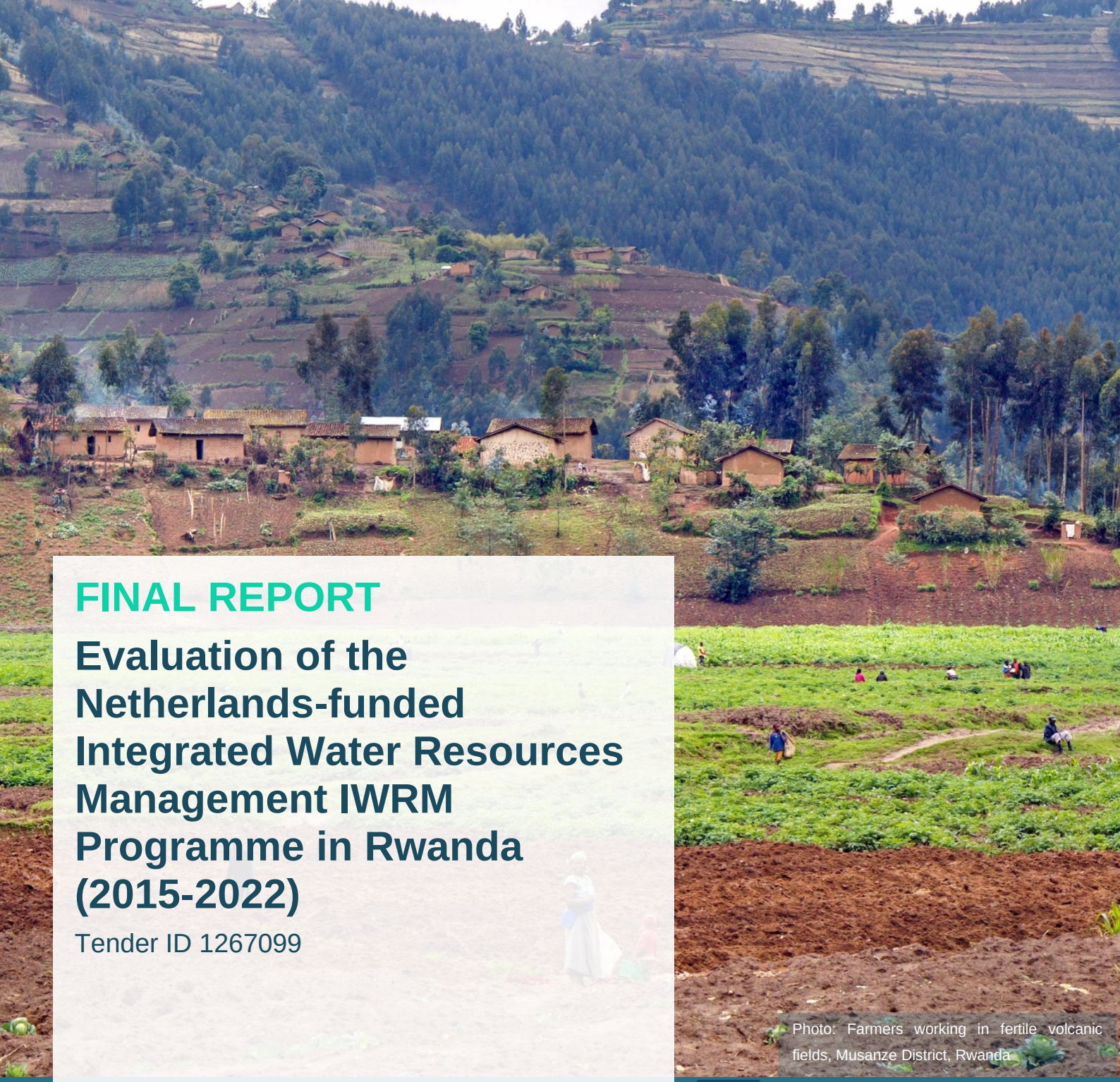

FINAL REPORT

Evaluation of the Netherlands-funded Integrated Water Resources Management IWRM Programme in Rwanda (2015-2022)

Tender ID 1267099

Photo: Farmers working in fertile volcanic fields, Musanze District, Rwanda

MetaMeta Research

Nude 54-D 6702 DN

Wageningen, The Netherlands

Ministry of Foreign Affairs of the Netherlands

META META

Integrated Water Resources Management (IWRM) Programme 2015 – 2022 in Rwanda

Programme Performance Evaluation

Final Report

V3.0 26.02.2023 - Final

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List of Abbreviations

Abbreviation	Definition
CC	Climate change
CECF	Community Environmental Conservation Fund
CPIP	Catchment Plan Implementation Projects
CPP	Catchment Plan Projects
CROM-DSS	Catchment Restoration Opportunities Mapping Decision Support System
CS	Construction Supervision
CSA	Climate Smart Agriculture
DAC	Development Assistance Committee
DCA	Demonstration Catchment Areas
DG	Director General
EIP	Early Implementation Projects
EKN	Embassy of the Kingdom of the Netherlands
EPI	Enterprise Partnerships Initiative
ESS	Exit and Sustainability Strategy
EWRM	Embedding Integrated Water Resource Management in Rwanda
FNS	Food and Nutrition Security
GoR	Government of Rwanda
HH	Household
IIF	IWRM Investment Fund
ISU	IWRM Support Unit
IUCN	International Union for Conservation of Nature and Natural Resources
IWRM	Integrated Water Resource Management
M&E	Monitoring and Evaluation
MCAP	Micro-catchment Action Planning
MINAGRI	Ministry of Agriculture and Animal Resources
MINECOFIN	Ministry of Finance and Economic Planning
MMR	MetaMeta Research
MoE	Ministry of Environment
MTR	Mid Term Review
OECD	Organisation for Economic Co-operation and Development
PCU	Program Control Unit
PES	Payment for Ecosystem Services
PMU	Project Management Unit
PPE	Program Performance Evaluation
PSC	Programme Steering Committee
RNRA	Rwanda Natural Resources Authority
RNRA-SPIU	RNRA Single Project Implementation Unit
RWARRI	Rwanda Rural Rehabilitation Initiative
RWB	Rwanda Water Resources Board
RWFA	Rwanda Water and Forest Authority
RWH	Rainwater Harvesting
SHER	Société pour l'Hydraulique l'Environnement et la Réhabilitation
SLRPP	Sebaya Landscape Restoration Pilot Project
SNV	Stichting Nederlandse Vrijwilligers
TA	Technical Assistance
ToC	Theory of Change
VLUAPs	Village Land Use Action Plans
W4GR	Water for Growth Rwanda

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Summary

Background and Methodology

MetaMeta Research, commissioned by the Dutch Embassy in Kigali (EKN), conducted a Programme Performance Evaluation (PPE) of the IWRM program implemented in Rwanda between 2015 and 2022. The primary goal of the IWRM Program was to strengthen institutions and capacity across levels, and improve farming livelihoods in selected watersheds, primarily at household levels. Capacity strengthening focused on a combination of support to IWRM policy and planning and putting IWRM into practice in four 'demonstration catchment areas': Sebeya, Upper Nyabarongo (with a focus on Secoko), Muvumba and Nyabugogo. The 8-year IWRM program cost at design was Euro 58.5 million, fully grant-funded by EKN Rwanda. The PPE serves as a final evaluation, to develop a systematic and in-depth understanding of different quality aspects of the IWRM programme: its achievements, limitations and to provide recommendations for main stakeholder groups.

The PPE focused on two phases, corresponding to two Technical Assistance projects, and three IWRM Investment Funding windows covering the Upper Nyabarongo, Muvumba, Nyabugogo and Sebeya catchments of Rwanda. The PPE deployed an interdisciplinary assessment method, combining reviewing of existing data and documentations, a central-level stakeholder workshop, interviews with key stakeholders, field missions involving focus group discussions and interviews with local beneficiaries. The evaluation results are formulated and verified following the OECD's set of criteria: relevance, coherence, effectiveness, efficiency, impact and sustainability. Insights presented in this report are expected to deepen understanding about the significance of the program-level outcomes, and furthermore to highlight factors and processes that enhances or impede program performance.

Impacts

The program outcomes and impact are rich, with a majority being significant at the population and landscape level. Regarding capacity, both program phases contributed to an improvement of the institutional and technical capacity for IWRM at central level (particularly at the Rwanda Water Resources Board) and district levels. These positive impacts are consistently verified by central-level stakeholders and at the district and sub-district authority and technical staff. The IWRM program has substantially reduced landscape degradation at the target catchment areas. A positive change is clear and consistent across intervention sites: terracing, afforestation, preventive trenches, riverbank stabilization, agroforestry, gully plugging, and other supporting measures, have effectively reduced soil erosion and landslides at the landscape level. The program also delivers positive impacts on food security, which was not a primary objective by design, but increasingly recognized as an important co-benefit. Local beneficiaries commonly report a positive transition from food shortage to producing enough for the family after terraces were built on their farms. Comparing to landscape restoration impacts, the PPE found that program impacts on livelihoods, crop production and food security seem less substantial. For future program design, the PPE emphasize the importance of stronger integration and coordination between IWRM, landscape restoration, and promotion of livelihood and crop

productivity. Much potential is to be explored through seeking synergy with, and establish complementing action agenda with the agricultural development program under MINAGRI.

Effectiveness

The program is effective in reaching its landscape restoration objectives, and to a lesser extent in improving water management and livelihood conditions. The PPE noted successful achievement of the envisioned landscape restoration targets through agroforestry, terracing, production of agroforestry seedlings, prevention of gullies, distribution of agricultural inputs and animals. Farmers quite consistently report higher crop production and yields on radical terraces, while no, or limited improvements are reported on progressive terraces. On older terraces, yield improvement tends to fade out over the years, as farmers cannot afford or have no access to consistently apply lime and fertilizers on their farm. Some farmers with limited farm size (below 0.5 hectares) still have difficulty producing enough food for the whole family, despite some increase in their production. The program has been effective in realizing objectives in institution and capacity strengthening at the national level, and in financial mobilization for IWRM. While all three windows of investment fund (the IIFs) have been successfully disbursed to a large extent, the envisioned functioning of these funds as basket, revolving fund was not realized. The lack of replenishment to these funds is deemed to reduce financial effectiveness.

Efficiency

Value for Money of investments is considered largely positive. The balance between the programme's objectives and available resources is considered to be asymmetric: funds went into works and less into mobilising agricultural support services. With a majority of the objectives materialized and impacts verified, the program's investments totalling EUR 58.5 million are however justified. Of this total budget, the PPE found the share of the TA cost seems very high, with a share of 44% of the total budget for TA in phase I, and about 30% in phase II. The PPE noted important co-investments from the GoR, including the Muvumba multipurpose dam, as well as follow-up funding on IWRM including the Water Security for all funded by FONERWA, or the National Program for Soil Erosion Control (NAPROSEC). There is still further scope for co-funding from the government to sustain the IWRM funding stream, and in-kind contribution from the community through labour (as practised elsewhere in Rwanda) could benefit IWRM implementation and ownership. Regarding timing, the IWRM program has been able to deliver all expected outcomes within the 8-year timeframe.

Coherence

The two program phases showed relatively good internal compatibility, with justified and coordinated IWRM interventions implemented and no time-gap in between. Factors contributing to this include comparable yet differently oriented theories of changes, and relatively well-constructed, well-timed annual plans of work and budget. The inter-phase compatibility was underpinned by consistent focus on developing catchment plans, and a shared set of tools, such as the CROM-DSS for mapping out prioritized intervention areas, the water permit system, and technical design of terraces. External coherence is demonstrated by adoption of similar projects in the country regarding landscape

restoration, and by the increasing application of the CROM-DSS in intervention planning. Linkages to other relevant, on-going projects and activities in Rwanda or IWRM-sector elsewhere could have been stronger, allowing more meaningful exchange and utilisation of the lessons learned.

Relevance

The IWRM program catered relatively well to the different needs of stakeholders across national, district and sector levels. Strong relevance is demonstrated through good and timely responses to several critical needs from the Rwanda government and districts, most importantly the needs to restore degraded landscape, control flooding, and improve soil and water conditions for farming in the target catchments. On the policy domain, the development of institutional capacity and policies responded well to the GoR's need to better manage its water resources, in order to ensure sustainable development.

At the community level, a larger share of the implemented IWRM intervention portfolio showed good match with famer's needs. Farmer interviews and FGDs consistently show that the interventions (terracing, agroforestry, village saving groups, and provision of agricultural inputs and animals) directly cater to farmers' needs, and therefore were well-received at the local level. However, this PPE also notes that the ability to address needs, is only one part of the solution to being relevant, inclusion at scale being the other. From the programmatic management level and this PPE's scope, relevance is somewhat compromised as their implementation coverages sometimes do not reach the population and landscape scales. Examples include the distribution of water tanks in limited amounts, and to a lesser extent, the provision of animals to the villagers. Reaching impact at scale seems to have been restricted by limited financial resource, and partly by the lack of effective partnerships with MINAGRI and other ministries. The PPE observed a trade-off between managing the prescribed budget, with selected beneficiary groups i.e. the poorest and most vulnerable households, and multiplying the impacts so as to create tangible change at scale.

Sustainability

Regarding institutions and arrangements, the evaluation is positive that key outcomes will be sustained thanks to the developed ownership and the relatively deep integration of several key plans, laws and working arrangements for IWRM in Rwanda. Long-term sustainability of the IWRM program outcomes and impacts at the local level is dependent on productive use, particularly farming productivity on the treated landscape. Here the PPE calls for attention of future programming in a few factors that requires collaboration with MINAGRI. Current farming practices are characterized by a tendency of shifting from mixed cropping to mono-cropping; and focus on a limited number of crops, often times motivated by the vision of catering to high-value commercial crops like Irish potatoes, and beans. The challenging farming conditions (poor, acidic soil, high erosion risks) and limited farming capacity (poor population with limited buying capacity for agricultural inputs, small farm size, limited technical know-hows) require to balance between ensuring household food security and producing high-value crops. Follow-up services, such as value-chain marketing, agricultural and veterinary extension support, are scarce and largely inaccessible to the smallholder farmer population.

Recommendations

The PPE has arrived at a set of high-level recommendations and good practices, tailored to four main stakeholder groups (national level authorities such as RWB and pertinent Ministries; EKN Kigali; Beneficiaries; and TA providers). Key recommendations follow the OECD/DAC criteria and include inter alia:

1. Match high-level expectations on positively inciting in people's livelihoods through IWRM with commensurate levels of institutional, human and financial resources. Pay stronger attention to collaboration with agriculture-oriented governmental agencies under MINAGRI.Keeping building on the community-based approach for implementing IWRM and landscape restoration interventions, with a shift to stronger co-funding through labour from the beneficiaries, and matching funds.
2. Balance bio-physical and other 'hardware' interventions with 'software', supporting interventions geared at strengthening the social capital (organizations, cooperatives, associations) of farmer beneficiaries. It is important to have a clear vision and agreement on the purpose and reach (how many beneficiaries) to ensure meaningful impacts.
3. Stronger attention to harmonized reporting structure across projects, components and phases. Focus on reporting at impacts and outcomes level, rather than describing outputs.
4. Establish collaboration with MINAGRI to strengthen the synergies between IWRM and agricultural development. Such collaboration should help harmonizing between promotion of market-oriented crop production and addressing poverty, food and nutrition security through productive use of challenged landscape.
5. Piloting and testing out the IWRM interventions to account for surprises and sufficiently tailor the intervention to local conditions, particularly concerning provision of animals and seedlings.
6. Promote the transition from conventional crop production model relying on external inputs to more circular, regenerative agriculture with a focus on improving soil quality, and demonstrating the key benefits to farmers, including those outside the direct target groups.
7. Design, budget, and implement a suitable sustainability and exit strategy earliest on. ESS should be a component with specific milestones and outputs to be regularly tracked during project implementation. Pay attention to creating an enabling environment for the ESS activities, with inputs from district authorities and local communities.
8. Devise a well-structured and verifiable pathway for decentralized and local decision-making, with the central role of the catchment committee in connecting between the communities at the catchment areas and the central-level stakeholders.
9. Create and monitor safeguards to warrant the proportionality and balance of hardware and software IWRM investments for livelihood improvement.
10. Build and pro-actively pursue a convincing Business Case for GoR and 3rd party replenishment of dedicated Basket/Trust Funds and enhance the visibility of existing fund supporting IWRM.

I. Introduction

Integrated Water Resources Management IWRM, in combination with landscape restoration is of critical importance for Rwanda's sustainable development and prosperity. In response to this strategic need, the Netherlands has, through the Dutch Embassy in Kigali (EKN) and partners, supported a two-phase programme to strengthen Integrated Water Resources Management (IWRM) in Rwanda. During 2015-2022, the program has put forward a portfolio of activities and instruments for IWRM on different fronts: develop awareness and capacity, provide technical assistance, provide funding for IWRM implementation, upscaling (including private sector collaboration), and embedding IWRM. The 8-year program implementation has resulted in important outcomes, as well as valuable insights and experience relevant for future IWRM activities in Rwanda.

MetaMeta Research the Netherlands (MMR) has been commissioned by the Embassy of the Kingdom of The Netherlands to conduct a final Program Performance Evaluation (PPE) for the Integrated Water Resources Management Programme in Rwanda. The main objectives of the PPE are to provide an independent assessment addressing multiple quality aspects of the IWRM program:

1. The contribution of the programme to Rwanda's policy priorities and strategic IWRM requirements. This aspect is addressed under Chapter III; Sections IV.1; IV.4; and V.1 and V.5.
2. The quality of implementation (including extent of ownership of the planning and implementation process by relevant stakeholders). This aspect is addressed under Chapter IV; and Chapter V.
3. The extent to which interventions are realistically scalable as Rwanda works towards Vision 2050. This aspect is addressed under IV.5, and V.6.
4. The sustainability of interventions. This aspect is addressed under IV.5 and V.6.
5. The extent to which the interventions, especially the landscape restoration measures, have made a difference to the livelihoods of the farmers on whose land the measures were implemented. This aspect is addressed under IV.1; V.1; V.5 and V.6.

The PPE deployed an interdisciplinary approach to review the IWRM programme, including its associated projects, and construct a systematic and in-depth understanding of different aspects of the programme's quality: its achievements, limitations and recommendations for stakeholder groups. In particular, the PPE provides evidence-based answers to the five central evaluation questions, through the analytical lenses of the updated DAC/OECD evaluation criteria: ***relevance, coherence, effectiveness, efficiency, impact and sustainability***. (See Annex I). The evaluation encompasses both project- and programme-level activities, through close collaboration and exchanges with key stakeholders, including Project members and implementing bodies, governmental authorities, private sector, and community beneficiaries.

This report first describes the program performance methodology (Chapter II), and presents the institutional settings of IWRM in Rwanda as an important background to the program evaluation (Chapter III). Chapter IV presents the first batch of the PPE findings regarding the IWRM program's achievements, especially achievements at the outcome level. Chapter V addresses the program performance, with the PPE results presented in 06 sections corresponding to Impacts, Effectiveness,

Efficiency, Coherence, Relevance and Sustainability. Building on the findings and conclusions in Chapter IV and V, Chapter VI presents a set of lessons learned and specific recommendations to the four stakeholder groups. Chapter VII concludes the PPE report.

II. Program Performance Evaluation Methodology

The PPE's analytical framework is based on the updated DAC/OECD evaluation criteria, which comprises of relevance, coherence, effectiveness, efficiency, impact and sustainability. Assessing the IWRM program and underpinning projects through these criteria form systematic and in-depth understanding of different quality aspects of the IWRM programme: its achievements, limitations and recommendations for stakeholder groups. The Terms of Reference for the evaluation specified one leading evaluation question and multiple sub-questions for each criterion (see Annex I). These questions inform the format and structuring of the actual findings by the PPE.

Data and information underpinning the PPE include three main clusters:

- First, program and project documentations generated throughout the two phases were collected from different sources, including those from the EKN, RWB, IUCN and Mott Macdonald project teams. A structure of the documents and key items informing inception is available in Table 1.
- The second cluster contains the new data and information collected by the PPE team during the field missions, interviews, and discussions. This cluster helps further verify the findings based on literature review, and fill gaps that other clusters fail to cover.
- The last cluster of data and information covers data products generated through baseline studies, monitoring campaigns, and Rwanda's national policy framework and visions for development.

II.1 Background documents and secondary data

Background documents and secondary data form an important basis for the IWRM evaluation. In particular, the PPE team has gathered them from different parties and organized background documents into four groups, as follows:

Table 1 Inventory of key background documentations of the IWRM programme

Main groups of background documents	Key documents reviewed
Program-level documentation retrieved primarily from EKN, and Rwanda Water Resources Board	IWRM programme document 2014
TA Phase I – Water for Growth Rwanda Project	Project Proposal 2014 Inception Report 2016 Mid-term Review Report 2017 Final Report 2019
TA Phase II – Embedding IWRM in Rwanda	Project Proposal Annual Reports for 2019, 2020 and 2021

	Village Land Use Action Plans
RWB-led projects through three windows of interventions	The Arrangement for IWRM Investment Fund IIF 2016, and subsequent amendments. The IIF disbursement overview 2022 The IIF annual reports between 2016 and 2021 Three external monitoring mission reports by Three Stones International in 2021 and 2022
Support documentation	Documentation on pertinent Rwandan Policies, Food and Nutrition Security, Climate Change Resilience, and Disaster Risk Reduction.

II.2 Stakeholders participation

The PPE involved multiple key stakeholders throughout the evaluation process, to ensure that their key interests and concerns are taken into account, and that opportunities and constraints faced by the implementing institutions are identified. Interactions with central-level stakeholders were facilitated through a one-day central-level stakeholder workshop, involving participants from the RWB, EKN, IUCN, two private sector companies participating in the Enterprise Partnership Initiative EPI (IIF window 2), Ministry in Charge of Emergency Management, and Ministry of Finance and Economic Planning. The PPE team further implemented individual interviews with stakeholders from the Ministry of Agriculture, and with the RWB staff members. At the district and sector levels, meetings were held with the district authorities and technical staff including agronomist and economists at Nyagatare, Rubavu and Rutsiro Districts. At the community level, stakeholder participation was facilitated through focus group discussions, combined with interviews with the beneficiaries at three visited catchment areas namely Sebeya, Muvumba, and Secoko (upper Nyabarongo catchment).

II.3 Data Analysis

The PPE combined qualitative and quantitative methods to address the evaluation criteria and questions. The tools and methods are used complimentarily and help to take into account the multi-aspect and multi-scale nature of the IWRM program and contributing projects.

The PPE reviewed relevant project and program and documentation, to extract information on the program achievements, reported limitations, key milestones and implementation statistics. These are then, to the extent possible, verified with field observation and interviews with key stakeholders. All interview materials were subjected to qualitative analysis, with the main objective of extracting relevant information concerning program outcome delivery and performance. To understand the institutional context as well as program impact regarding capacity and institutional enhancement, the PPE deployed the framework under the SDG 6.5.1. on "*the degree of implementation of integrated water resources management (IWRM)*"[1], with a focus on the most relevant elements including Enabling Environment; Institutions and Participation, and Management Instruments.

[1] https://sdg6data.org/en/indicator/6.5.1

Quantitative analyses were deployed for analysing the program's financial operations, and for analysing descriptive statistics regarding household characteristics and crop production. The PPE collected financial overview and reports from the TA providers in both phases, and from the RWB to analyse the program's budgeting and financial disbursement. The financial overview and budget shares were calculated to understand the shares between catchment areas, between TA and implementer (RWB), and between different investment windows and themes. To the extent possible, the PPE also calculated basic statistics regarding farm sizes, household size, and crop production features such as yield, use of agricultural inputs.

III. The institutional settings of IWRM in Rwanda

1. The national IWRM context

The national context evolved from Rwanda Vision 2020 to Rwanda Vision 2050 and, with it, ambitions regarding the future use and consumption of water increased. In this evolving context Rwanda has seen significant development in the institutional settings, policy framework and capacity for water resources management. The Rwanda Water Resources Board (RWB) evolved out of the Rwanda Water and Forestry Authority (RWFA). RWFA was established in 2012. It had a Water Management Department WMD, which was in charge of implementing the EKN IWRM Spearhead Programme of Phase I. Phase I contributed to creating an enabling institutional framework. Following the devastating 2018 floods and the GoR's decision, the WMD obtained its status as the Rwanda Water Resources Board. Currently, RWB falls under the Prime Minister's Office rather than under a line ministry, indicating the importance given to the water board by the Government of Rwanda. Given the evolving institutional context and the two-phase IWRM program, this evaluation will explore how instrumental Phase I was in creating the national and district level IWRM institutions, including the RWB. Additionally, the evaluation will assess the interlinkages between two phases, particularly how Phase II built further upon the outcomes and insights of Phase I.

Just before RWB was set up, EKN and Rwanda Ministry of Environment, the parent Ministry, launched Phase II, dubbed Embedding IWRM in Rwanda (EWMR). Still within the RWFA, the phase's goal was to prevent excessive soil erosion and (flood) disasters in the Sebeya Watershed, and supporting RWB to handle and invest in IWRM in other major catchments defined under Phase I. Phase II focused on physical improvements in terracing in a landscape restoration context, alongside upscaling IWRM in the four target catchment areas.

2. Programme goal, objectives and implementation arrangement

The overarching goal of the IWRM program in Rwanda is to support sustainable management of the country's water resources, through development of IWRM frameworks, capacity building, institutionalization, and financing IWRM focusing on landscape restoration and flood control. Guided by this objective, individual projects specified their own objectives (See Table 2).

Table 2: Two phases of the IWRM programme and their objectives

Phase I: IWRM development & implementation.
Phase I focused on i) awareness creation on 'integrated' aspects of Integrated WRM and applying this in an enhanced institutional framework (for coordination) at central level through the Project Steering Committee (PSC) and at catchment level with (more) bottom-up planning through Catchment committees; ii) capacity development at central level and at catchment level 'on the job' while iii) demonstrating IWRM in four demonstration catchment areas: Upper Nyabarongo, Muvumba, Nyabugogo and Sebeya.

Objectives of the TA project Water for Growth

- IWRM governance framework demonstrated as being conducive to effectively and sustainably managing water resources;
- IWRM approach, value, and ownership demonstrated in four catchment areas;
- IWRM investments enhanced through a GoR-managed fund;
- IWRM knowledge enhanced, accessible, and applied.

Objectives of the Investment Fund for IWRM IIF (Window 1): Financing and implementing interventions for landscape restoration & flood control in four demonstration catchment areas.
The IIF functions as a Basket Fund to be fed by different sources e.g. Government of Rwanda, donors, international climate funds and others as part of its bilateral development cooperation on lWRM.

IIF Window 2: Promotion of Enterprise Partnerships Initiative (EPI) for IWRM, aiming to involve private sector initiatives in IWRM. The EPI supports independent investment for projects by private sector businesses through co-financing.

Phase II: Implementation and embedding IWRM
Phase II has two main objectives, distributed over two components where the program aims to embed and scale up IWRM across the country, while implementing interventions for landscape restoration and flood control in the Sebeya catchment area.

Objectives of the TA project Embedding IWRM in Rwanda EWMR

The EWMR project aims to deliver increased livelihood and conservation benefits in Sebeya and other catchments from restoration & improved local land management. Four components were developed:

- Restore degraded lands in Sebeya and other catchments
- Develop innovative financing mechanisms & value chains for improved livelihoods through ecological & economic benefits, focusing on Community Environmental Conservation Fund (CECF) and Payment for Ecosystem Services (PES).
- Scaling up Catchment and Micro-catchment Plans in Sebeya and other catchments

Knowledge management system implemented for improved & integrated landscape restoration

Objectives of the Sebeya Landscape Restoration Pilots project SLRPP (IIF Windows 3)

The SLRPP project aims to increase livelihood and conservation benefits in Sebeya and other catchments from restoration & improved local land management. The main focus is to pilot community-led implementation of different landscape restoration interventions including terracing, agroforestry, building trenches in forest, afforestation, river bank protection, gully treatments, etc.

Implementation Arrangements

At design in 2012-2015, the IWRM programme was to be implemented through the Ministry of Environment, which has had the overall responsibility for programme implementation. Linkages and partnership agreements have been established with other relevant Ministries, including Ministry of Agriculture, and Ministry Of Finance And Economic Planning.

Program implementation was managed by Ministry of Natural resources, later Ministry of Environment, to a Single Project Implementation Unit (SPIU) in the Rwanda Natural Resources Authority, later the Rwanda Water and Forestry Authority RWFA. The SPIU was to take advice from the Integrated Water Resources Management Support Unit (ISU). The SPIU was guided by a Project Steering Committee chaired by the Permanent Secretary of the Ministry of Natural Resources. In key districts where the Demonstration Catchments were located. Local catchment committees or village level committees in charge of VLUAPS, were guided by the *Imihigo* principles observed in Rwanda.

IV. Summary of program achievements

Owing to a relatively long implementation time (08 years), a strategic coverage of the target catchment areas, and substantial financial investment, the IWRM program delivered a rich and substantial set of outcomes. Outcomes were defined and agreed by contract between EKN/MFA-TA service providers at the design stage in the M&E frameworks of Phases I and II, respectively. This PPE structured and linked up the outcomes under five main themes, so as to bring forth more consistent and tangible achievements. This outcome structuring is informed by the theory of change frameworks and objectives documented by Phase I and Phase II designs. Further rationales and details are provided in the inception report.

Findings are structured along five themes: (i) Outcomes relating to landscape restoration, and improvements in farming and livelihood conditions (‘Catchment Plans Enacted’); (ii) Outcomes relating to the mobilisation of finance and innovative funding instruments for IWRM (‘Investment Funds Disbursed’); (iii) Outcomes relating to IWRM implementation and embedment under the program’s coordination (‘Project Management and Steering Committee Performing Well’); (iv) Outcomes relating to the strengthening of the IWRM institutional framework and capacity (‘Institutional Framework with Capacities Operational’); and (v) Outcomes relating to IWRM sustainability and scaling up (‘Scaling Out Supported’). Here the main focus is on summarizing the program outcomes, while identified limitations and discussion points are presented in Chapter 5 – Assessment of the Program Performance.

The PPE noted incomplete information that at points makes the outcome verification challenging. Verification of progress of outcomes was limited to an external mid-term review for Phase I and internal final reporting by Mott MacDonald. Similarly, IUCN provided the project annual reports (up to 2021) as main source for Phase II. A mid-term review for Phase II was not available, while the external monitoring missions by Three Stones International focused more on output-level achievements. The IWRM

program outcomes were consolidated from the High-Level Stakeholder Consultation, document reviews, interviews, and the field missions.

IV.1. Degraded landscape restored, resulting in improved farming & livelihood conditions

A quick overview of aspired levels of attainment of outcomes, as indicated by design and reported performance indicators, give the impression that Phase I achieved its projected results whereas Phase II is making steady progress towards accomplishing the final shares of its envisioned objectives. Restoring degraded landscape is deemed to be amongst the most significant and consistent achievements of the overall IWRM program. These visible and tangible achievements in the field could not have been achieved without the corresponding preparatory groundwork by Phase I in design and feasibility studies. Complementarity here was widely achieved.

A positive change is clear and consistent across the target catchment area: terracing, afforestation, preventive trenches, riverbank stabilization, agroforestry, gully plugging, forest management, and roadside tree planting, have effectively reduced soil erosion and landslides at the landscape level. Findings and observations from the fieldtrip missions show that both on-field erosion and those at larger scale (gullies and landslides) are largely under control, even in one of the most erosion-prone catchment areas like Secoko (Upper Nyabarango basin) where the steep terrain, highly erodible soils and heavy rain create the challenging conditions to stabilize the landscape.

Table 3. A comparison of envisioned and reported achievements for selected key outcome indicators regarding landscape restoration

Selected Key outcome indicators by Design Phase I (Cpt 1.3)	**Selected Key outcome indicators achieved Phase I (Cpt 1.3)**	**Selected Key outcome indicators by Design Phase II (Cpt 2.1)**	**Selected Key outcome indicators achieved Phase II (Cpt 2.1)**
Four (04) Demonstration Catchment Plans (Upper Nyabarongo, Nyabugogo, Muvumba, Sebeya)	Four (04) Demonstration Catchment Plans (Upper Nyabarongo, Nyabugogo, Muvumba, Sebeya) under implementation[2]	8,300 ha out of 36,000 ha under improved governance and management	Approx. 6.000 ha of land in four (04) Districts under improved governance and management[3]
Demonstration of added value of IWRM in demonstration catchments	All early Implementation Projects EIP reached 95% progress by final reporting period of 2019[4].	Development of 200 Sebeya Village & 20 Micro-catchment land use plans scaled up to five (05) other catchments	200 Village Land Use Action Plan developed; All VLUAPS have been implemented, with some to be completed[2].
		75% of community members in 200	8,923 community members mobilized

[2] Water4Growth final report

[3] Source: EWMR TA project annual report 2021.

		villages mobilized and sensitized on landscape restoration	and sensitized by end of 2020[2].

This outcome is consistently reported by high-level stakeholders during stakeholder workshop, as well as in key informant interviews, during village-level focus group discussion and household interviews. Treating the degraded landscape, which was identified as highly important at program departure, has been a consistent focus of both Phase I and Phase II activities. Despite different implementation modalities and geographical focuses, reducing soil erosion under the IWRM program is consistently seen as useful and appreciated as relevant by stakeholders and local beneficiaries.

Box 1: Consistent transition from degraded landscape to more stable and productive uses

Fieldtrip missions show a clear and consistent transition from landscape degradation and low/non-productive use of the hilly landscape towards more productive uses. Program interventions including terracing, gullies rehabilitation, afforestation, and agroforestry resulted in green terraces with more fodder for animals, better soil and nutrient retention for higher crop yields, more timber, and in some locations more fruit trees. Top-left picture: An active mining site exacerbating landscape degradation at Karumbi village, Kirwa Cell, Murunda Sector, Rutsiro District – an upstream remote village of the Sebeya catchment. Bottom-left picture: A landslide site with non-productive use occurred in the 1990s at Kinga village, Bitabage Cell, Ndaro Sector, within the Secoko catchment area. Top-right picture: Treated hilly area turning into green and productive farming site for farmers, with a good mix of agroforestry trees, fodder grass, and food crops (bean and maize) at Ngoma village Nyabirasi Sector, Rutsiro District. Bottom-right picture: While many provided fruit trees died, some thrive and are appreciated by the beneficiaries.

The program achievements show a mixed picture when it comes to contributions to farming conditions, livelihoods, food and nutrition security. The focus group discussion and household interviews show that landscape restoration works have created important conditions to improve farming conditions. These include improving access to the field, better retention of water and agricultural inputs including lime and fertiliser in the field. Extra fodder grass grown on the edges of newly created terraces are also appreciated by farmers, as they help stabilizing the soil and provide food for cows, goats and sheep. Regarding food security, farmers commonly report a positive transition from food shortage to producing enough for the family after terraces were built on their farms. In some particular cases, reduced crop production was also reported by beneficiaries. For instance, household interviews with beneficiaries at Kinga village, Bitabage Cell, Ndaro Sector within the Secoko catchment area (under phase I implementation) report reduction in banana. In this particular case, banana yield used to be a highly productive crop before terracing, and is a preferred farming practice by farmers. The program also contributed to food and nutrition security co-benefits, however the magnitudes are less visible and sometimes show limitations. During the fieldtrip mission, the PPE members observed a strong need of external agricultural inputs (lime, fertilisers and fungicides – especially in case of potato growers) to keep the crop yield stable. Farmers in 'old' terrace systems like in Secoko report that the crop yield depends strongly on fertiliser and lime inputs, which they often cannot afford to buy.

While erosion control is largely achieved across the landscapes, analysing farmers perception suggest that soil fertility and crop productivity show less consistent improvements. This observation, in combination with the limited crop varieties currently grown by farmers suggest that there are important risks regarding food security that could be addressed through linking IWRM and sustainable farming practices i(See Section V-1 Program impacts).

IV.2. Investments and innovative finance mobilised for IWRM

This outcome covers the (intended) use of different finance instruments under the IWRM Programme: (i) the IIF Grants with its two Windows, (ii) the TA funding, (iii) innovative finance such as CECF, PES, Village Savings Groups, and (iv) payments for work to participant labourers.

The IWRM program deployed a set of financial instruments for IWRM assessments, design, capacity building, technical assistance and building infrastructures at strategic catchment areas[4] of Rwanda. These instruments include 2 technical assistance projects for each phase (€ 15.4 Million for phase I and € 7.5 Million for phase II including cost extension); 2 IWRM financing windows, i.e. the IWRM Investment Funds (IIFs) with Window I of € 18.6 Million for phase I, and Window 3 of € 15 Million for phase II); and one public-private financing facility i.e. the Enterprise Partnerships Initiative (EPI aka Window 2) of € 1 Million.

[4] *The IWRM program phase I targeted 04 catchment areas, namely Upper Nyabarongo, Muvumba, Nyabugogo and Sebeya. The catchment areas were selected based on a combination of criteria, of which the severity of landscape degradation i.e. erosion risks, extreme flood events, etc played a leading role. The erosion assessment done in Phase I was seen as useful and relevant to actively select the strategic catchment area. Phase II targeted the Sebeya catchment area with two project hubs in Ruvavu and Rutsiro districts.*

Table 4. A comparison of envisioned and reported achievements for selected key outcome indicators regarding investment and innovative IWRM financing

Selected Key outcome indicators by Design Phase I (Cpt 1.4)	Selected Key outcome indicators achieved Phase I	Selected Key outcome indicators by Design Phase II (Cpt 2.2)	Selected Key outcome indicators achieved Phase II
The set-up of the two Windows IWRM Investment Fund (IF) as a national Basket Fund to facilitate direct access to international IWRM finance, as well as streamline and rationalize bilateral and domestic finance. Initially endowed with two (02) EKN-funded grants for a total of €19.6m	The IWRM Investment Fund (IF) was set up. Initial endowment of Window I (€18.3m) was used up (2020) without replenishment or contributions from domestic or international sources. PPE notes significant follow-up funding outside the program scope, e.g. funding facilities under FONERWA (Green Gicumbi project in Muvumba catchment, Mbirurume project, Cyohoha North Lake project, etc). Window II (€1 Million for the Enterprise Partnership Initiative EPI) was finished (2020).	Types of Public Private Partnerships (PPPs) which are likely to be successful, particularly in terms of bringing enhanced income flows to farmers will be explored.	Suitable PPPs not specifically reported. The Enterprise Partnership Initiative was well received by companies, verified by stakeholder workshop.
Window II €1m Leverage 1:1 by Private Sector	Window II Leverage 1:1 by Private Sector was met for €1 Million.	Innovative financing can include CECF[5], PES, Informal Savings Groups.	331 Village Saving Groups established by reporting period 2021.
Set up of Participatory Payments for Ecosystem Services (PES). Three out of 17 contracts with MCAP Service Providers will be delivered using a Payment for Ecosystem Services (see Component 5 scheme developed by W4GR).	The W4GR approved 'Payment for Ecosystem Services (PES)' scheme was not adopted for use.	PES (& performance CECF type-payments) in place & result in improved water flows for downstream use	PES concept design available but was not adopted and implemented.

[5] *Community Environmental Conservation Fund (CECF) used by IUCN in Uganda and Kenya as an approach to catalyze restoration and improve livelihoods. CECF is a low-cost approach to incentivize restoration at micro-catchment and village levels as part of livelihood improvement. CECF involves providing financial grants to villages for farmers, based on criteria for each action type which need to be identified and agreed to. Based on village performance contracts through selected service providers, farmers and village can access grants to meet individual needs and aspirations. The CECF is linked to implementation of actions within village and micro-catchment land-use plans. Villages and micro-catchments which implement and achieve their restoration targets qualify to access the CECF. Such targets could include soil conservation terracing (and associated grass strips, check dams etc.), climate smart agriculture (agroforestry, use of compost and legumes for soil fertility), and forest landscape restoration, for example.*

The TA share of program implementation is considered high, accounting up to 44% of the total budget (the 15.4/19.6 Water4Growth TA project in Phase I and 6.2/15 for Phase II). This PPE will address the budget balancing and implications in Chapter V.

An innovative IWRM financing instrument was established under the Enterprise Partnerships Initiative (IIF window II) with a total budget of € 1 Million. This investment window helped to stimulate private sector companies to co-invest in IWRM, which was confirmed in the stakeholder workshop and through an in-depth interview with one participating company - IRIBA WATER GROUP Ltd.

IWRM Program's budget allocation

IWRM Program Phase I	**Budget**
TA Water4Growth Mott Macdonald	€ 15.400.000,00
IWRM Investment Window 1	€ 18.600.000,00
IWRM Investment Window 2 - EPI	€ 1.000.000,00
TOTAL	**€ 35.000.000,00**
IWRM Program Phase II	
TA EWMR - IUCN led	€ 7.500.000,00
IIF window 3 - SLRPP Project	€ 15.000.000,00
TOTAL	**€ 22.500.000,00**

Budget allocation per catchment area in Phase I

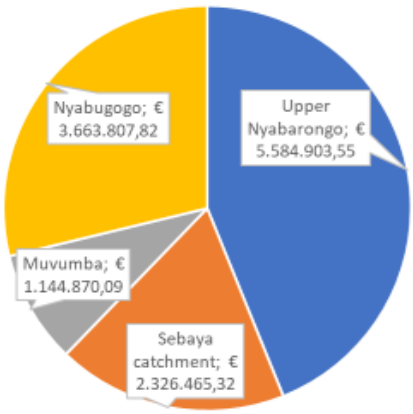


Figure 1 Overview of the IWRM Program's budget allocation

Overall, the mobilized IWRM finance under the program is seen as an essential international financial resource for IWRM implementation at the national scale. The central-level stakeholder workshop and interviews with district authorities at Nyagatare, Rubavu and Rutsiro show strong consensus on the important contributions of the program's finance for realizing Rwanda's IWRM vision and practices.

Another positive achievement is that IWRM financing is gaining certain momentum with concrete commitments and follow-up projects by the Rwanda Government and to a lesser extent by international development partners. Concrete cases were mentioned by stakeholders during the workshop regarding follow-up funding, including government-funded project covering 5 different districts on community-based erosion control, to be coordinated by the Rwanda Water Resources Board.

Compared to the 2015 situation when there was limited interest and financial resource dedicated at national level to IWRM, stakeholders considered this an important outcome to which the IWRM program contributed. The Rwanda SDG 6.5.1 self-score on 'Financing', one of the four building blocks of the UN agreed scoring mechanism, improved from 'low' (2017 baseline) to 'medium high' (2020 survey). This covers allocations by the national budget for water resources infrastructure and elements, sub-national budgets, revenues raised for IWRM, and sub-national basin budgets for IWRM.

At the community and household levels, two financial schemes were particularly visible and offer values to the beneficiaries. The payments from the project to community members for their work on building

terraces in Phase II were appreciated. Farmers received between 1200 RwF to 1500 RwF per day for building terraces in the community, allowing them to pay for different domestic needs such as school fees, insurance, buying crop inputs, and in some good cases buying animals like sheep, goats or cows.

The second well-received financial scheme at the community level is the establishment of the village saving groups, with support and training from the TA consortium during phase II. The Phase II TA reported a total of 311 saving groups established and/or supported by the project. Our focus group discussions and farmer interviews showed that the village saving groups are operating well, and the members appreciate the opportunity to save collectively, and prepare substantial finance for their farming and domestic needs.

Despite important achievements, the PPE also found several limitations regarding financing balance, strategies for mobilizing additional resources that directly reinforce the program funding, replenishment of the IIF funds, and the payment for ecosystem services, etc. These limitations are addressed in Chapter V.

IV.3. Project coordination and knowledge management effectively steered IWRM implementation and embedment

The IWRM program established a set of structures and activities for strategic coordination, including a Program Steering Committee PSC, Techincal Advisory Committee (TAC), Single Project Implementation Units SPIU, internal (M&E and progress) reports, and reviews done by external parties. The overall finding is that these structures and activities together ensured the needed level of coordination between different project component and stakeholders.

Table 5. A comparison of envisioned and reported achievements for selected key outcome indicators regarding knowledge management and program steering

Selected Key outcome indicators by Design Phase I (Cpt 1.5)	**Selected Key outcome indicators achieved Phase I (Cpt 1.5)**	**Selected Key outcome indicators by Design Phase II (Cpt 2.4)**	**Selected Key outcome indicators achieved Phase II (Cpt 2.4)**
Develop a knowledge management strategy	Knowledge management tools were developed and mainstreamed into IWRM practices including the CROM-DSS, the water portal, the water permit system, etc. The technical assessments done in Phase I took a large share of the budget, while utility was not always observed.	Catchment Restoration Opportunities Mapping Decision Support System (CROM DSS) Updated & used at District level with data & lessons from implementation & studies	CROM DSS adopted and used by the RWB, providing a strong data-driven foundation for targeting landscape restoration activities. Adoption at district level is limited.
Implement IWRM research agenda	Allocated budget for research not fully utilized.	Project Steering Committee (PSC) & Project Advisory committees (PAC)	PSC and TAC are in place, however the PPE find limited steering and supports,

		established & Project well managed with governance structures performing	especially regarding the development of the Exit and Sustainability Strategy. Improved supports from PSC and TAC is being addressed during the Phase II extension.

During the central-level workshop, stakeholders pointed out that thanks to the program efforts, the IWRM concept has now been better operationalized and brought to actual practices across national, district, catchment and local levels. This main outcome is illustrated by several cases, including making IWRM operational at the catchment level. Throughout Phase I and Phase II, about 9 catchment plans were developed for catchment level I, and catchment level 2. Accompanying this process is the initial formulation of the catchment committees, following a de-centralized structure. While the catchment committees are in the final stage to be officially recognized and operational, the committees are expected to be instrumental in bridging the gap between the central-level stakeholder (RWB and the ministries) and on-the-ground stakeholders (district and sub-district authorities) for IWRM implementation. Stakeholders also mentioned that the IWRM is a complex program due to its multi-aspect and multi-stakeholder characteristics. This complexity further highlights the outcome of the IWRM program as being able to put in place new and functional arrangements, collaborations and structures for implementation of IWRM activities.

Figure 2 : Group discussions amongst central-level stakeholders where the program coordination and steering were addressed

Lastly, regarding the strategies, the IWRM program has provided important support leading to the formulation of the 10-year strategic plan of the RWB. The 10-year strategy formulation process was included as part of the IWRM program, and proved to be a beneficial one.

Several limitations regarding project/program coordination and knowledge management are also identified, and will be discussed in Chapter V.

IV.4. IWRM Institutional framework & capacity strengthened

The PPE distinguishes three levels of institutional strengthening:

a. The national level,
b. The District/Watershed level,
c. The local beneficiaries level.

This PPE is cognizant of Phase I achievements and limitations at the national level yet addresses on the institutional and organizational strengthening at District and mainly local beneficiaries' level since the national level has been subject to separate assessments[6].

The main focus of institutional strengthening of Phase I was at national level whereas Phase II addressed watershed and local level organisational strengthening. Achievements at the activity and output level are well documented for Phase I and Phase II alike.

Table 6. A comparison of envisioned and reported achievements for selected key outcome indicators regarding IWRM institutional framework and capacity strengthening

Selected Key outcome indicators by Design Phase I	Selected Key outcome indicators achieved Phase I	Selected Key outcome indicators by Design Phase II	Selected Key outcome indicators achieved Phase II
IWRM approach at catchment level institutionalized and operational	Catchment plans, micro-catchment plans were developed and institutionalized in targeted districts and catchment area.	Catchment committees established & their capacity strengthened & district take on monitoring role	By the time of this evaluation, the catchment committees are formed, awaiting official approval from the Government. The ministerial order establishing catchment committees) was published and the establishment and operationalization of catchment committees is ongoing.
Catchment committees in place	Phase I did not see establishment of the catchment committees. Catchment taskforces have been established and played the interim role.		

The SDG 6.5.1 sub-indicators for IWRM address (a) Enabling Environment, (b) Institutions and Participation, (c) Management Instruments, and (d) Finance. Although neither Phase I nor Phase II allude to these international principles and frameworks for action, for ease of comparison with national and international practices the PPE has explored all sub-sets, particularly sub-set b, Institutions and Participation.

[6] See the Mid-term Review Report of Phase I

Enabling Environment

The IWRM program enacted the participatory approach that was applied at scale for implementing IWRM on the ground, including the community-based construction of terraces in phase II. Interviews with key stakeholders show that the Rwanda government is now paying strong attention to apply the participatory IWRM as good practices and replicate this experience in other fields such as climate change adaptation. The challenge here is to be able to integrate activities on different fronts including water resources management, erosion control, and establish linkages to agriculture extension, and livelihoods, etc.

Institutions and Participation

The IWRM program delivered important outcomes regarding the institutional framework and IWRM capacity. These include the establishment and enhanced capacity of the Rwanda Water Resources Board; the introduction of the participatory approach for landscape restoration in Phase II; and a number of policy instruments for IWRM. Some of the prominent policy instruments include the Water Policy of 2011, the Water and environmental Laws, and the national strategies that place IWRM at the forefront such as the Green Growth and Climate Resilience Strategy.

Box 2: Highlights of the stakeholder reflections on the IWRM program outcomes regarding policy, institutional framework and capacity development

Stakeholders articulated a common understanding that the outcomes on IWRM policy, institutional framework and capacity development benefited several groups. First, while setting up of the RWB cannot be solely attributed to the IWRM program, several stakeholders remarked that the board benefited significantly from it. The financial and technical support was crucial for RWB and its preceding organizations for it to reach its current level of capacity and operation. The district authorities were also mentioned as an important beneficiary of the IWRM program. The authorities now have a direct communication line with the RWB and ministries for both strategic and technical consultation regarding IWRM in their districts. A concrete case was made regarding the Rubavu district with the challenges regarding flood control. The program funding and technical support allowed the district authorities to analyse the situation and implement flood control measures.

During the central-level workshop, stakeholders highlighted the important contribution of the IWRM program to the establishment of the RWB, under the GoR's vision. Stakeholders also mentioned that while this outcome can be partly attributed to the IWRM program, the establishment of the RWB should not be seen as the sole contribution of the program, but rather a combination of the government vision, and several critical events such as the severe flood event in 2018.With a vision of strengthening institutional capacity for IWRM, the RWB was established in 2019 as successor several governmental bodies from the past (e.g. the Department of Water Resources Management under the Rwanda Natural Resources Authority, later on the Rwanda Water and Forestry Authority). Such a development helped significantly to create institutional visibility, capacity, and credibility for IWRM in Rwanda.

Regarding project management, stakeholders agreed that the IWRM concept has now been better operationalized and brought to actual practices across national, district, catchment and local levels. This main outcome is illustrated by several cases, including making IWRM operational at the catchment level. Throughout Phase I and Phase II, about 9 catchment plans were developed for catchment level I, and catchment level 2. Accompanying this process is the initial formulation of the catchment committees, following a de-centralized structure.

Management Instruments

The IWRM program also contributed to several policy tools, such as the water permit system, the water portal, and the revision of the water law (which are core RWB mandate areas of competence). Regarding capacity, stakeholders mentioned that the IWRM project contributed to embeddedness and professionalization of the water professionals in Rwanda. The knowledge transfer through collaboration and training with TA providers also contributed to improve IWRM capacity at the RWB.

A change in the mindset at the district authorities was also observed. There is now a common understanding that flood risks can be controlled with proper planning and implementation. While discussing Phase II, stakeholders mentioned that RWARRI, SNV, and IUCN have also benefited as service providers.

IV.5. Initial conditions established for scaling-up & sustaining IWRM

Table 7. A comparison of envisioned and reported achievements for selected key outcome indicators regarding sustaining and scaling up of the program's outcomes

Selected Key outcome indicators by Design Phase I	Selected Key outcome indicators achieved Phase I	Selected Key outcome indicators by Design Phase II	Selected Key outcome indicators achieved Phase II
Investment projects in catchments monitored on the basis of good IWRM practices	Report and monitoring documents on social, environmental technical, financial and institutional sustainability not available.	Landscape restoration and IWRM scaled up in Sebeya and other catchments	By end of 2020, about 8,300 Ha out of 8000 Ha treated with landscape restoration and IWRM interventions.
		Innovative finance mechanisms established for sustainable livelihoods & landscape restoration	311 Village Saving Groups established/supported; design of the Payment for Ecosystem Services PES did not get adopted at the point of this evaluation.

Phase I and Phase II attempted to establish and enhance conditions to sustain and scale-up IWRM outcomes, each deploying slightly different approaches. Phase I design document emphasized a multi-dimensional approach to securing sustainability, addressing financial, institutional, environmental, social and technical sustainability. These dimensions of sustainability, however, were not sufficiently

addressed in subsequent reports, including the final narrative report. Stakeholder interviews and reviewing the Water4Growth final project report show that the overall sustainability of the IWRM outputs and outcomes from Phase I suffer from multiple shortfalls during implementation. These include lack of consultation with stakeholders and local beneficiaries, and the preference for contractor-based implementation strategy rather than mobilising community members for IWRM activities. Individual interviews and focus group discussions further show farmer's ownership over the implemented IWRM measures is weak, largely due to lack of community engagement and mobilization prior to, and during implementation. Phase I's technical sustainability is a highlight, where many technical designs, e.g. radical and progressive terrace design, were taken up and implemented in Phase II. Stakeholder workshop and interviews with RWB staff members also show that decision support tools such as the CROM-DSS, and the water permit system are well integrated into IWRM practices.

According to the phase II's TA proposal, sustainability is secured largely through the community-based approach, with a strong focus on community engagement and mobilisation of the villagers in implementing landscape restoration and IWRM activities. This new strategy helped improving the beneficiaries' ownership, understanding and thus capacity to maintain IWRM outputs and outcomes. Fieldtrip findings suggest that the shift from top-down to community-based implementation has significantly enhance sustainability at the local level. Household interviews show that farmers have a good understanding and strong ownership of the implemented terraced landscape, provided animals and the village saving groups. The PPE sees such understanding and ownership as important conditions to ensure sustainability of the program outcomes.

Despite the intention and efforts in securing sustainability, both program phases faced similar challenges financial, technical and institutional sustainability. Chapter V-6 (Sustainability) will address in details issues of the depleted revolving fund established under the IIFs; the late Exit and Sustainability Strategy (ESS); and the roles of the catchment committees.

V. Assessment of the Program Performance

This Chapter presents the PPE findings regarding performance of the IWRM program, with assessment results following the updated DAC/OECD evaluation criteria: Impact, Effectiveness, Efficiency, Coherence, Relevance and Sustainability. The program performance is presented with a focus on the most important and tangible changes, addressing both positive and negative elements. Findings in this chapter build on the program's achievements, presented in Chapter 4.

V.1. Impact

The IWRM program impact covers tangible changes (positive and negative) on different aspects, namely bio-physical impacts; impacts on household livelihoods and food security. Considering all these domains, the PPE has verified and concludes that the program impacts are deemed significant and largely positive to all involved beneficiaries. It is important to highlight the fact that a majority of target catchments and communities features highly challenging conditions for impactful IWRM interventions, and for socio-economic development at large. The soil is in general very poor in quality, largely acidic and highly erodible. A majority of the target population is very poor, farmers often have very limited financial means for agricultural inputs and investments in livelihood-improvement activities. Farm sizes are small, many are far from households on steep slopes, while farmers have limited technical know-hows in productive farming. Many communities are located in remote locations, only accessible through unpaved roads, plus a low coverage of water and agriculture staff limit opportunities for market access and livelihood improvement of the local communities, especially of smallholders. These challenging conditions further highlight the significance of the IWRM interventions and their impacts. Apart from positive impacts, the PPE also found important limitations regarding localised exacerbation of soil erosion, and compromised food security.

Figure 3 Landscape restoration activities including afforestation (top-left), radical terraces (top-right), mason wall for controlling the peak flows during flood season (bottom-left) and progressive terraces (bottom-right) substantially reduce bio-physical risks of erosion, landslide and flooding.

Bio-physical impacts

Through implementation of landscape restoration measures, the IWRM program managed to substantially reduce landscape degradation, particularly erosion, landslides, and flooding. Fieldtrip missions verified that this positive change is significant, reaching scale, and is consistent in all visited catchments including Secoko, Sebeya, and Muvumba. Apart from positive changes, focus group discussions and household interviews also identified several negative changes on the landscape. Farmers often indicated that progressive terraces require much effort in maintaining, and often cause localized erosion sites on the field. These trenches quickly fill up with soil and water after rainfalls and tend to break when famers fail to frequently clear-up the collected sediment. Fieldtrip observation and interviews at Ndaro Sector (Secoko catchment) further found that radical terraces were sometimes not constructed according to the design standards and consequently caused gully erosion. Drains that collect run-off from the terraces were built as straight cuts from top of the hills with very steep profiles eventually lead to gully erosion further downstream. Other catchment areas do not observe this challenge.

Figure 4 On a limited, case-by-case basis, landscape restoration shows certain limitations. Radical terraces can break and caused localized erosion (top-left); trenches along the contour lines of progressive terraces collect runoff and sediment and eventually break; drains on radical terraces, when not built according to design standards can cause gully erosion downstream (bottom-right).

Impact on household livelihoods & food security

The IWRM program contributed to livelihood improvements through different pathways. Regarding farming, terracing helped to improve working conditions for farmers: they have better access to the farm, water and fertilisers are better retained in the soil for the crop, and the planted forest constitute a substantial income source after about 5 years from plantation. Many farmers report a positive transition from food shortage to producing enough for the family after terraces were built on their farms. Some

farmers also reported crop-surplus that they could sell to traders or in the local markets. The village saving groups also contributed positively to income and livelihoods of the targeted community members. During Phase II, 311 village saving groups were either established or supported, whereby farmers collectively contribute to a revolving saving and take turns to borrow money for their domestic and farming needs. These groups helped bringing farmers together and enhanced their financial capacity. Lastly, income from joining working groups to build terraces in phase II, although not permanent, was highly appreciated by the community members.

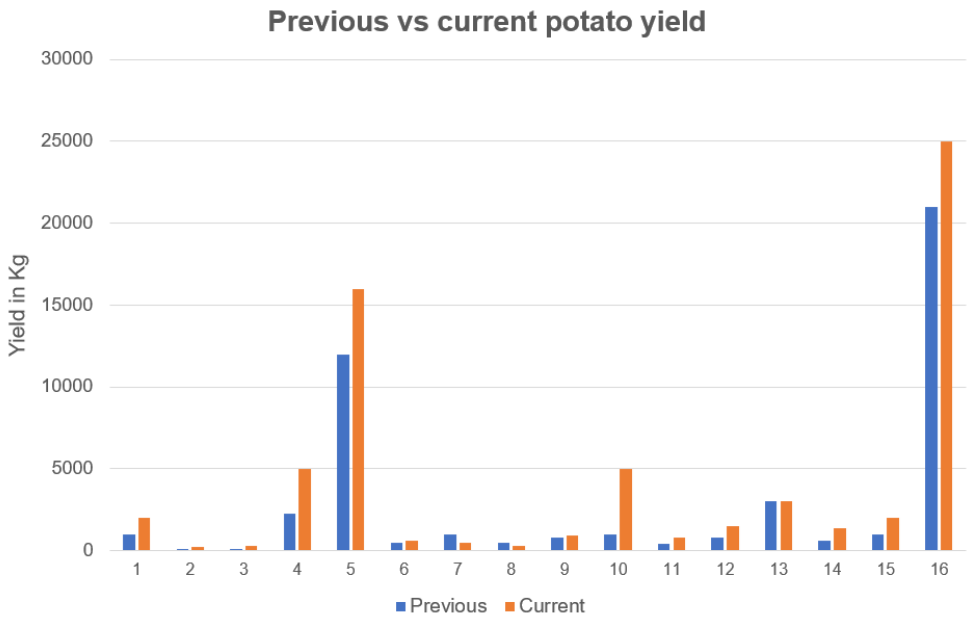


Figure 5 Comparison of yield changes before, and after terrace construction reported by 16 farmers during interviews. While a majority of farmers report higher yields, two of them report a yield reduction. Note that while yield increase is about 30% (from about 3 ton/hectare to 4 ton/hectare), the reported yields are far below the national averages of 23 ton/hectare[7].

Comparing to bio-physical impact, the PPE found that program impact on livelihoods, crop production and food security is less substantial, and less consistent over time. During focus group discussion and individual interviews, farmer's farming activities were negatively affected during, and beyond construction of the terraces. During phase I, terrace construction was sometimes done during the farming season, consequently disrupted crop production and in some cases caused a temporary hunger. Some villagers at Mataba Village, Ndaro Sector in Ngororero District also reported that afforestation was done on their farmland, and some had to change their work from farming to hired labour in the villages. Other districts (Nyagatare and Rubavu) did not experience this issue. During phase II, farmers also had to wait between 1 to 3 months for the radical terraces to stabilize before they can resume farming. While this waiting time concerned farmers as they could not produce food and generate income on their land, the financial compensation for working on terrace construction was well

[7] https://www.fao.org/3/CA2823EN/ca2823en.pdf We also recommend treating the reported yield with caution as a larger sample size is required for comparison.

received and helped to temporarily replace the foregone income from farming. The PPE observed in some cases displacement and reduction in productivity of the traditional crops (e.g. banana), where productivity was reportedly lower than before. Impact on farming was also compromised because of relatively high failure rates of the provided fruit trees, and animals. Interviews in Rubavu and Rutsiro show that many provided fruit trees did not survive, as they were either planted during the dry season, or did not adapt well to the local soil and water conditions. The same applies to animals, where many goats, cows and sheep died after delivered to the villagers. Farmers suspect that the animals were transported from other areas with different climatic and nursing conditions and they could not adapt to the new environment. This issue point at the need for piloting, climatising and post-delivery care for the provided plants and animals. Discussion with stakeholders show that while IWRM and landscape restoration are the program's primary objectives, farming and livelihood improvements are increasingly seen as important co-benefits. This PPE therefore suggest to further integrate and support these objectives in future programs, through collaboration with MINAGRI.

Figure 6 Banana yields reduced after construction of radical terraces by Phase I at Kinga village, Bitabage Cell, Ndaro Sector, Ngororero district. Farmers reported that after terrace construction, banana yield reduced substantially, and they do not have yet a solution to revert yield reduction. It is also noted that banana is not recommended as a crop on terraces, and better agronomic practices (mulching) could help increasing yields.

V.2. Effectiveness

Effectiveness concerns the program's capacity to deliver the envisioned objectives and outcomes to the intended beneficiary groups. This PPE acknowledges the national scope of the IWRM program, and the consistent landscape approach to IWRM implementation. It therefore assessed effectiveness as delivery of outcomes at the population and landscape levels. Here, the PPE presents findings on the outcome delivery extents, and reaches concerning (i) landscape restoration and livelihood improvements; (iii) financial mobilisation for IWRM; and (iii) institution and capacity strengthening.

Effectiveness of landscape restoration and livelihood improvements

Regarding landscape restoration for improved farming and livelihood conditions, the IWRM program shows relatively successful achievements of the envisioned landscape restoration targets in agroforestry, terracing, production of agroforestry seedlings, prevention of gullies, and distribution of agricultural inputs and animals, etc. These achievements are documented by the TA and the RWB's annual reports, and corroborated by factfinding during the field missions. According to the latest available report (by June 2021), almost all activities in the IIF window I have been completed. For the IIF window 2 i.e. the Enterprise Partnership Initiative, 5 projects have been granted to 5 private sector partners, with project progress ranging between 60% to 100% completed (the IRIBA Water Group Ldt) by June 2021. For the IIF window 3 - the SLRPP, the assessment noted steady progress in a majority of planned interventions. However, several activities are still to be completed, including distribution of cows, and small livestock in several districts. Quantity-wise, it is concluded that the IWRM program has successfully achieved a majority of its planned outputs.

Figure 7 An illustration of the substantial reaches created by the Phase II program. Source: EWMR project annual report, IUCN 2021-2022.

The PPE noted the different levels of observed tangible changes between landscape restoration, and improvement in farming/livelihood conditions. While the program outcomes are consistently visible on landscape restoration (flood and erosion control), those concerning farming and livelihoods conditions are less consistent at the population and landscape scales. Farmers generally report increases in crop production. Yet the household surveys revealed a tendency amongst farmers to increasingly use and getting dependent on agricultural inputs, particularly inorganic fertilizer (NPK, DAP) and lime. Farmers quite consistently report higher crop production and yields on radical terraces, while no, or limited improvements are reported on progressive terraces. The PPE concludes that this difference is largely attributed to the provision of lime and fertilizer, which was only applied on radical terraces. Household interviews in Phase I further showed that yield improvement tends to decline over the years, as farmers are not able to consistently apply lime and fertilizers on their farm, often not at all. For instance, the focus group discussions from different catchment areas including Muvumba, Secoko and Sebeya (revealed that crop production and yield depend strongly on whether farmers could afford lime and fertilizer on their farm. Outcome delivery also seems inconsistent when it comes to farmers with small farms. The general pattern is that farmers with limited farm size (below 0.5 hectares) still have difficulty producing enough food for the whole family, despite some increase in their production. For instance, Mr. Kongoman Emmanuel, a 52-year-old farmer from the Nyabirasi sector, shared that “Since farms are small while households are composed of many people, it is not easy to harvest enough food for the family." The PPE note that while influencing farm-size is out of the program’s scope, it is relevant to pay extra attention to the specific group of beneficiaries with small farms, as they tend to face more challenges with landscape management and farming production.

Effectiveness of financial mobilisation for IWRM

Regarding the disbursement of the IWRM investment fund and innovative finance: All three windows of investment fund have been successfully disbursed to a large extent, while the envisioned functioning of the established window I and II as a basket fund was not realized. Throughout the program’s implementation, all investment windows were not replenished with additional funding from other sources. Although this constitutes an important sustainability issue with regard to the IWRM funding, it is encouraging to observe that multiple follow-up funding schemes and the financing mechanisms under FONERWA are actively driving IWRM in Rwanda. The EPI is an innovative funding scheme, and has proved its capacity to incentivise private sector companies to co-invest in IWRM activities. The scale of this fund (EUR 1 Mil.), however, is very limited. Two of the direct beneficiaries of the EPI (IRIBA WATER GROUP Ltd and DABA Suppliers Ltd) confirmed the meaningful added value of the funding scheme, stating that the funding truly created additional motivation for them to invest in water- and environment relevant activities, which would have been difficult without the funding. The fund disbursement as a reimbursement for implemented activities, rather than advances, however, is seen by IRIBA WATER GROUP Ldt. as a major barrier to access funding and would have to be considered. In summary the EPI presented a useful model, that however is without a follow up at present.

Effectiveness of institution and capacity strengthening

The central-level stakeholder workshop and KIIs suggest that the implemented activities targeting institution and capacity strengthening by the program has achieved the required extent and reaches, with a better performance in Phase II. Regarding extent, the program has contributed to enhanced institutions and capacity across levels, from national (e.g. central IWRM institution being RWB established and taking strategic position in the sector) down to district and community level. Sensitization and training activities were limited to local beneficiaries during Phase I, while a sizeable group of technical staff and farmers were trained and mobilized for IWRM implementation in Phase II. Focus group discussion, and interview with members of the village saving groups during the field missions suggest that the extent and reach of this particular intervention is high and very encouraging. A total of 311 saving groups were either established or supported through coaching during Phase II, all interviewed group members appreciate that they are now capable of preparing required finance for crop production and domestic needs. Regarding the reaches, the IWRM program served a relatively diverse group of beneficiaries. These include governmental staffs, researchers and students at research institutions, and farmers. As an unintended benefit, the water resources thematic working group in Rwanda also benefited from the IWRM program. This working group is chaired by the RWB, and co-chaired by EKN. Currently, the IWRM program is the main intervention under this group. The level of engagement with the other working groups (e.g., environment) was not clear to the stakeholders.

At the same time, the PPE noted several factors constraining the program's effectiveness. First, the contractor-based implementation modality with little effort in community engagement during phase I has led to situations where the intended objectives are not fully materialized. For instance, a focus group discussion at Kinga village, Bitabage Cell, Ndaro Sector (Secoko catchment) shows that despite solid objective of restoring the degraded landscape, lack of sensitization and untimely terrace construction (during crop production) has led to a temporary hunger event in the village. The food security objective was sometimes compromised at the expense of quickly putting terraces on the degraded landscape.

Figure 8 Focus group discussion with villagers from Kinga and surrounding villages gave a rich picture of the program performance. Villagers appreciate the benefits of terracing, however, they also recalled a few months of hunger when the terraces were built in the middle of the cropping season.

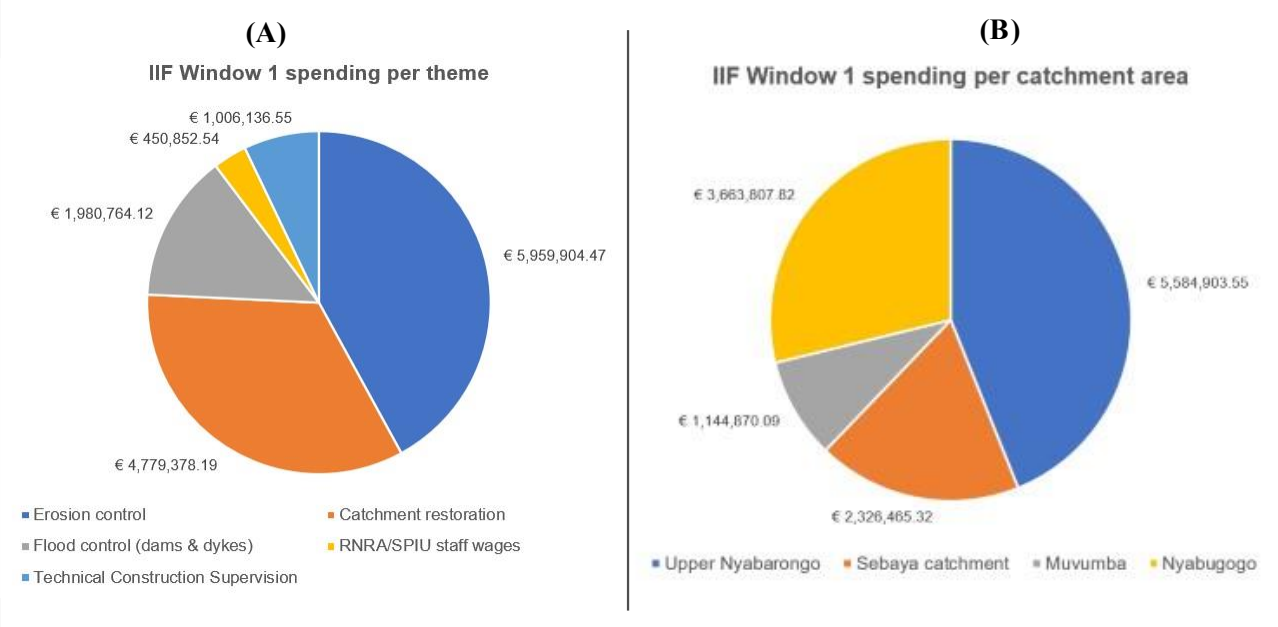
Secondly, the program's effectiveness could have been more substantial with the catchment committee in place at an earlier stage. Establishing operational catchment committees has been a consistent objective in both program phases. While this has not been as successful as originally expected, the establishment of the catchment taskforce has been effective and timely regarding the institutional developments for IWRM under the program. It is important that the catchment committees be officially established, and the government of Rwanda dedicate budget for the committees to be operational. While the catchment committees are in the final stage to be officially recognized and operational, the committees are expected to be instrumental in bridging the gap between the central-level stakeholder (RWB and the ministries) and on-the-ground stakeholders (district and sub-district authorities) for IWRM implementation.

V.3. Efficiency

The PPE assessed financial efficiency i.e. value for investments and the balance between the program's objectives and available resources, and temporal efficiency i.e. capacity to deliver the designed outcomes within the envisioned timeframe.

Reviewing of the financial reports suggests that in general the IWRM program has successfully disbursed a total amount of € 58,5 Million within the timeframe of 2015 – 2022. Matching up between the disbursed budget to different phases, components (TA, the IIFs) and across different target catchments resulted in the following insights.

The breakdown of cost per component (Phase I) shows that the bulk of investments went into 'detailed design and feasibility studies (approx. 60%), approx. 25% in 'demonstration catchment areas', with only less than 10% being dedicated to 'enhancement of institutional frameworks for IWRM' and 'capacity strengthening'. Although by design labelled as 'creating the enabling institutional framework for IWRM', the preference by GoR for 'on-the-ground' investments becomes amply and credibly demonstrated by these investment patterns (see below Figure 8-C Mott MacDonald Phase I Component spending breakdown). Note the difference of about EUR 1,4 million between panel A and B due to exclusion of cost components for staff and supervision of construction. Furthermore, Phase I dedicated approx. 18% of its investment endowment in the Sebeya Catchment. Phase II reinvested in improving existing bio-physical measures implemented by predecessor investors, possibly also Phase I (see below figure 8-B: IIF window I spending per catchment area). Of particular importance to sustainability considerations is the relatively low budget share dedicated to 'Technical Construction Supervision' ; less than 10% (see Figure 8-A: IIF Window 1 spending per theme). Finance data for Phase II (see below Figure 8-D) indicate a similarly low budget share dedicated to supervision.



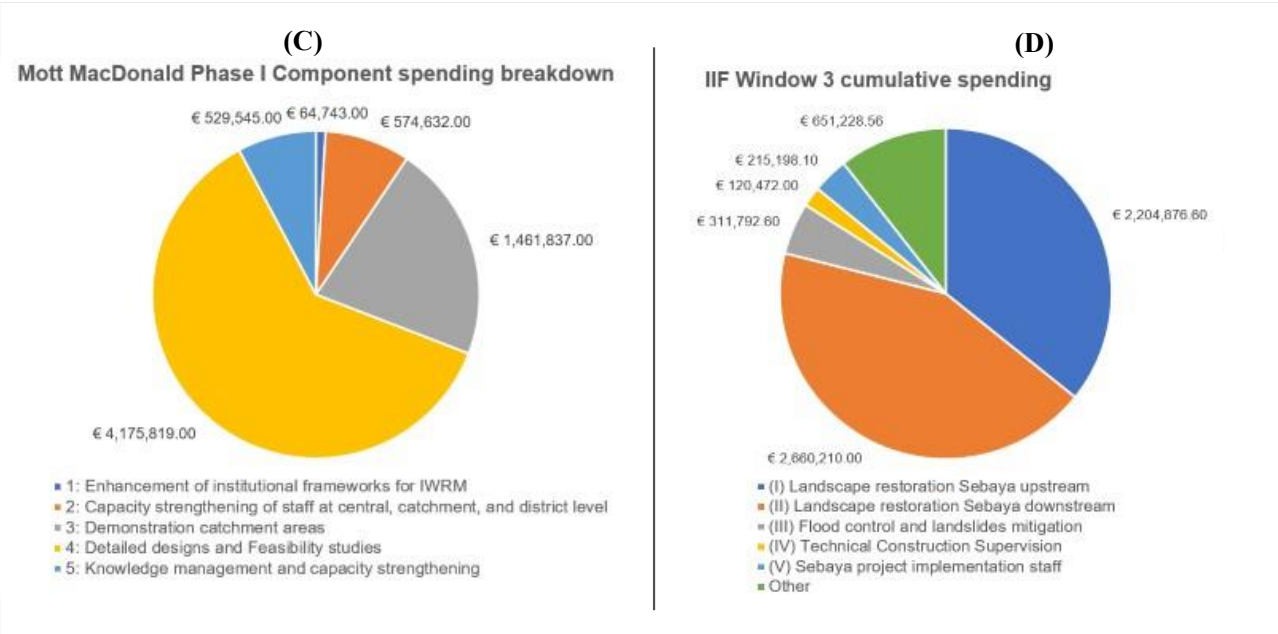


Figure 9 Overview of the financial disbursement to per catchment area and per IWRM investment themes. Data and figures were constructed based on reported budget and disbursement updates. To handle incomplete information and aggregate the data for comparison, the PPE made assumptions based on understandings of the program activities. All assumptions are available in Annex 2.

The share of the TA cost and IWRM implementation budget is high internationally, with a share of 44% of the total budget for TA in phase I, and about 30% in phase II. The high TA costs resulted in lower fund available for actual IWRM implementation on the ground. Under Phase I, the TA consortium implemented a large collection of technical assessments and reports. These outputs are appreciated by several interviewed stakeholders, especially those who have matching technical backgrounds; however, a majority of them ended up not utilized due to the technical complexity and length. This is certainly food for thought in the current 'reversing the flow' discussion, making the point that in many programs only a small proportion of funding ends up in the hands of the ultimate beneficiaries, i.e. the communities.

Moreover, more could have been achieved with the IWRM funding through several ways. The IWRM Investment Fund (window I) was expected to function as a basket fund, serving to mobilize and coordinate IWRM funding in Rwanda, however the fund has been used up without securing any additional funding stream. In this context the recommendation to diversify the funding sources and to create stronger incentives for co-financing IWRM with the government and international donors is highly relevant. Future programming should note the preference of other international donors to create and use different funding structures, rather than joining existing ones. The evaluation noted that the co-funding and support from the Rwanda government in terms of personnel and expertise for IWRM has been substantial and meaningful throughout phase I and phase II. It is also encouraging to see follow-up fundings for IWRM and landscape restoration being mobilised by the GoR, especially through FONERWA. Another relevant element of financial efficiency is the high costs for terracing. During interviews and the workshop discussion, high cost for terracing is accepted by most stakeholders as a default, and there seems limited space to address this. Apart from the foregone income due to the disruption to crop production during terrace construction, one hectare of radical terrace costs about USD 2.500 to build (Unit cost of landscape restoration measure provided by IUCN). A community-owned model for building terrace could have been considered, so as to leverage local resources for this particular IWRM intervention, and build strong ownership at the same time. On the same note, District Development Strategies are not informed by MCAPs or VLUAPs and as a result budgets for implementing these plans are not leveraged to reinforce the program investments. The IWRM programme desisted from using matching grants for works (GoR-funded projects contribute the main share, where farmers/beneficiaries contribute 5-10% in cash or in-kind) as practiced under other GoR and IFI projects in Rwanda. These important leverage opportunities and enhanced levels of local ownership could have been pursued.

Regarding timing, the IWRM program has been able to deliver all expected outcomes within the reasonable timeframe. Several delays in delivering were observed regarding technical reports (phase I), and the implementation of the Village Land Use Action Plans (VLUAPs). These delays are, however, justified by covid-19 restriction in phase II, and the transition from the RWFA to the RWB during program implementation. The PPE noted that the landscape restoration works under the program were prioritized during Covid-19 restriction time as one of the 16 essential projects that should continue despite strict restriction applied to a majority of other works. Notably, efforts and investment in payment for ecosystem services (PES), which were included in both phases returns little outcome. Several technical

assessments and pilots were implemented, however both phases failed to devise concrete PES implementation in the target catchment areas. Interviews on these limitations pointed to several limiting factors, including the lack of business cases for PES, and the lack of benchmark data to quantify the benefits for service buyers, and the difficulty in attributing these benefits to participating farmers as service providers. Our understanding is also that a legal basis for PES has not been introduced in Rwanda, further limiting implementation.

V.4. Coherence

This PPE assessed coherence through internal and external dimensions. Internal coherence concerns how program components, and the two phases are compatible and build on each other; while external coherence concerns the compatibility of the IWRM program with Rwanda's policy priorities across levels.

The two program phases showed certain degrees of internal compatibility, with justified and coordinated IWRM interventions implemented. Factors contributing to this include clear theories of changes, and a relatively well-constructed, well-timed intervention plan. It is worth mentioning that delays in rolling out the interventions were commonly observed in both phases, with phase II experiencing covid restrictions. The inter-phase compatibility was justified by consistent focus on developing catchment plans (with a total of 8 Plans delivered through phase I and II so far, plus another 3 additional plans developed through government and EU funding), and a shared set of tools, such as the CROM-DSS for mapping out prioritized intervention areas, the water permit system, and technical design of terraces.

Compatibility between phase I and II, however, also show several limitations. These include the co-exist micro-catchment plans (phase I), and the Village Land use Action Plan (phase II). While both types of plans focus on the local level IWRM, development of the VLUAPs show limited linkages to the micro-catchment plan. Issues with inter-phase compatibility could be attributed to the late, and abandoned the ESS strategy in phase I. The PPE also note that Phase II ESS was late and faced challenges with budgeting and building ownerships amongst key stakeholders.

Regarding external coherence, the IWRM program showed sufficient coordination with other relevant institutions and programs at the central-level, e.g. participation of key personnel from different projects/departments in the Program Steering Committee. However, the PPE also noted rooms for further improvement regarding external coherence. Stronger linkages could be made with relevant project include the SCALE Scaling universal access to safe and climate resilient water services in Rwanda, with focus on small towns (SCALE); the USAID THRIVE-Water, Sanitation and Hygiene (WASH), and the partnership between Holland Greentech and Future Water on the information service for location-specific irrigation advice, currently catering a pilot to 40 customers. Fieldtrip missions also note that in multiple projects co-exist or have been implemented earlier on the same area. Focus group discussion and farmer interviews at Rutsiro District helped identifying multiple projects, including the Land Husbandry, Water harvesting and Hillside irrigation Project (LWH) coordinated by Ministry of Agriculture, the World Bank project on Landscape Approach to Forest Restoration and Conservation (LAFREC); and the investing in horticulture in Rwanda, HortInvest Project funded by EKN. The PPE

noted that stronger interactions and cross-linkages could be made between the IWRM program and these projects, based on important synergies in the project intervention areas and the thematic focus. The PPE sees important opportunities to align project activities, so as to avoid overlapping efforts and investments[8], and to create synergies for better activity coverage and impact. The recent exchanges of the program with various governmental departments, academia, and donors within the sub-sector working group on water resources management show encouraging signs of improving external coherence.

Table 8. A selective overview of co-existing projects with similar focus on landscape restoration, water management and livelihood promotion

Project name	Intervention area	Key objectives & activities
The Land Husbandry, Water harvesting and Hillside irrigation Project (LWH)[9]	15 sites across 13 districts: Nyanza, Gatsibo, Rwamagana, Kayonza, Ngoma, Rulindo, Gicumbi, Rutsiro, Nyabihu, Ngororero, Gakenke, Nyamagabe and Burera)	The project activities were designed to address some of key constraints pertaining to agricultural growth. These include land degradation in terms of soil erosion, limited farming skills for the majority of farmers, individual and institutional skills, and land fragmentation. In addition, the project offered technical support including strengthening farmer organizations, extension, marketing and rural finance, institutional strengthening and capacity building for MINAGRI and its agencies, land husbandry infrastructure, and water harvesting and hillside irrigation infrastructures.
Landscape Approach to Forest Restoration and Conservation (LAFREC)[10]	Four districts in the Western Province: Rutsiro, Rubavu, Ngororero, Nyabihu	Landscape management in the priority Gishwati-Mukura: Rehabilitating forests and biodiversity; Enhancing sustainable land management in the agricultural lands, etc. Enhance environmental services: Improving native biodiversity; improving watershed function, reducing sedimentation and related costs to downstream water infrastructure and fisheries; and higher productivity and diversity of natural-resource-based livelihoods. Climate resilience and climate adaptation.
Investing in horticulture in Rwanda - HortInvest[11]	Muhanga, Ngororero, Karongi, Nyabihu, Rutsiro, Rubavu Districts.	To increase farmers' incomes, grow the relative contribution of the horticultural sector to the regional economy in North West Rwanda, and improve the food and nutrition security of the targeted households.

[8] At Ngoma village, Nyabirasi Sector in Sebeya catchment, some farmers are beneficiaries of all three projects including the EWMR, LHW, and LAFREC.

[9] https://lwh-rssp.minagri.gov.rw/index.php?id=36.

[10] https://projects.worldbank.org/en/projects-operations/project-detail/P131464

[11] https://snv.org/project/hortinvest-rwanda

V.5. Relevance

Relevance to national and district stakeholders

Overall, the IWRM program catered relatively well to the different needs of stakeholders across national, district and sector levels. Strong relevance is demonstrated through good and timely responses to several critical needs from the Rwanda government and districts, most importantly the needs to restore degraded landscape, control flooding, and improve soil and water conditions for farming in the target catchments. The central-level stakeholder workshop suggests that constructed flood protection dike, and terraces represent concrete responses addressing top-priorities of the government regarding managing water for safety and agriculture production. Suitable geographical priorities (04 catchments in Phase I and Sebeya catchment in Phase II) and specific areas for IWRM interventions were based on sound technical assessments, including the use of remote sensing and the decision support system CROM-DSS. These elements highlight the IWRM program's capacity to serve the most critical areas. On the policy domain, the development of institutional capacity and policies responded well to the GoR's need to better manage its water resources, in order to ensure sustainable development.

Relevance at the community level and the importance of reaching scale

At the community level, a larger share of the implemented IWRM intervention portfolio showed good match with famer's needs. Findings from the field missions and interviews with district-level technical staffs pointed at a few highlights, namely terracing the degraded landscape, agroforestry on the terraces, establishment and strengthening of village saving groups, and provision of agricultural inputs and animals. Farmer interviews and FGDs consistently show that these interventions directly cater to farmers' needs, and therefore were well-received at the local level.

However, this PPE also notes that the ability to address needs, is only one part of the solution for being relevant. Here, scaling is an important factor at stake, and whether the interventions reached the population and landscape levels, or they targeted cases of specific individuals or locations in the catchment area, is of importance when considering programmatic relevance. One of the essential, consistent elements of the intervention rationale of the IWRM program is to apply landscape approach to reach impact at scale, including the temporal, population and geographical dimensions. From the programmatic management level and this PPE's scope, intervention's relevance is only secured when they cater to the right needs, and at the same time reaching the population and landscape scales. Field missions noted a few consistent shortfalls regarding scale. Water tanks were distributed in the villages, with an average coverage of about 3-4 tanks per village. This low coverage, in combination with the main rationale of preventing soil erosion caused by concentrated rainfall collected from roofs, show that the relevance is low, despite great appreciation from the beneficiaries. Another shortfall was observed regarding distribution of animals (goats, sheep, and cows). Animals were provided by the Phase II to households across the Sebeya catchment to improve income and provide manure for crop production. The relatively low coverage (few families received animals), combined with a high failing rate (many of the provided animals died and did not get replaced), questions the extent to which this intervention makes tangible impact at the population and landscape level. All in all, the PPE concludes that reaching

scale at the landscape level was sometimes overlooked by the program implementation. This point calls for stronger attention in demonstrating the good practices and increase exposure, ultimately resulting in stronger impacts.

The PPE also notes a few other limitations regarding relevance. There were signs of over-adapting the IWRM activities and focus to the emerging needs – i.e. a strong focus on agroforestry, and afforestation, especially in phase I where local beneficiaries showed limited interest and engagement. While this initial programmatic focus addressed local needs, stronger attention to sensitization, building awareness, and stronger involvement of local beneficiaries could result in stronger ownership and a stronger sense of relevance amongst the beneficiaries. The match between IWRM intervention, especially in phase I, and local needs could have been stronger. The program impact and relevance could have been improved through diversifying the implementation portfolio, beyond terracing and afforestation. It is important to note that during Phase I, stakeholder consultation and TA assessments brought to the surface a wide range of required IWRM interventions, however, actual implementation missed out many of these interventions. Another limitation is the lack of specific gender considerations in distribution of services and benefits. For instance, the focus on economic empowerment for women was limited to a good ratio of women participation, whereas other gender considerations was lacking. Lastly, an under-performing element is monitoring and strategic steering. Monitoring was in place, but focused on the targets and progress, rather than on impact (both positive and negative). Safeguarding was missing, leading to overlooked impacts including social (ownership, inequality), economic (shifting farming systems, income, food & nutrition security) and environmental (biodiversity, landslides, etc).

V.6. Sustainability

Sustainability concerns the continuation, and further development of the established IWRM outcomes, namely the institutions, arrangements, physical interventions as well as the benefits that these elements offer to the beneficiaries. This PPE assessed sustainability based on perceptions of key stakeholders and beneficiaries, the Exit and Sustainability Strategy (ESS) available for phase II, and analysis of the IWRM development funding landscape in the context of the IWRM program phasing-out.

Regarding institutions and arrangements, the evaluation is positive that key outcomes will be sustained thanks to the developed ownership and the relatively deep integration of several key plans, laws and working arrangements for IWRM in Rwanda. The key institutions are well in place, and integrated into IWRM practices, including the revised water law, the water permit system, the whole array of IWRM plans (at catchment and village levels), ministerial orders (on catchment committees, dam committees, national water consultative committees) and the soon-in-operation catchment committees. Two points are worth noting regarding sustainability of the IWRM plans. It is a major achievement of the IWRM program, throughout both phase I and phase II, to be able to introduce and launch the IWRM planning approach at catchment and village level. Whether these outcomes are sustained depends strongly on the catchment committees, who represent the crucial links between the local communities and the ministries. The PPE therefore recommends that the catchment committees should be quickly approved and put in operation, with dedicated budget lines for their activities. Secondly, the local ownership of

the Village Land Use Action Plans VLUAPs, and the catchment plan should be further improved. We further discuss this in the following sections.

The fieldtrip mission further revealed encouraging developments that on the one hand suggest the likelihood of sustaining the IWRM program outcome beyond intervention period, and on the other hand point at potential directions for scaling up. The PPE team observed that several farming practices emerged from the program interventions, such as cultivation of tree seedings for fruit trees, afforestation trees (passion fruits, bamboo, alnus, grevillea, etc.), and strawberries. Seedling cultivation is currently done mostly by farmer cooperatives, initially to cater to the project needs such as planting agroforestry plants on the terraces, but later on these cooperatives also reach out to market as a smart response to the high demand for seedlings and seeds. Another encouraging case is found with the Ecoplanet company. One of the Ecoplanet's bamboo seedling nursery locating in Secoko catchment is a direct spin-off of the Phase I riverbank rehabilitation activities. Started up in 2015, this nursery exclusively produced quality bamboo seedlings for the Rwanda Water and Forestry Authority (Now RWB). By now, the nursery has grown to a 30-personel business, with many women employees, to supply seedlings commercially to different buyers in the area. Currently these examples are observed as specific cases and they have not reached the desired scale. However, this PPE sees substantial potential for scaling up taking into account one common trait that they very well address actual market demands.

Box 3: Emerging farming practices and business models

Innovative and market driven farming practices and farming models emerged from the IWRM program. Left, and top-right pictures taken from the Ecoplanet Bamboo nursery in Secoko catchment. This is a direct spin-off business from phase I riverbank rehabilitation activities. Currently, the 30-personnel nursery is fairing well with commercial bamboo seedling production for different buyers. Middle-right and bottom-right pictures taken from the Ngoma village Nyabirasi Sector in Sebeya Catchment, showing a high-value strawberry farm, and a seedling nursery facility operated by farmer cooperative. While these practices have not reached scale, their direct match to market demands suggest potential for scaling-up.

Sustainability of the current farming practices

The sustainability of the current farming practice for a large part of the beneficiaries is questionable, and it is the conclusion of the PPE that this matter deserves special attention at the national and regional agricultural planning levels. The current farming practices are characterized by a tendency of shifting from mixed cropping to mono-cropping; and focus on a limited number of crops, often times motivated by the vision of catering to high-value commercial crops like Irish potatoes, and beans. The unfavourable farming conditions (very poor, acidic soil, high erosion risks) and limited farming capacity (poor population with little buying capacity for agricultural inputs, small farm size, limited technical know-how) in Secoko, and partly in Sebeya critically challenge this agricultural development vision. The fieldtrip mission found that crop production and yields are strongly dependent on external farming inputs (lime, inorganic fertiliser and fungicides in the case of Irish potatoes) after their land was terraced. Cost of these inputs are high for farmers, and there is no supply chain in place in many remote villages. Many report that they are not able to buy (sufficient) inputs for their crops, further highlighting the roles of government-mandated programs to support farmers with farming inputs and technical supports. Despite stepping up on the farming condition with the terraces and with higher inputs, crop yield increases but not substantial. Taking Irish potatoes as one major crop by farmers across all catchment areas as a case, the average yield reported by farmers is currently about 4 ton/hectare (see Figure 5). This is below the national average at 23 tons/hectare[12], although we also recommend to treat this reported yield with caution as the sample size is limtied. Additionally, farmers report that yields increase for two or three crop cycles after the construction of terraces, and then tend to reduce after that. Yield increase is attributed to the initial boost with provided fertiliser and lime at the beginning, while the subsequent yield reduction is caused by farmer's inability to supply sufficient amount, often not at all, of these external inputs. Another observation is the small farm size present an important limiting factor: about two thirds of the farms are not large enough to provide sufficient food for domestic consumption, after selling part of the harvest to cover production costs. The shift to monocropping may not make economic sense for many households – even if yields of particular crops increase. In this case, a supportive development policy would priority sufficient food production for home consumption over commercial food production for the market. The tendency to shift farming systems towards the monoculture states raised an array of issues relating to higher vulnerability to external stresses like climate change impact, and unwanted spill over impact[13].

Exit and Sustainability Strategy

The Exit and Sustainability Strategy ESS was made in phase I but too expensive and lacked ownership, while the ESS for phase II was late. In Phase II, the ESS has not taken full consideration of the role of the local communities and the catchment committees in its strategies and concrete measures. The focus was more in sustaining the physical outcomes, and budgeting for planned measures, rather than

[12] https://www.fao.org/3/CA2823EN/ca2823en.pdf

[13] A visit to the Rutsiro Honey Ldt. and communication with their staff show that beekeeping is at risk, with honey production reduces in May and September-October, corresponding two heavy fungicide spraying periods to protect Irish potato crops in the area.

on how to drive overall improvements in people's income and livelihood conditions through land and water management. We therefore recommend looking beyond the interventions, but to devise measures and strategies targeting the impact side of these interventions. The ESS discussed building local ownership by an official hand-over of the outcomes. One should, however, consider the alternative approach of building ownership right from beginning with co-planning and co-creating these outcomes. The late, and weak ESS appear as a pattern limitation, with strong and visible implications. This limitation motivates our recommendation to pay much stronger attention to the ESS by all parties, including the Embassy, the beneficiaries (Rwanda Water Board, ministries) as well as the TA providers.

Phasing out of the Dutch-funded IWRM program will likely create implications on IWRM as a focal theme in development assistance, and on IWRM practice in Rwanda. A responsible phasing out, as currently being implemented by EKN, is therefore essential to ensure that the current IWRM polices, institutions and practices gain sufficient sustainability regarding finance, institutions, and ownership over key outcomes.

The discussions with several experts and stakeholders pointed at two solutions to fill the likely funding 'vacuum' time beyond the phase-out period. First, IWRM funding could partially be sustained by capitalizing on the new funding strategy by the Dutch government, where the new focus would be on bilateral trades and business promotion. In this context, it is important to promote a proactive and business-oriented approach towards IWRM funding. The outcomes and experience from the Enterprise Partnership Initiative (EPI) are very relevant and important to capitalize on. Secondly, there is common interests and motivation for the embassy and the RWB to create dialogues and partnerships between the currently compartmentalized governmental departments, and other international development partners and donors on IWRM. The IWRM program is a joint effort between the embassy, and the RWB (and its predecessors in earlier stages), and it is important in the coming periods that they work together on opening up the IWRM forum and build new partnership for future continuation. Diversifying the international IWRM funding base for Rwanda and bringing in new donors with the same interests such as the GIZ, the African Development Bank, US-AID, etc should be a key objective for the RWB in the coming period.

VI. Lessons Learned and Recommendations

Lessons learned

The Rwanda IWRM program has resulted in important lessons for future IWRM activities in the country, possibly valid elsewhere under similar contexts. The central-level stakeholder workshop, interviews with key stakeholders and the field missions, corroborated the PPE lessons as follows:

1. **The community-driven approach** of on the ground bottom-up implemented (pilot) IWRM measures delivered more tangible impact and stakeholder *buy-in* than the top-down, technically intensive delivery-by-contractors IWRM approach. This lesson essentially reflects the key difference in the strategic approaches of Phase I and Phase II, where IWRM design, planning and implementation shifted radically from the central institutions (RWB, ministries, and contractors) to the districts, communities, and individual villagers. The community involvement in developing Village Land Use Action Plans (the VLUAPs), the village saving groups, and farmers' paid labour in implementing IWRM and landscape restoration have together resulted in enhanced program performance in multiple aspects. These include better understanding, effective participation, and mobilisation of local resources, and relatively strong ownership in the long run.
2. **Reaching scale** is key in delivering the intended impact. The program's capacity to cater to its intended beneficiaries at the overall population level (in contrast to a few individuals, or specific groups), and holistically at the landscape level (in contrast to patchy target locations) largely determined the level of program impact. The notion is particularly relevant in the context of a landscape restoration approach to IWRM as defined at program departure. The intention is not to implement interventions for all households, but to expose, introduce and inspire scaling up and replication beyond the direct target groups. A key precondition for replication by households themselves is that they can afford the investments (in time and money) that are required. This could be given more attention in future interventions.
3. **Monitoring and learning along the way** is important for effective implementation, and for addressing unplanned-for non-supportive developments. Both phases experienced many lacunas in planning and other unknowns, such as the question of when to time intervention (avoiding cropping season when constructing terraces; avoiding planting trees in the dry seasons, etc.), the non-anticipated death of many animals given to farmers, or the lack of buy-in for payment for ecosystem services. In several instances, timely reflection with stakeholders and program management (TA, steering committee, EKN, RWB) helped taking stock of the new insights gained through implementation and improve subsequent implementation. The shift to community-based approach in Phase II is such an example. However, the central-level stakeholder consultation workshop also indicated that not all 'surprises and challenges' on the ground were effectively documented and submitted for decision-making to key stakeholders in a timely manner. The PPE therefore calls for attention to effective monitoring and learning, so as to closely monitor the key processes and address non-anticipated developments when they emerge.

4. **A balanced and corresponding multi-dimensional structure** in terms of expertise, human resources, and partnerships composition is needed for a multi-dimensional IWRM program. While the key objectives of the IWRM program is on IWRM promotion and landscape restoration, this PPE finds that livelihood and farming improvements emerge as important co-benefits. We see the large potential in further increasing impacts through leveraging agronomic expertise and interventions in partnerships with competent agencies including MINAGRI. Several key stakeholders with the resources and mandate in agricultural development should be strongly involved in the program, including the Ministry of Agriculture, and the Rwanda Agriculture and Animal Resources Development Board (RAB). These findings suggest the need for stronger attention to the program structure and expertise pool, to ensure adequate coverage of the knowledge, mandates, and key stakeholders.
5. **An Exit and Sustainability Strategy (ESS)** is important and must be initiated at project departure to ensure gradual build-up of ownership and hence a stronger feasibility. At the current closing stage of the IWRM program, the central focus in terms of mandate and interests for the ESS should be on the catchment committees and their capacity for interaction with district-level authorities. The extent to which the program's outcomes and impact are sustained and scaled up is strongly determined by the formalization of responsibilities (i.e. legal recognition of catchment committees) and the sense of ownership by this group of stakeholders. Here, the great potential is emphasized of aligning the interests, capacities, and fiscal assets of the catchment committees with District Authorities thus reconciling the hydrological units of IWRM (catchments) with administrative boundaries.

Recommendations

The PPE derives at a list of recommendation targeted to the four stakeholder groups, namely the RWB and other governmental bodies (coded as RWB); TA providers (coded as TA); EKN (coded as EKN); and the local beneficiaries (coded as BEN). Recommendations to each stakeholder group is indicated by a green highlighted box under each group, meaning such recommendations particularly apply to that group. The expected reference on program performance (Impact; Effectiveness; Efficiency; Coherence; Relevance; Sustainability) by each recommendation is also indicated.

Table 10: PPE's recommendations targeted to each stakeholder group. Key recommendations are highlighted (highlighted boxes in light blue), and each recommendation indicates the target stakeholder groups (highlighted boxes in green for RWB, TA, EKN and beneficiaries)

Recommendations	RWB	TA	EKN	BEN	Target OECD criteria
Match high-level expectations on positively inciting in people's livelihoods through IWRM with commensurate levels of institutional, human and financial resources. Pay stronger attention to collaboration with agriculture-oriented governmental agencies under MINAGRI.	■		■		Relevance, Efficiency
Keeping building on the community-based approach for implementing IWRM and landscape restoration interventions, with a shift to stronger co-funding through labour from the beneficiaries, and matching funds.	■	■	■		Impacts, Sustainability
Design IWRM programme interventions for better inclusion and community-wide equitable benefit streams: Introducing farmer groups to jointly plan and implement IWRM interventions; build stronger ownership of farmers over the VLUAPs.		■			Sustainability, Efficiency
Balance bio-physical and other 'hardware' interventions with 'software', supporting interventions geared at strengthening the social capital (organizations, cooperatives, associations) of farmer beneficiaries. It is important to have a clear vision and agreement on the purpose and reach (how many beneficiaries) to ensure meaningful impacts.	■	■			Coherence
Stronger attention to harmonized reporting structure across projects, components and phases. Focus on reporting at impacts and outcomes level, rather than describing outputs.	■	■			Coherence
Establish collaboration with MINAGRI to strengthen the synergies between IWRM and agricultural development. Such collaboration should help harmonizing between promotion of market-oriented crop production and addressing poverty, food and nutrition security through productive use of challenged landscape.	■	■	■		Impacts, Sustainability
Strengthen existing Programme Management, Steering and Oversight with tools (operation manual, supervisions, audits, reviews and periodic reporting) and means (staff and dedicated financial resources; responsibilities, budget controls) for responsive output-outcome-impact pathways and its M&E, knowledge management, and learning.	■	■			Sustainability, Coherence
Piloting and testing out the IWRM interventions to account for surprises and sufficiently tailor the intervention to local conditions, particularly concerning provision of animals and seedlings.		■		■	Effectiveness, Impacts
Promote the transition from conventional crop production model relying on external inputs to more circular, regenerative agriculture with a focus on improving soil quality, and demonstrating the key benefits to farmers, including those outside the direct target groups.	■	■	■	■	Sustainability, Relevance
Design, budget, and implement a suitable sustainability and exit strategy earliest on. ESS should be a component with specific milestones and outputs to be regularly tracked during project implementation. Pay attention to creating an enabling environment for the ESS activities, with inputs from district authorities and local communities.	■	■			Sustainability
Match the level of ambitions with the means for delivery in a plausible and adaptive Theory of Change. Program management and stakeholders should periodically scan for new development and unexpected surprises during implementation, and reflect important adaptation through the theory of change when needed.	■	■	■		Coherence, Effectiveness
Reconsider the extensive use and (high) cost of international TA in relation to the levels of investment and aspired impact			■		Sustainability, Impacts
Devise a well-structured and verifiable pathway for decentralized and local decision-making, with the central role of the catchment committee in connecting between the communities at the catchment areas and the central-level stakeholders.	■				Sustainability
Draw stronger attention of district authorities towards community-led IWRM-cum-Development approaches, to ensure local ownership and sustainable impacts.	■	■			Relevance, Sustainability
Potentiate the longevity and use of the broad IFI partner-based donor water sector Working Group by a convincing business case for effective policy dialogue on IWRM policies and their embedding, scaling up, partner co-finance and scaling up IWRM-cum-Development			■		Efficiency, Impacts
Create and demonstrate the rationale for local level stakeholders and beneficiaries to adopt and sustain IWRM and Landscape Restoration measures through communicating the key benefits, and showcasing of good practices.	■	■			Sustainability
Create and monitor safeguards to warrant the proportionality and balance of hardware and software IWRM investments for livelihood improvement.	■	■	■		Sustainability, Impacts
Adopt grievance redress strategies to track possible threat and enhance accountability to multiple stakeholders and beneficiaries.	■	■			Coherence, Sustainability
Build and pro-actively pursue a convincing Business Case for GoR and 3rd party replenishment of dedicated Basket/Trust Funds and enhance the visibility of existing fund supporting IWRM.	■		■		Sustainability
Explore, building on regional experiences, the use of 'green/blue' bonds to secure funding to IWRM development and services.			■		Sustainability, Efficiency
Stronger attention to engage vulnerable poor target groups in community and district level IWRM initiatives based on free prior and informed consent.	■	■			Sustainability, Impacts
Propose less expensive inputs such as local compost-based fertilizers and consider the carrying capacity of the agricultural livestock system, especially on fodder availability ('cut-and-carry')	■	■		■	Efficiency, Impacts
Firmly introduce the concept and practicalities of beneficiary co-financing and use of matching grants in IWRM design and implementation	■		■		Efficiency, Sustainability
Establish and use the 'farmer lens' in community-based/led approaches for IWRM and landscape restoration as the leading principle for future IWRM interventions.		■		■	Sustainability, Relevance
Enhance adherence to good Project Management, Steering and, in particular, good M&E practices (with defined targeting, gender/youth differentiated output/outcome indicators, close monitoring of assumptions, operational risk mitigation management, core impact indicators encompassing baseline, mid-term, completion reporting) and effective Supervision modalities in support of Good Governance and pursuit of equitable benefit streams	■	■			Coherence, Sustainability
Strengthen M&E output-outcome-impact pathways by internalizing assumptions and managing risks with clear intermediate milestones and deliverables to be used for performance triggers.	■	■	■		Effectiveness

VII. Conclusions

Integrated Water Resources Management IWRM, in combination with landscape restoration is of critical importance for Rwanda's sustainable development and prosperity. In response to this strategic need, the Netherlands has, through the Dutch Embassy in Kigali (EKN) and partners, supported a two-phase programme to strengthen Integrated Water Resources Management (IWRM) in Rwanda. During 2015-2022, the program has put forward a portfolio of activities and instruments for IWRM on different fronts: develop awareness and capacity, provide technical assistance, provide funding for IWRM implementation, upscaling (including private sector collaboration), and embedding IWRM.

Program implementation targeted four strategic catchment areas of Upper Nyabarongo, Muvumba, Nyabugogo and Sebeya, driven by the primary objectives of strengthening IWRM frameworks, institutions and capacity across levels and demonstrating the benefits of IWRM for water management and landscape restoration. Partnerships were established between the program management (EKN, Ministry of Environment), technical assistance, program implementer (Rwanda Water Resources Board and its predecessors), the district-level authorities, local stakeholders, and local beneficiaries (primarily farmers). These partnerships allow for relatively coherent implementation of different measures, ranging from technical assessments, building decision support tools, supporting legal procedures and documents, to terracing the degraded landscape, introducing agroforestry, establishing catchment committees, and provision of animals in the villages, etc.

Evaluating the program implementation and underpinning processes under this PPE have deepened selected stakeholder understanding about the significance of the program-level outcomes and impact, as well as identified limitations and lessons learned for specific stakeholder groups.

Most of the program outcomes and impact are significant in reaching the landscape scale, while certain expected impact aspects are sometimes less substantial with sustainability risks. Controlling landscape degradation i.e. erosion, landslides and flooding has been achieved with good consistency across intervention sites. The efficacy of terracing, afforestation, preventive trenches, riverbank stabilization, agroforestry, gully plugging, and other supporting measures is relatively well justified against the invested financial and human resources. Institutional strengthening, especially at the central level has been significant, and consistently appreciated by key central-level stakeholders. Furthermore, the PPE found that important co-benefits regarding livelihoods, crop production and food security could be enhanced, and therefore call for stronger attention in future activities.

Insights from the central-level stakeholder workshop, interviews with a wide range of stakeholders and beneficiaries, and fieldtrip observation show that the program's institutional sustainability and ownership is relatively strong at RWB level (provided further investment funding is secured). The evaluation therefore is positive that key outcomes will be sustained regarding the developed ownership, and the relatively deep integration of several key plans, laws and working arrangements for IWRM in Rwanda. Technical and financial aspects of sustainability, however, show important limitations and call for attention in future activities. Improved farming conditions delivered by the program, and Rwanda's strategy to prioritize monocropping of high-value yet input-intensive crops may trigger a shift from mixed

cropping to monocropping. The demographic conditions (small farm size, limited technical and financial farming capacity) and highly challenging landscape (poor, acidic soil with high erosion risk) call for special attention to establish strong linkages between IWRM and agricultural development led by MINAGRI, to ensure that landscape restoration and IWRM benefits a majority of the (poor smallholders) population. Regarding financial sustainability, the non-replenishment of the IWRM investment funds, despite their envisioned functioning at program departure as basket or revolving funds, point at an important lesson for future programs.

The rich experience implementing the Rwanda IWRM program has resulted in important lessons for future IWRM activities in the country, as well as elsewhere with similar contexts. The community-driven approach of on the ground bottom-up implemented (pilot) IWRM measures delivered more tangible impacts and stakeholder buy-in than the contractor-based, technically intensive IWRM approach. Reaching the intended scale is key in delivering intended impact: IWRM good practices and benefits should be demonstrated and scaled beyond the direct target beneficiaries, and implemented at landscape level. Monitoring and learning along the way is important for effective implementation, and for addressing unplanned-for non-supportive developments. A balanced and corresponding multi-dimensional structure in terms of expertise, human resources, and partnerships composition is needed for a multi-dimensional IWRM program. Exit and Sustainability Strategy (ESS) is important and must be initiated at project departure to ensure gradual building up of ownership and strong feasibility. Lastly, the IWRM program design and implementation should adequately account for externalities e.g. agricultural development vision, that sometimes have important implications on the program's intended impacts.

VIII. Annexes

Annex I. Evaluation Questions and Data Sources

Criteria & Evaluation question	Sub-Question	Data sources
Relevance *To what extent has the IWRM programme, underpinning projects and interventions responded to the different needs on the policy and socio-economic development domains, at the national, regional and local levels?*	1.To what extent has the programme taken the different needs and priorities of different groups into consideration? 2. How do different stakeholders at national, district and catchment levels assess the relevance of the programme to their current needs and short-term priorities, incl. cross-cutting issues (e.g. gender)? 3. To what extent is the design of specific interventions relevant to the direct beneficiaries? 4. How has the theory of change evolved over time? 5. Could the relevance have been made higher? If so, how?	Literature Review Interviews Field survey Focus Group Discussions
Coherence *To what extent the IWRM program shows compatibilities internally (between underpinning projects and interventions) and externally (with other sectors, and relevant interventions within the same context of Rwanda land and water management)?*	6. To what extent was the design and implementation of the IWRM programme coherent with the Rwanda's policy priorities? 7. To what extent was the design and implementation of the IWRM programme coherent with the policy priorities of the Netherlands Ministry of Foreign Affairs? 8. To what extent are the programme's achievements in line with policies and plans of the provincial, district and local authorities? 9. Could the coherence have been made higher? If so, how?	Literature Review Interviews Field survey
Effectiveness *To what extent did the IWRM programme, along with it's underpinning projects and interventions, satisfied the envisioned objectives and concrete results, taking into account the different target beneficiaries and relative importance of different objectives?*	10. To what extent did the programme achieve its outputs, both in terms of quantity and quality? Reasoning behind over/under performance? 11. To what extent did the programme achieve its outcomes, both in terms of quantity and quality? Reasoning behind over/under performance? 12. To what extent did the programme benefit the intended beneficiaries? 13. What was the quality of the constructed infrastructure, and how effective is the infrastructure?	Interviews Focus Group Discussions Field survey

Efficiency *To what extent did the IWRM programme effectively leverage resources (technical, finance, personnel), and how do these resources match with the materialized outcomes?*	14. How do the costs of implementing this programme compare to other projects in the area? 15. How do the implementation approaches of the programme compare to alternative approaches? 16. How timely was the implementation of the programme? 17. To what extent were the ambitions of the programme in balance with the available means? 18. The first phase of the programme was especially reliant on international expertise for the design of interventions. Could this have been done differently? If so, how? 19. To what extent could the project have achieved higher efficiency? If so, how?	Literature Review Interviews Field survey Focus Group Discussions
Impact *To what extent did the IWRM programme create a difference in the biophysical (water, land), economic (income), social (inclusiveness, equality), and political (institutions policy), and human (capacity) aspects? (With attention to positive vs negative, intended vs unintended, local, regional vs national impacts)*	20. What change has occurred in the project areas since the start of the programme, and what can be ascribed to the programme? 21. What has the program's impact been on the different groups of people in the target area? 22.What unintended (positive and negative) effects has the programme had, and on which groups of people? 23. What has the impact of the programme been on the environment? 24. What has the programme's impact been on local and national capacity to design and implement IWRM interventions? 25. Would it have been possible for the programme to achieve more impact than has been achieved?	Literature Review Interviews Household survey
Sustainability *How likely will the established IWRM arrangements, the institutions (law, policies, plans) and direct outcomes (infrastructures, incomes) be able to sustain, taking into account the financial, economic, social, environmental, and institutional capacities?*	26. To what extent do relevant stakeholders have a sense of ownership for the different activities and results? 27. How well-organised and how effective is future operation and maintenance by relevant stakeholders likely to be? 29. To what extent is allocation of sufficient financial resources for the operation and maintenance ensured? 30. To what extent was knowledge generated during the programme transferred to relevant local actors?	Interviews Focus Group Discussions Reviewing Exit & Sustainability Strategy

Annex II. Explanation and Assumptions Made with Reviewing Program Finance and Disbursements

The PPE attempted to process and aggregate data on program finance and disbursement, to understand the budget allocation to different components, and assess the program overall efficiency. A number of assumptions were made, and presented as follows.

No complete breakdown of finances per component built on reported numbers is possible as the budget items RNRA and District Staff allowances, ISU Staff allowances, and Operational costs are not specified per component but presented as a lump sum. To calculate spending breakdown per component of Phase I: the lump sums for the budget items RNRA and District Staff allowances, ISU Staff allowances, and Operational costs are divided relative to their weight (budgeted to realised amount) over the components to be able to make an estimate of total spending per component. To calculate the Phase I realized budget: staff costs from Mott MacDonald are presented in months, and not in monetary values. The staff costs as presented in the figure are an estimation and calculated by the difference in reported programme costs (including running costs) and total costs.

For IFF Window I, different budget items are presented: Erosion control, restoration, flood control, dam and dykes, staff (IIF associated costs). These budget items contains different measures: terraces, river buffer zones, afforestation, agroforestry, marshland stabilization, check dams, gully protection, planting along roads, planting fruit trees, rainwater harvesting tanks, cooking stoves, dyke and dam construction. To calculate spending per theme: Budget items marked as ‘Kivu belt’ in the report are assumed to be erosion control measures. Additionally, this graph does not yet include further detailed design spending as studies are ongoing (with a €150,000 budget to be spent). To calculate spending per catchment area: the budget items for which the division per area are not presented are IIF Associated costs (RNRA/SPIU staff) and Technical Construction Supervision. These costs are not taken into account in the overview. Overall numbers and division of spending may differ slightly due to this.

Annex III. Terms of Reference

Evaluation of the Netherlands-funded Integrated Water Resources Management (IWRM) Programme in Rwanda (2015-2022)

Introduction

Rwanda is a country with reasonably high and reliable rainfall. While water availability is relatively good, the mountainous landscape, very high population pressure, economic growth objectives, urbanisation and uneven distribution of rainfall will lead to significant challenges. Rwanda's water resources need to be managed carefully to prevent water from becoming a bottleneck to Rwanda's growth and prosperity. Since 2015, the Netherlands has supported the development of integrated water resources management in Rwanda. The first phase (2015-2019) consisted of a TA component and the establishment of the IWRM Investment Fund (IIF), through which the Rwandan government could invest in IWRM measures. This phase focused on i) awareness creation on 'integrated' aspects of Integrated WRM and applying this in an enhanced institutional framework (for coordination) at central level through PSC and at catchment level with (more) bottom-up planning through Catchment committees; ii) capacity development at central level and at catchment level 'on the job' while iii) demonstrating IWRM in four demonstration catchment areas: Upper Nyabarongo, Muvumba, Nyabugogo and Sebeya. A limited window was added to the IIF for supporting private sector initiatives on IWRM. The second phase (2019-2022) focuses on scaling up the integrated management of water resources across the country, while the implementation of landscape restoration and flood mitigation measures (through an additional window to the IIF) is concentrated on the Sebeya catchment area.

Objective of the evaluation

The objective of the evaluation is to evaluate/review the IWRM programme (and its separate components) against the updated DAC/OECD evaluation criteria of relevance, coherence, effectiveness, efficiency, impact and sustainability1. Particular attention is needed for (1) the contribution of the programme to Rwanda's policy priorities and strategic IWRM requirements, (2) the quality of implementation (including ownership of the planning and implementation process by relevant stakeholders), (3) the extent to which interventions are realistically scalable as Rwanda works towards Vision 2050, (4) the sustainability of interventions, and (5) the extent to which landscape restoration measures have made a difference for the livelihoods of the farmers on whose land the measures were implemented. Specific questions to be answered must include those given in Annex 1.

Deliverables

- An inception report, including workplan, detailed methodology, a framework of evaluation questions, and risk assessment, to be delivered within three weeks after signing the contract
- A briefing before the start of fieldwork
- A presentation of initial results and draft recommendations, to be presented to RWB, the TA team and the embassy upon the completion of fieldwork within 10 days after the completion of the fieldwork

- A draft report, to be submitted within 10 days after the presentation of initial results and draft recommendations
- A final report, to be submitted within 10 days after receipt of feedback from the embassy.

The final report will be made public. It should ideally be less than 50 pages. Additional details can be provided in annexes. The report needs to have the following structure:

- Executive summary (English, max 3 pages)
- Executive summary (French, max 3. pages)
- Executive summary (Kinyarwanda, max. 3 pages)
- Introduction
- Methodology
- The institutional setting of IWRM in Rwanda
- Summary of project achievements (based on review of documents and field observations)
- Salient findings (narrative of observations in the field)
- Assessment of the project, following the evaluation framework and covering:
    - Relevance
    - Coherence
    - Effectiveness
    - Efficiency
    - Impact
    - Sustainability
- Lessons learnt for and good practices future programming
- Conclusion
- Recommendations
    - Recommendations for the RWB and other institutions in the Government of Rwanda
    - Recommendations for the consortium providing TA for the remainder of the second phase of the programme
    - Recommendations for the Netherlands Ministry of Foreign Affairs
    - Recommendations for stakeholders in the project areas.

Methodology / approach

The evaluation will follow a mixed-method approach, including the following:

- Review of relevant documents
- Key informant interviews with stakeholders in Kigali and in the targeted catchment areas (project team, national and local government, beneficiaries, and other relevant stakeholders).
- Qualitative research in the targeted catchment areas (including both local government staff and people living in the targeted areas). Specific attention needs to be given to probing beyond 'expected answers' to get to underlying opinions.
- Field visits to identify and assess physical interventions on the ground.
- Quantitative analysis to assess metrics on the impact of the interventions (on hydrology, erosion, and household economics).
- In the proposal, the extent to which the evaluation will be participatory in nature will need to be explained and argued.

This evaluation may generate datasets that are potentially useful for other research, later, possibly by other researchers. The Contracting Authority may forward these data (in an anonymized form), to the Data Archiving and Networked Services, as explained in Article 4 of the Framework Agreement Evaluations 2020.

Relevant stakeholders

- Rwanda Water Resources Board (RWB)
- Current and previous actors involved in TA (Mott MacDonald, SHER, SNV, IUCN, RWARRI)
- Prime Minister's Office (PMO)
- Ministry of Finance and Economic Planning (MINECOFIN)
- Ministry of Environment (MoE)
- Ministry of Agriculture (MINAGRI)
- Ministry of Emergency Management (MINEMA)
- Ministry of Local Government (MINALOC)
- Rwanda Environment Management Authority
- Rwanda Agriculture Board (RAB)
- Rwanda Meteorological Agency (Meteo rwanda)
- Rwanda Energy Group (REG)
- WASAC
- District, Sector, and Cell authorities and technical staff
- Communities
- Private Sector in the catchment areas with clear direct interest in sustainable water management
- *The Contracting Authority will indicate this potential 'multiple use' in the Request for the performance of*
- *services, on a case by case basis. The Contractor should then explain the potential multiple use of the*
- *research data to the participants in surveys or interviews when asking for* their consent.

Required expertise

- The team of consultants for this evaluation must include the following expertise:
- At least 10 years experience with institutional development on IWRM
- At least 10 years experience with implementing / reviewing IWRM programmes in developing countries, including catchment planning and hydrological analysis
- At least 10 years experience with technical design of IWRM interventions
- At least 10 years experience with economic analysis (particularly of household livelihoods)
- At least 10 years experience with qualitative research in complex contexts
- At least 5 years experience in Rwanda
- Excellent English writing skills
- Excellent command of spoken English and Kinyarwanda

The team leader and key members of the team doing fieldwork must have at least a Master's degree in a relevant subject. The team leader must have proven experience with leading the implementation of evaluations.

Proposed evaluators should have no previous or present involvement in the design or implementation of the programme or policy under evaluation, nor in the design, implementation or evaluation of a preceding programme or policy phase. This includes research and advisory services.

Planning

The evaluation is foreseen to take place between Juni 2022 and December 2022, depending on the development of the COVID-19 pandemic. It must include on-site fieldwork in both Kigali and the targeted catchment areas. The total evaluation is foreseen to take about 100 person-days.

Logistics

Consultants will be responsible for arranging visas, travel and insurance. Lodging is to be arranged by the consultants. The IWRM programme team (RWB and TA) can facilitate finding lodging in the project area. Transport during the fieldwork will be provided by the IWRM programme.

MetaMeta
Nude 54-D, 6702 DN
Wageningen, The Netherlands
W: https://metameta.nl/