

ENVIRONMENTAL AND SOCIAL SAFEGUARDS IN RWANDA

A climate adaptation case study

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A project supported by the UN Environment Programme (UNEP) and funded by the Global Environment Facility (GEF) is aiming to increase the capacity of Rwandan authorities and local communities to adapt to climate change using nature-based solutions, an approach referred to as [ecosystem-based adaptation \(EbA\)](#). Forests, savannahs, and wetlands provide a wide range of services, including erosion control and flood defences, for example, but these ecosystems are experiencing enormous pressures due to an intensifying mix of climate change, population growth and deforestation.

The impacts of climate change are negatively affecting rural and urban communities and a number of key sectors in Rwanda. In the central and north-western highlands, intense rainfall has led to disastrous flooding, while the eastern and southern lowlands have seen more droughts and rainfall shortages. These climate impacts have disproportionately high impacts on vulnerable groups, including women and those from lower socio-economic status, to whom extra care is required to ensure their resilience.

Executed by the Rwanda Environment Management Authority (REMA), the project started implementation in 2016 and is scheduled to complete its activities by June 2023. The project interventions are taking place across 6 different districts of the country (Bugesera, Kayonza, Kirehe, Ngororero, Gasabo, and Musanze). Among other achievements, the project has restored 90 hectares of forests with indigenous trees in in Ngororero and Kirehe Districts, and 470 hectares of savannah ecosystems with climate-resilient species in Kayonza and Kirehe Districts. To protect freshwater ecosystems, 428 hectares of wetlands, rivers, and lakes and their buffer zones have been restored and protected across the 6 project districts.



Project Title:

Building Resilience of Communities Living in Degraded Forests, Savannahs and Wetlands of Rwanda through an Ecosystem-based Adaptation Approach

Executing Agency:

Rwanda Environment Management Authority (REMA)

Project Timeframe:

2016 – 2023

Key Achievements

1,000

Hectares of degraded ecosystems restored using climate-resilient species

1,784

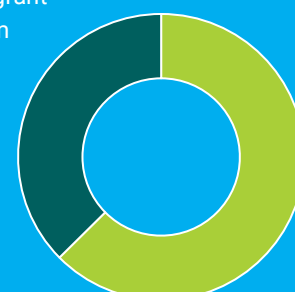
Community members trained to plan and implement EbA (41% women)

8,000

Individuals benefitting directly from project interventions (over 50% women)

Funding

GEF grant \$5.5m



Cofinance \$9.2m

Environmental and Social Safeguards

The term *Environmental and Social Safeguards* is used by development organizations and international treaties to refer to policies, standards and operational procedures designed to identify, avoid, mitigate and minimize adverse environmental and social impacts that may arise in the implementation of development projects. Human rights and gender equality are guiding principles of [UNEP's Environmental and Social Safeguards](#).

In the case of this project, preliminary research indicated that some of the intervention sites are close to protected areas and their buffer zones. Therefore, Environmental Impact Assessments (EIAs) would be conducted prior to the start of activities in compliance with government regulations that require projects, programmes and policies that may affect the environment to undergo an EIA before implementation.

During the project's implementation, new activities were proposed and approved by the Project Steering Committee. These include, for example, limiting agricultural and other economic activities in buffer zones in compliance with national laws, small-scale solar-powered irrigation for crops, and the provision of

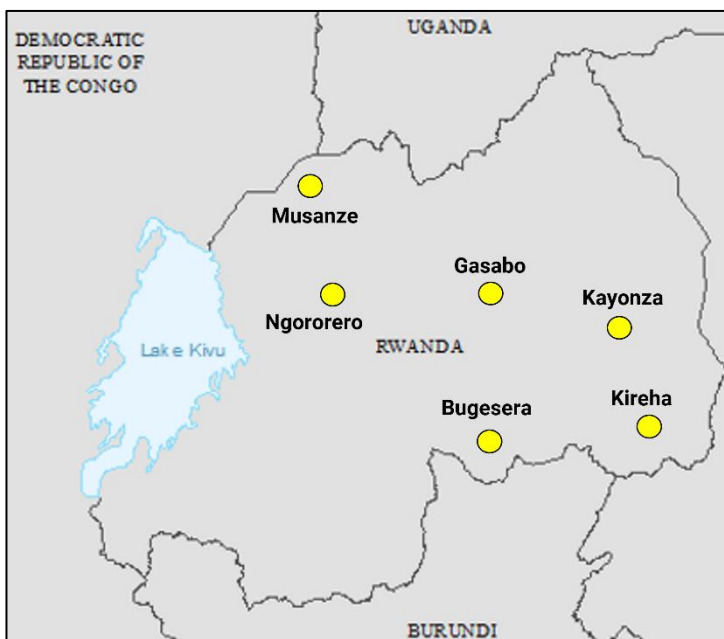
water for livestock. While these activities are designed to support community livelihoods and strengthen resilience, they needed to be assessed for environmental and social safeguard risks.

As a result, UNEP supported REMA to address any gaps in the identification, assessment and mitigation of environmental and social safeguard risks. When potential risks from new activities were detected, the project was 're-screened' using the UNEP environmental and social safeguards screening tool. Furthermore, an Environmental Impact Assessment Scoping Report was produced to further assess the risks identified in the screening note.

Following this analysis, an Environmental and Social Safeguards Assessment was commissioned to assess possible negative impacts that might arise from project activities, and to provide recommendations to mitigate these risks. Below, two cases studies are presented, outlining the identified risks, the recommendations provided, and the response measures undertaken by the project team.

Project Location

Figure 1:



The project interventions are taking place in degraded savannas in Kayonza and Kirehe Districts, degraded forests on hill slopes in Ngororero District, and degraded wetlands in Musanze, Kayonza, Bugesera, Gasabo, and Ngororero Districts.

PART 1

Solar Powered Irrigation from Murago Wetland

Murago wetland in Bugesera District is fed by the Akanyaru River, on which many communities depend for fishing and drinking water. The wetland is also home to endangered species and it lies in close proximity to the Akanyaru and Nyabarongo wetland systems, which are both classed as Important Bird Areas (IBA) by Birdlife International. In addition to conservation values, the wetland is important for the District's food security.

When crops fail during drought years, the food cultivated adjacent to - and within - Murago wetland is sold in the market and supports local communities in difficult times. With the aim of protecting the wetland and restoring its degraded parts, the project delineated buffer zones around the wetland and required farmers to vacate these zones, which were previously used for vegetable plots. To ensure these newly-located farmers still have access to water for their crops, a solar-powered small-scale irrigation system was developed to cover 10 hectares (later extended to 34 hectares). The irrigation system draws water from the wetland up to reservoirs constructed on elevated areas. By the force of gravity, the water is then channeled down to small vegetable plots.



Excavation for installing the water reservoir, located 500m away from the Murago wetland.

However, there could potentially be adverse impacts of the irrigation system on the wetland ecosystem, including reductions in water quantity and quality. For the Murago wetland, diminished water levels can reduce its function to filter some of the nutrient runoff flowing into the adjacent Lake Cyohoha North. Moreover, the area where Murago wetland and Lake Cyohoha North are located is extremely prone to drought. If the Murago wetland is drained, the exposure of the soil substrate can lead to the release of

carbon and nutrients from decomposing matter, especially as the Murago wetland is rich in peat. Therefore, upscaling the irrigation system could potentially increase the cumulative risks to water quantity and quality.

Mitigating and Monitoring Risks

The Scoping Report developed by UNEP and the subsequent Safeguards Assessment identified recommendations to minimize, mitigate, and monitor potential risks. These recommendations, and the actions taken to implement them by REMA (with UNEP support), are outlined below.

Recommendations for monitoring and regulating water use:

- Implement a water quantity and quality monitoring system to assess the baseline conditions prior to the irrigation system, the rate of water extraction, the water levels of the wetland, and the impacts of the irrigation on the surrounding the wetland;
- Propose thresholds for sustainable water extraction;
- Define the roles of major agencies and gender-responsive stakeholder engagements in regulating the water use from irrigation and ensuring environmental flows.

Actions taken:

- Mobilized a team of experts from the Rwanda Agriculture Board (RAB), the Bugesera District Authorities, and REMA to support the irrigation scheme;
- Applied for a dedicated RAB technician to support the District with the management and monitoring of the irrigation scheme. This technician would be in charge of ensuring the marking of water levels during dry and rainy seasons, so that the extraction rate of water for irrigation can be monitored;
- Developed a Management Plan to guide the continued implementation of the risk mitigation and monitoring measures. The Management Plan will be included in the official handover from REMA to the District.

Recommendation for improving water use efficiency:

- Train both female and male beneficiaries in efficient water use for irrigation, and promote awareness among community members on sustainable farming techniques.

Actions taken:

- Trained women and men in local communities around the wetland on ecosystem conservation and sustainable farming techniques, including efficient water use and water conservation;
- Established a cooperative for the local community around the Murago wetland, which included setting up a water use management committee to ensure the long-term maintenance and sustainability of the irrigation system;
- Installed irrigation hoses with a spray system to ensure the efficiency of water use and to reduce soil erosion;
- Used crop residues for mulching to conserve soil moisture;
- A trench that was initially excavated to delineate the wetland's buffer zone was used to retain important nutrients in the farms that might otherwise be lost into the wetland.

Recommendation for long-term wetland management:

- Design a wetland gender-responsive management plan that is compatible with biodiversity values and can be used to inform sustainable land and water use in the area.

Actions taken:

- Government developed a national wetland management plan for Rwanda, including Murago wetland and Lake Cyohoha North.

Recommendation for future compliance with safeguards standards:

- Ensure that future irrigation systems constructed in the area are compliant with the government's EIA requirements.

Actions taken:

- Commissioned and completed an Environmental Impact Assessment (EIA) for the extension of the irrigated area around Murago wetland from 10 ha to 34 hectares. The extension was approved and the certificate issued by Rwanda Development Board (RDB).

These risk mitigation measures engaged the local community as a main stakeholder to improve agricultural productivity, while also conserving water resources and supporting ecosystem restoration. Furthermore, many of these solutions have also been implemented at another project site at Rwakigeli Lake in Kayonza District, where solar-powered irrigation established by the project is supporting 15 hectares of farmland.



Credit: REMA

An irrigation system in Byimana, Rwanda.

PART 2

Establishing Buffer Zones and Water Points around Lake Kibare

Lake Kibare in Kayonza District is located in a highly drought-prone area of the country. The lake is part of a system of shallow lakes connected upstream to the Akagera river, which runs through the Akagera National Park. While the lake itself is not protected and is subject to conditional use for agriculture, the larger hydrological system is of ecological importance. The restoration and protection of Lake Kibare shores were added to the project intervention plan following the removal of other activities (already implemented by other initiatives), with the aim of restoring ecosystem functions to help mitigate the impacts of droughts on surrounding communities.

The project activities at Lake Kibare include the delineation and protection of the lake buffer zone and the enforcing of limits on land use within the buffer zone, including relocation of agricultural and commercial activities. The project constructed a market facility outside the buffer zone to shift selling activities from the lakeshores. The enforcement of land use limits has also shown to reduce grazing and watering of livestock from the lake. Therefore, to provide the community with continued access to water for livestock, water points fed by a solar pump system were installed.

Social and environmental risks resulting from these activities include the displacement of economic activities and livelihoods, including water access for livestock, risks associated with the construction, safety and waste disposal at the new market, and potential impacts to water quantity and quality in the lake that is highly prone to drought from the water extraction for livestock.

Drawing water from Lake Kibare is not unprecedented. Most notably, the International Fund for Agricultural Development (IFAD) started a large-scale irrigation scheme in 2021, drawing water from the lake for irrigation of 4,000 hectares of farmland. This irrigation scheme was approved after conducting hydrological studies and an Environmental and Social Impact Assessment (ESIA) and developing an Environmental and Social Management Plan (ESMP).

Mitigating and Monitoring Risks

The Scoping Report developed by UNEP and the subsequent Safeguards Assessment identified recommendations to minimize, mitigate, and monitor the risks potentially arising from the project activities around Lake Kibare.

Recommendations for monitoring and regulating water use:

- Ensure that the amount of water drawn out of the lake is compatible with the Rwanda National Water Resources Master Plan, and that cumulative impacts are within the limits that allow for environmental flows;
- Take into account the findings from IFAD's Environmental and Social Impact Assessment (ESIA) and the Environmental and Social Management Plan (ESMP) for the irrigation scheme drawing water from Lake Kibare, for planning, designing and implementing project activities in the area;
- Propose thresholds for sustainable water extraction and implement a system for monitoring water extraction, water quantity and quality.

Actions taken:

- Reviewed the findings of the hydrological studies and the ESIA / ESMP for the IFAD irrigation scheme to ensure the level of water extraction will not have negative impacts on Lake Kibare;
- Produced an assessment – courtesy of the RAB - of the proposed water extraction activities of the project to guide the placement of the solar pumps and to establish sustainable extraction levels;
- Trained local women and men on the sustainable use of the water-supply system, and established a water-use committee to manage the operation of the system.

Recommendations for ensuring safety and waste management:

- Expand pathways at the new market that could be used in case of emergencies;
- Build an adequate waste disposal facility at the new market.
- Ensure gender-responsive approaches to waste management are adopted.

Actions taken:

- Established an additional emergency exit at the new market to ensure safety in the case of emergencies;

- Constructed a waste disposal facility at the new market for proper waste management.

Finally, an Environmental and Social Safeguards expert was recruited to join the REMA Single Project Implementation Unit (SPIU) in early 2023. They will be in charge of reviewing the implementation of the safeguards-related recommendations, and identifying and monitoring follow-up actions to be undertaken following project completion.



The forested shores of Kibare lake.

Gender Sensitivity:

Climate adaptation action should, wherever relevant, promote the integration of gender perspectives, gender equality and the empowerment of women for sustainable development. As such, the Environmental and Social Safeguards Assessment analyzed whether the project activities were ‘gender-sensitive’, which is critical for ensuring project benefits are equitable and that the interventions do not further potential gender power imbalances among the local communities. The assessment found that gender equality has been appropriately considered by the project, for example, by ensuring an adequate representation of women in the project activities.

PART 3

Recommendations for Future Projects

Drivers of ecosystem degradation and the environmental and social risks that can arise from project activities need to be captured in the project design phase, including through the use of environmental and social risk screening tools.

Additionally, there is a need to embed systematic gender-responsive considerations into all the stages of a project hence, improving gender mainstreaming in project planning, design, implementation, evaluation and decision-making processes. Gender equality and human rights remain key guiding principles when addressing safeguards in climate adaptation projects.

Environmental flows for ecosystem services that relate to surface water, gender-inclusive stakeholder engagement, and the monitoring of impacts from project interventions should also be accounted for in the design of a project’s irrigation infrastructure interventions, along with the safeguard screenings and assessments conducted by the project. Any

new activities proposed during the project should be re-screened for safeguard risks using the same tools.

For project activities that provide water resources, such as the installation of irrigation systems and water points for communities (particularly when water is drawn from natural water systems), establishing safe water extraction thresholds and an accompanying monitoring system for measuring water levels and extraction rates is essential.

Crucially, to ensure that future projects are both effective and sustainable, it is critical to share the important lessons that emerge vis-à-vis environmental and social safeguards, and to ensure their uptake among different stakeholders. This can be done through various means, such as stakeholder workshops, training programmes, webinars, and policy briefs.

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Further Resources

[UNEP Project Page](#)

[Project Factsheet: Ecosystem-based Adaptation in Rwanda 2016-2022](#)

[Guidelines: Ecosystem-based Adaptation for Climate-resilient Restoration of Savannah, Wetland and Forest Ecosystems in Rwanda](#)

[UN Decade on Ecosystem Restoration](#)

To learn more about ecosystem-based adaptation, visit us [here](#)

Project Partners

- Rwanda Water Resources Board (RWB) and Rwanda Forestry Authority (RFA) within the Ministry of Environment (MoE)
- Ministry of Agriculture and Animal Resources (MINAGRI)

Sustainable Development Goals

