10	$ 200.00	$ 2,000.00	Simple MEL for subcomponent – monthly data collection on fodder output and beneficiaries from each unit, to feed into project M&E.
Subtotal				***$ 581,200.00***	
Subcomponent 2.2: Improving Post-Harvest Handling and Storage for Fodder and AnimalFeed					
Assessment: Post-harvest storage needs assessment at cooperatives/MCCs	exercise (lump sum)	3	$ 8,250.00	$ 24,750.00	Technical review of existing storage practices and facilities at target coops (including those with hydroponics) to tailor interventions (silage vs. drying).
Infrastructure: Construction or rehab of fodder silage pits (trench silos)	pit constructed	10	$ 2,500.00	$ 25,000.00	Earthen or concrete-lined silage pits for fermenting green fodder. Roughly one per coop; unit cost includes excavation, lining, and cover.
Infrastructure: Installation of solar dryers and ventilated feed storage sheds	site	10	$ 5,000.00	$ 50,000.00	Solar hybrid drying units (e.g. polythene-covered racks) and low-cost sheds for hay/fodder storage at key sites. Improves drying efficiency and protects stored feed from rain/pests.

Equipment: Chaff cutters for fodder chopping (for silage and efficient storage)	cutter machine	10	$ 1,200.00	$ 12,000.00	Hand-operated or motorized chaff cutters for cooperatives to chop crop residues or fodder, making compact silage or easier drying. One per site.
Equipment: Small-scale feed pelletizers (to compress fodder into pellets)	unit	10	$ 2,500.00	$ 25,000.00	Provided at select cooperatives – turns excess fodder or agro-waste into pellet feed for easy storage and transport. (If cost or local appropriateness is an issue, this item may be adjusted.)
Training: Farmer and coop staff training on post-harvest fodder preservation (silage making, hay baling, use of dryers) for at least 5,000 farmers	training sessions	10	$ 6,600.00	$ 66,000.00	Practical training in each district, demonstrating silage preparation, proper drying techniques, baling and storage. Includes cost of demonstration materials (e.g. plastic covers, baling tape) and trainer fees. Reaching 5,000 Farmers
Demonstration: Farmer field demos on fodder preservation techniques	demo events	10	$ 6,640.00	$ 66,400.00	On-farm demonstrations at volunteer lead farmers' for 1000 farmers fields or MCC sites – showing how to ensile maize stalks, create hay from excess grass, etc. Encourages uptake by seeing results.
Maintenance plans: Establishment of coop maintenance schedule for storage facilities/equipment	lump sum	10	$ 2,000.00	$ 20,000.00	Development of simple management plans and training for coops to regularly maintain the silos, dryers, and machines (could involve a small fund for repairs).
Community model: Support for community-based fodder banks (collective storage)	pilot	10	$ 5,000.00	$ 50,000.00	Input support to pilot one "fodder bank" where multiple farmers pool preserved fodder, managed by a committee, to ensure equitable access during drought (covers initial setup like sacks, pallets, shed rental).
Subtotal				***$ 339,150.00***	
Component 3: Strengthened Agroecological Knowledge and Farm Business Literacy for Resilience					
Subcomponent 3.1: Farmers Adopt Climate-Resilient Agronomic and Agroecological Practices					
Demonstration plots: Establish agroecological demo plots (climate-smart practice hubs)	plot setup	15	$ 15,000.00	$ 225,000.00	~15 demonstration plots (5 per district) at cooperatives or model farms, showcasing practices like intercropping, mulching, rainwater harvesting. Cost covers tools, seeds/seedlings of diverse crops, organic inputs (compost), fencing and signage.
Training: Extension staff and lead farmer training on agroecology techniques	training worksh op	5	$ 8,350.00	$ 41,750.00	2 for Gatsibo and Nyagatare and one for Kayonza district for Agronomists and selected lead farmers. Topics: soil health management, water conservation, pest management without chemicals. Hands-on approach at demo sites.
Field schools: Ongoing farmer field school sessions (facilitated by trained extension/lead farmers)	season-long FFS cycle	10	$ 4,500.00	$ 45,000.00	Supports the running of agroecology Farmer Field Schools over a cropping season in each district. Covers teaching materials, simple tools for farmer groups, and minor costs for periodic group meetings at demo plots.

Materials: Development and dissemination of agroecology extension materials (low-literacy formats)	lump sum	1	$ 18,000.00	$ 18,000.00	Producing brochures, flip charts, and community radio spots in Kinyarwanda highlighting techniques (e.g. compost making steps, crop rotation benefits). Ensures knowledge reaches those who cannot attend training (especially women in remote areas).
Exchange visits: Inter-cooperative learning exchanges on sustainable practices	visit event	3	$ 9,100.00	$ 27,300.00	Exchange tours for farmers/cooperative leaders to visit successful agroecological farms (within or outside district). Fosters farmer-to-farmer learning and motivation to replicate best practices. Costs include transport, meals, and logistical coordination.
Community workshops: Seasonal reflection workshops on agroecology (local knowledge sharing)	worksh op	3	$ 1,000.00	$ 3,000.00	Post-harvest season meetings in each district for farmers to discuss outcomes of new practices, challenges, and plan next cycle adjustments. Encourages continuous improvement and community innovation.
Allocation at District Level to support purchase of agro-ecological farm inputs and support for interventions on agroecology	Inputs	3	$ 100,000.00	$ 300,000.00	Support to cooperatives for inputs through districts. $100,000 per disctrict for the project duration.
Agronomy Expert Fees; Consultation	Technic al staff	3	$ 33,173.28	$ 99,519.84	Local consultant/hires costs at $912 per month
Agronomy experts onground extension support	Technic al staff	3	$ 18,000.00	$ 54,000.00	Costs for handon field support-$ 50 per day* 10 days per month per officer
Subtotal				***$ 813,569.84***	
Subcomponent 3.2: Improved Financial and Enterprise Management Skills for Farmers					
Curriculum design: Develop localized training modules on farm financial management (incl. gender/youth focus)	lump sum (consul tant + materia ls)	1	$ 25,000.00	$ 25,000.00	Create easy-to-understand training content covering budgeting, profit/loss calculation, savings, loan application, etc., with scenarios relevant to smallholders. Includes translation to Kinyarwanda and pre-testing materials with target groups.
Training TOT: Training of Trainers for extension officers & cooperative leaders on financial literacy delivery	worksh op series	6	$ 7,600.00	$ 45,600.00	Equips ~30 extension staff and coop reps per district to cascade financial training. 3-day intensive sessions covering adult education techniques and content mastery. (Approximately 300 trainers in total trained.)
Farmer trainings: Community-level financial literacy workshops (budgeting, record-keeping)	session	30	$ 2,000.00	$ 60,000.00	Rolling out trainings by the trained trainers at cooperative or group level. ~30 sessions (10 per district, reaching diverse farmer groups). Each session ~20 farmers, 3-day, covering basics of record-keeping and planning. Unit cost mainly for training materials and refreshments.
Women & youth agribusiness clinics: Tailored workshops addressing specific constraints (e.g. access to credit, group business planning)	Handso n capacit y develo pment support	10	$ 3,000.00	$ 30,000.00	One for every MCC, specifically targeting women entrepreneurs and youth. Provides mentorship, invites microfinance or agribusiness experts as resource persons. Creates a supportive space to ask questions and build confidence.

Digital tools pilot: Provision of simple digital record-keeping tools (apps or ledgers) and training to youth-led farmer groups	group package	10	$ 2,500.00	$ 25,000.00	Digital agri-accounting: Each of 10 MCCs receives a computer equipment loaded with a farm accounting app (or use smartphones of members) plus a short training on its use. Also includes 1-year subscription or support for the app if needed.
Mentorship program: Link emerging agripreneurs with established farm business mentors	per mentorship	10	$ 500.00	$ 5,000.00	Minimal costs for facilitating periodic mentor-mentee meetings (transport stipend, phone airtime). Targets experienced cooperative leaders or agribusiness owners mentoring younger farmers in business planning over a year.
Exchange visits: Farmers' agribusiness exchange tours (to successful enterprises/agribusiness centers)	visit	10	$ 5,000.00	$ 50,000.00	One visit per district to a best-practice site (e.g., a thriving cooperative enterprise or agro-processor). Allows farmers to observe enterprise management, value addition, and market linkage strategies. Costs cover travel, lodging, and hosting a learning session at the site.
Establishment and equipping digital hubs for cooperatives/MCCs for digital skills development	Equipment	10	$ 5,000.00	$ 50,000.00	10 MCCs supported with ICT equipment and training
Financial linkage workshop: Capacity building events with SACCOs/MFIs (improve access to credit for climate-smart investments)	workshop event	10	$ 3,300.00	$ 33,000.00	District-level events where farmers meet local financial institutions to learn about loan products and requirements for agriculture. Facilitates dialogue to tailor financial services to farmers' needs (e.g., seasonal loan terms).
Subtotal				***$ 323,600.00***	
Subcomponent 3.3: Traditional Knowledge and Gender-Responsive Approaches Integrated into Extension Delivery					
Knowledge documentation: Participatory research on indigenous agroecological practices (community consultations & field documentation)	lump sum (consultancy + fieldwork)	1	$ 25,000.00	$ 25,000.00	Hire local consultant team to work with elder farmers and communities to identify and record traditional climate adaptation practices (e.g., planting by moon cycles, local drought coping methods). Includes 6–8 village dialogue meetings (with translation and recording) and compiling findings into a report.
Integration of indigenous practices: Develop extension materials incorporating validated indigenous knowledge	lump sum	1	$ 12,000.00	$ 12,000.00	Adapt extension manuals and training curricula to include beneficial indigenous techniques (e.g., drought-resistant local crop varieties, traditional soil conservation). Cost covers expert review and printing of updated sections for distribution to extension officers.
Gender-responsive training toolkit: Develop and disseminate tools for gender-sensitive extension (e.g., checklists, case studies)	lump sum	1	$ 10,000.00	$ 10,000.00	Creation of training aids that help extension workers plan and conduct activities that effectively involve women and men (e.g., scheduling trainings at convenient times, ensuring women's voices are heard). Includes pamphlets and flipchart tools highlighting gender dynamics in farming.
Training: Capacity building for extension officers on inclusive facilitation and gender analysis	workshop	3	$ 4,960.00	$ 14,880.00	One-day training in each district for field extension staff focusing on practical skills: how to engage both women and men farmers, recognize different knowledge systems, and adapt communication styles. Possibly co-

					facilitated by gender experts.3 (one per district) 40 Pax per training per district* 2 trainings
Community exchanges: Local knowledge-sharing forums (integrating elders, women, youth in extension feedback)	forum event	6	$ 5,000.00	$ 30,000.00	3 (annual, one per district)Annual forums where community members (including traditionally underrepresented voices) share their observations and suggestions with extension providers and project staff. Reinforces two-way knowledge exchange – extension agents learn local innovations; community learns about new techniques. Minimal costs for venue and refreshments.
Monitoring & learning: Follow-up evaluation of indigenous practices adoption and gender inclusion in services	lump sum (surveys & report)	1	$ 2,000.00	$ 2,000.00	Towards project end, assess how well indigenous practices have been adopted and how gender-responsive approaches improved outreach. Could include small surveys or focus groups and a summary report feeding into project lessons learned.
Subtotal				***$ 93,880.00***	
Component 4: Strengthened Local Institutional Capacity for Adaptation Planning and Delivery					
Subcomponent 4.1: District-Level Authorities Equipped to Plan and Mainstream Adaptation					
Training: Climate risk integration workshops for district planning teams	workshop	6	$ 5,600.00	$ 33,600.00	3 workshops (one per district) for district officers (planning, agriculture, environment, finance) on incorporating climate adaptation into District Development Strategies and annual action plans. Covers use of climate data in planning, evaluating adaptation options. ~15-20 participants each, 2 days per workshop.
Technical assistance: Adaptation planning toolkit development (risk screening & costing tools)	lump sum (consultancy)	1	$ 25,000.00	$ 25,000.00	Expert(s) to develop simplified tools: e.g. a climate risk screening checklist for local projects, a template for budgeting adaptation activities, and guidelines for aligning with national adaptation priorities. This includes field-testing tools in one pilot district and printing the final toolkit for distribution.
Community adaptation planning sessions: Inclusive local-level consultations to inform district plans	session (district-level)	9	$ 5,100.00	$ 45,900.00	3 (1 per district)District authorities hold participatory planning meetings with community representatives (including women, youth, vulnerable groups) to identify and prioritize local adaptation measures. Outputs feed into official district plans. Cost covers logistics for one large session per district or multiple sector-level mini-sessions aggregated.
Planning templates printing: Climate-smart planning templates and guidebooks for districts	lot (printing & distribution)	1	$ 5,000.00	$ 5,000.00	Printing and circulating the developed templates, checklists, and guidance to all sectors and relevant district departments (e.g., 3 districts × ~5 copies each of a planning guide, plus electronic copies). Ensures institutional memory and reference materials remain accessible.

On-call expertise: Ongoing technical backstopping for districts on adaptation planning (on-demand)	expert days (pool)	40	$ 1,000.00	$ 40,000.00	Retainer (40 days) for a climate planning expert to support districts as they revise strategies or develop project proposals. This could fund ~5 days per district of hands-on support spread over the project (e.g., reviewing draft district plans, assisting with proposal writing for adaptation funding).
Subtotal				***$ 149,500.00***	
Subcomponent 4.2: Local Adaptation Plans and Multi-Stakeholder Coordination Platforms Established					
Platform setup: Establishment of District Adaptation Coordination Platforms	initial worksh op (per district)	3	$ 5,000.00	$ 15,000.00	Convene key stakeholders in each district to launch the adaptation platform. Participants: district leadership, sector heads (agriculture, environment), cooperative unions, civil society, possibly local academia. They agree on platform mandate, membership, and work plan. Cost covers a 1-day kickoff workshop.
Quarterly platform meetings: Ongoing multi-stakeholder coordination meetings at district level	meetin g (incl. minor logistics)	36	$ 500.00	$ 18,000.00	Regular meetings for platform members to review progress of adaptation activities, share information, and coordinate efforts. Minimal costs – mostly meeting refreshments and occasional transport refund for community reps. (Assumes ~16 meetings per district over project.)48 (3 per year × 3 districts × 3years)
District adaptation plan formulation: Development of local adaptation plans or integration into District Development Strategies	lump sum (per district)	3	$ 8,000.00	$ 24,000.00	Guided process to produce a document or section in DDS that details the district's prioritized adaptation actions, timelines, and responsible entities. Could involve hiring a facilitator or consultant to draft, based on inputs from platform meetings and community consultations. Includes stakeholder validation workshops.
National-local dialogues: Biannual adaptation policy dialogue workshops (linking district platforms with national authorities)	worksh op event	6	$ 9,100.00	$ 54,600.00	High-level forums where representatives from the three district platforms meet with national agencies (MINAGRI, REMA, Meteo Rwanda, etc.). Facilitates two-way feedback: districts report on progress and challenges; national bodies provide guidance and consider local input for national plans. Cost covers venue, travel for district participants to Kigali, and documentation.6 (approx. 1 every 8 months)
Knowledge management system: Develop and maintain a repository of local adaptation projects, practices, and results	lump sum (consul tancy, system + data entry)	1	$ 25,000.00	$ 25,000.00	Could be a simple online database or an extension of an existing system at MINAGRI/REMA. This budget covers designing the database structure, initial data entry of project information from districts, and training a focal person in each district to update it. Enables tracking of adaptation interventions and sharing success stories across districts.
Communication: Documentation and dissemination of local adaptation case studies and lessons	packag e (briefs, videos)	1	$ 5,000.00	$ 5,000.00	Producing knowledge products (e.g., 3 case study briefs – one per district – highlighting local success stories, short videos or radio segments). To raise awareness and share learnings nationally. Could leverage the knowledge repository content.
Subtotal				***$ 141,600.00***	
Subcomponent 4.3: Strengthening Local Monitoring, Evaluation & Learning (MEL) Systems for Adaptation					

MEL framework development: Define local adaptation indicators, results framework, and reporting templates	lump sum (TA & toolkit)	1	$ 8,000.00	$ 8,000.00	Expert support to help districts create a MEL plan for climate adaptation activities. Includes identifying key indicators (e.g., number of farmers adopting drought-resilient practices, % reduction in crop losses), establishing baseline values, and developing simple reporting forms. Deliverable: a MEL toolkit for districts (aligned with AF's results framework).
Training: District staff training on adaptation M&E (data collection, analysis, reporting)	training worksh op	3	$ 6,100.00	$ 18,300.00	One-day training for district planners, M&E officers, and sector staff on how to monitor adaptation interventions. Topics: conducting surveys, GIS basics if needed, participatory M&E methods, how to use MEL templates, etc. Practicum included to develop a sample monitoring plan for a project.3 (one per district)
Equipment: MEL data collection and IT support (tablets, software)	set of devices & softwar e	5	$ 3,000.00	$ 15,000.00	For efficiency in data gathering, each district gets basic tools: e.g., 2 tablets or smartphones for field surveys, a laptop or data workstation if needed, and possibly licenses for simple data analysis software or ODK/Kobo toolbox for digital surveys. Helps modernize MEL processes.3 sets (one per district)
Participatory MEL: Community scorecard and feedback meetings (assessing adaptation service delivery)	round of scoreca rd exercis e	5	$ 1,000.00	$ 5,000.00	Implements a participatory evaluation: e.g., annually, communities rate the effectiveness of extension services, climate info, etc. via scorecards in public meetings. Covers facilitation and compilation of results, which inform district adaptation platform reviews.3 rounds (annual per district)
Cross-district MEL exchange: Joint review and learning sessions on MEL results and approaches	exchan ge worksh op	2	$ 4,000.00	$ 8,000.00	Mid-term and end-of-project MEL review workshops bringing M&E focal points from all 3 districts together to share experiences, challenges, and harmonize reporting to national level. Possibly combined with national M&E experts offering guidance.
Reporting: Annual adaptation M&E report compilation at district level (incl. national submission)	per year per district	12	$ 1,500.00	$ 18,000.00	Small budget for each district to compile and print an annual Adaptation Progress Report (could be an annex to standard district performance reports). Ensures information flows to national level (e.g., REMA/National Monitoring system). This may cover data verification or an external audit of data quality towards the end of project as well.12 (3 years × 3 districts)
Subtotal				***$ 72,300.00***	
Component 5: Project, Baseline, Monitoring & Evaluation and Learning					
Baseline study (project-wide): Comprehensive baseline assessment of key outcome indicators	lump sum (consul tancy + survey)	1	$ 46,550.00	$ 46,550.00	A broader baseline to capture starting values for all project indicators. Could involve collation of data from subcomponents plus additional surveys.
Mid-Term Evaluation: External mid-term evaluation (independent evaluator/team)	evaluati on exercis e	1	$ 31,975.00	$ 31,975.00	Independent review of project performance at midpoint. Includes evaluator fees, travel to project sites, stakeholder workshops to validate findings, and report preparation. Ensures mid-course corrections are informed by findings.1 (during Year 2)

Final Evaluation: External terminal evaluation (independent)	evaluation exercise	1	$ 71,550.00	$ 71,550.00	Comprehensive end-of-project evaluation by an independent consultant/team. Assesses achievement of outcomes, draws lessons, and informs sustainability plan. Budget covers extensive field visits, stakeholder consultations, and a detailed report.1 (end of project)
Outcome Monitoring: Ongoing outcome-level monitoring (surveys, data collection) not covered elsewhere	annual allocation	5	$ 5,000.00	$ 25,000.00	Supplemental funds for tracking project results regularly: e.g., yearly small surveys on farmer adoption rates, yield changes, knowledge improvements. Can fund hiring enumerators, developing custom data collection tools, and minor studies (like an impact case study on hydroponics outcomes). Augments the local MEL (Comp 4.3) with project-level perspective.
Data collection staff : Part-time M&E specialist to coordinate data collection, reporting (could be combined role)	person-months	24	$ 1,500.00	$ 36,000.00	M&E to ensure all components report on indicators, maintain the M&E plan, and compile AF results frameworks annually.
Reporting costs: Preparation of AF periodic reports (annual performance reports, project completion report)	lump sum (per year)	3	$ 1,000.00	$ 3,000.00	Covers design and printing of required reports, stakeholder consultation meetings to gather information for reports, and any translation needed. Ensures high-quality reporting to the Adaptation Fund.
M&E travel: Travel for monitoring missions by Project Management Unit or UNDP oversight	trip	9	$ 3,100.00	$ 27,900.00	Field travel specifically for monitoring and spot-checking activities on the ground, separate from implementation. Allows PMU and UNDP to verify progress in each district periodically.6 (approx. 1 per 6 months)
Subtotal				***$ 241,975.00***	
Total (Direct Project Activities)				**$ 3,937,849.84**	
Enabling activities for IE	IE Costs	36	$ 10,353.75	$ 372,735.00	Contribution to staff costs and other associated enabling activities for IE
Staff Costs- EE MINAGRI	EE Costs	36	$ 3,567.83	$ 128,441.88	Contribution to staff costs and other associated enabling activities for EE
UNDP Implementing Entity Fee: Project cycle management fee	Fixed rate	1	$ 370,370.37	$ 370,370.37	This is the fee for UNDP's oversight, quality assurance, and backstopping. It is calculated at 7% of the project cost (excluding this fee).
MINAGRI Execution Management Fee: (Project Management Costs)	EE Costs	36	$ 2,500.00	$ 90,000.00	Contribution to execution and project management costs and other associated enabling activities for EE
Contingency Fund: Unallocated contingency for price inflation, exchange fluctuation, or unforeseen needs	Fixed rate	1	$ 18,000.00	$ 18,000.00	Use of contingency will follow AF rules (requiring justification for any re-allocation). Exact USD amount to be calculated on final budget.
Audit Fees: Annual project audits (financial audit)	Audit/year	4	$ 5,000.00	$ 20,000.00	External audits to ensure financial compliance. One audit per fiscal year of the project. May be done by a qualified firm or the Office of Auditor General as required.

Subtotal (Management and Overhead Costs)				***$ 999,547.25***	
Grand total				**$ 4,937,397.09**	

Disbursement schedule with time-bound milestones.

Component	Total Budget (USD)	Year 1 (USD)	Year 2 (USD)	Year 3 (USD)
Component 1: Localized Climate Services	$ 1,181,075.00	$ 354,322.50	$ 472,430.00	$ 354,322.50
Component 2: Climate-Resilient Agricultural Technologies	$ 920,350.00	$ 276,105.00	$ 368,140.00	$ 276,105.00
Component 3: Agroecology & Farm Business Literacy	$ 1,231,049.84	$ 369,314.95	$ 492,419.94	$ 369,314.95
Component 4: Local Institutional Capacity	$ 363,400.00	$ 109,020.00	$ 145,360.00	$ 109,020.00
Component 5: Project Management, M&E	$ 241,975.00	$ 72,592.50	$ 96,790.00	$ 72,592.50
Management and Overhead (UNDP, MINAGRI, fees, audits)	$ 999,547.25	$ 299,864.18	$ 399,818.90	$ 299,864.18

PART IV: ENDORSEMENT BY GOVERNMENT AND CERTIFICATION BY THE IMPLEMENTING ENTITY

Annexes

Annex 1: Letter of Endorsement

ADAPTATION FUND

Letter of Endorsement by Government

Government of Rwanda

Kigali, 27th June 2025
Ref...0607/16.03

To: **The Adaptation Fund Board**
c/o Adaptation Fund Board Secretariat
Email: Secretariat@Adaptation-Fund.org
Fax: 202 522 3240/5

Subject: Endorsement for Supporting local adaptation actions for climate resilience in drought prone food basket sites of Rwanda

In my capacity as designated authority for the Adaptation Fund in Rwanda, I confirm that the above national grant proposal is in accordance with the government's national priorities in implementing adaptation activities to reduce adverse impacts of, and risks, posed by climate change in the country.

Accordingly, I am pleased to endorse the above grant proposal with support from the Adaptation Fund. If approved, the project will be implemented by UNDP and executed by the Ministry of Agriculture and Animal Resources (MINAGRI)

Sincerely,

MINISTRY OF ENVIRONMENT

Beatrice CYIZA
Permanent Secretary of the Ministry of Environment &
DA of Adaptation Fund in Rwanda

Annex 2: Implementing Entity Certification

Docusign Envelope ID: 31D5C05D-EF99-4B69-8DAB-876931FF6691

B. Implementing Entity certification

Provide the name and signature of the Implementing Entity Coordinator and the date of signature. Provide also the project/programme contact person's name, telephone number and email address.

I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans (National Strategy for Transformation 2, Nationally Determined Contribution, Green Growth and Climate Resilience Strategy, Fifth Strategic Plan for Agriculture Transformation) and subject to the approval by the Adaptation Fund Board, commit to implementing the project/programme in compliance with the Environmental and Social Policy and the Gender Policy of the Adaptation Fund and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme.
Signed by:
Name & Signature Fatmata Lovetta Sesay DocuSigned by: Fatmata Lovetta Sesay C7110C73469643A... Implementing Entity Coordinator
Date: *(June, 29, 2025)* — Tel. and email: +250795900299 fatmata.sesay@undp.org
Project Contact Person: Immaculee UWIMANA
Tel. And Email: +250788871527 immaculee.uwimana@undp.org

Annex 3: List of Consulted Stakeholders

	Period: 9th to 27th June 2025		
NAMES	**SEX**	**INSTITUTION**	**FUNCTION**
KAMANA Olivier	M	MINAGRI	Permanent Secretary
Dr. KARANGWA Patrick	M	MINAGRI	Director General of Agriculture Production
Dr. NYILIMANA Carine	F	MINAGRI	Animal products supply chain and market Specialist
NIYONSENGA Petra	F	MINAGRI	Extension material production Specialist
GASANA Methode	M	MINAGRI	Project Manager/IFAD
GASANGWA Sylien	M	Ministry of Environment	GE Mainstreaming Specialist
MUGABO Florien	M	Rwanda Green Fund	M&E Specialist
MUSANA Bernard	M	Rwanda Water Resources Board	Head of Knowledge and Forecasting hub Department
NDINDIYAHO Pierre	M	UNDP	M &E Associate
UWERA Mireille	F	UNDP	Programme Analyst
BUCYANA Diane	F	Ministry of Environment	Programme Manager SCENR
HIGIRO Steven	M	Meteo Rwanda	Senior Meteorologist
SIBOMANA Jean Claude	M	RAB	Agronimist
MWIZERWA Emmanuel	M	GAHINI	Agronimist
RURINDA Dieudonne	M	MURINDI	Agronimist
NSINGIZUMUREMYI Protogene	M	KABARONDO	Agronimist
MUKAMURARA Julienne	F	RURAMIRA	Agronimist
KANUMA Aphrodis	M	RWINKWAVU	Agronimist
IMANIYO Eric	M	MURAMA	Agronimist
KAMARAMPAKA Innocent	M	KABARE	Agronimist
KAVARUGANDA Jean Pierre	M	NDEGO	Agronimist
KAMANZI UMUTANGANA Audace	M	MWILI	Agronimist
NYAGATARE Janvier	M	NYAMIRAMA	Agronimist
HABYARIMANA Alex	M	REMERA	Agronimist
MUKAMUZIMA Alphonsine	F	Farmer cooperative	President
MBABAJENDE Sarah	F	Farmer cooperative	Member
NAKURE Zouliat	F	Farmer cooperative	Member
NTIBAHANANA Drocella	F	Farmer cooperative	Member
MUKANEZA Claudine	F	Farmer cooperative	Member
YAMURAGIYE Charlotte	F	Farmer cooperative	Member
ICYITEGETSE Madelina	F	Farmer cooperative	Member
NYIRAGAKARA Viviane	F	Farmer cooperative	Vice-President
MUSABYEMARIYA Vestine	F	Farmer cooperative	Member
NYIRABAZUNGU Mariane	F	Farmer cooperative	Member

UMUHOZA Valentine	F	Farmer cooperative	Member
UWAMAHORO Marie Celine	F	Farmer cooperative	Member
MUKANDUNGUTSE Consolée	F	Farmer cooperative	President
DUSENGIMANA Pierre	M	Farmer cooperative	Member
KAMARIZA Xavella	F	Farmer cooperative	Member
UWIMANA Joselyne	F	Farmer cooperative	Member
UWIMBABAZI Clarisse	F	Farmer cooperative	Member
Josephine Sophie	F	Farmer cooperative	Member
MUKAGATERA Jacqueline	F	Farmer cooperative	Member
MUKAZITONI Justine	F	Farmer cooperative	Member
HABIYUMVA Phillip	M	Farmer cooperative	Member
INGABIRE Chantal	F	Farmer cooperative	Member
MUSABYEMARIYA Josephine	F	Farmer cooperative	Member
ISHIMWE Claude	M	Farmer cooperative	Member
YAMBABARIYE Olive	F	Farmer cooperative	Member
TUYISHIMIRE Claudine	F	Farmer cooperative	Member
IMANASHIMWE Zamidi	F	Farmer cooperative	Member
NYIRASAFARI Gaudance	F	Farmer cooperative	Member
NYIRANGENDAHIMANA Marie	F	Farmer cooperative	Member
ISHIMWE Pacifique	M	Farmer cooperative	Member
KALISA Niyongira	M	Farmer cooperative	Member
HAKIZIMANA Emmanuel	M	Farmer cooperative	Member
UWIMANA Angelique	F	Farmer cooperative	Member
NIYIGENA	F	Farmer cooperative	Member
NDACYAYISENGA Pio	M	Farmer cooperative	Member
MUKAKABIRIGI Josee	F	Farmer cooperative	Member
NIZEYIMANA Theogene	M	Farmer cooperative	Member
HAGENIMANA Bonifride	F	Farmer cooperative	Member
TUYISHIME Jean claude	M	Farmer cooperative	Member
NIZEYEMARIYA Clementine	F	Farmer cooperative	Member

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