Assessment of the Irrigation Scheme Management Model: Identifying Gaps, Challenges, and Strategies for Improvement.

- **Limited public-private partnership**

Irrigation schemes with limited stakeholders often encounter significant challenges, such as erosion and infrastructure deficiencies. For instance, the Kinnyogo irrigation scheme lacks diverse stakeholders, leading to erosion-related damages and transportation difficulties due to the absence of access roads. Conversely, schemes like the Gikoro irrigation scheme in Kamonyi, with multiple stakeholders involved, benefit from improved infrastructure, including facilities like cold rooms powered by solar energy. These stakeholders play a crucial role in enhancing irrigation scheme functionality and outcomes, as evidenced by the positive changes observed where they are present.

RECOMMENDATION AND ACTIONABLE INSIGHT

⇒ Prioritize infrastructure investment, focusing on maintenance and upgrades to minimize water losses and enhance distribution. Consider introducing solar-powered pumps and water distribution systems where feasible to reduce reliance on traditional sources and minimize environmental impact.

⇒ Capacity building through tailored technical training and extension services to empower farmers with the skills and knowledge needed for efficient irrigation practices.

⇒ Facilitate the financial capacity of farmers by allocating budget resources for the maintenance and repair of damaged infrastructure beyond the capacity of IWUAs. This can also be achieved by institutionalizing the payment of electricity fees for farmers through subsidies or providing them with electricity payment schemes at reduced rates.

⇒ Involve various stakeholders in decision-making to strengthen the overall management of irrigation schemes and promote effective governance structures.

⇒ Establish robust data collection and monitoring systems to track scheme performance, water usage, and crop yields.

⇒ Promote climate-resilient practices, including erosion control and the construction of buffer zones around irrigation schemes and suitable crop varieties, to combat challenges posed by climate change. Engage local communities in climate resilience projects, such as sustainable land management practices, creating a comprehensive approach to climate adaptation.

⇒ Develop market access through market linkages and value chains to ensure farmers have reliable outlets for their irrigated produce. Establish quality certification programs to ensure that irrigated produce meets market standards, enhancing the reputation of the schemes and their products.

Civil Society and State Engagement on Public Policies for Socioeconomic Transformation (CS - Engage Dufatanye) Program

"Improving Agriculture Productivity Through Streamlining the Management of Irrigation Infrastructure in Rwanda."

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INTRODUCTION

Efficient management of irrigation schemes is crucial for Rwanda's food security and sustainable agricultural development. Collaborating with various partners, the Rwandan government has made extensive efforts to modernize agriculture through irrigation scheme development, aiming to enhance farmers' livelihoods and foster economic growth.

Irrigation scheme infrastructure is essential for boosting agricultural productivity and supporting Rwanda's agricultural transformation, particularly in districts like Kamonyi and Kirehe. The improved performance of irrigation schemes in these areas could significantly impact local farmers' livelihoods and contribute to economic prosperity by increasing crop yields, reducing vulnerability to weather fluctuations, and enhancing the resilience of smallholder farmers. The government's plan to expand irrigated areas, as outlined in the PSTA-4, reflects the commitment to achieving development goals, with districts identified for potential expansion to meet the NST-1 and Vision 2050 goals.

ASSESSMENT OBJECTIVE AND APPROACHES

The main objective was to assess the former irrigation management model, identify challenges and gaps, and formulate practical recommendations for improvement in Kirehe and Kamonyi districts.

Approaches used include: The desk and content analysis of existing secondary data and reports on irrigation infrastructure Management; Key consultations and survey conducted with 91 respondents in Kirehe and Kamonyi Districts.

ASSESSMENT FINDINGS

The management of irrigation schemes in Kamonyi and Kirehe districts adopts a community-based approach through Irrigation Water User Associations (IWUAs) and cooperatives. IWUAs represent water users' interests, ensuring equitable water distribution and efficient system operation, while cooperatives focus on broader agricultural objectives like joint purchasing and marketing. The government supports these schemes to modernize agriculture, enhance food security, and mitigate climate change impacts through investments in infrastructure and training programs. However, challenges remain, including the need for improved water management skills and sustainable irrigation techniques among farmers, which may impact the long-term sustainability of the schemes.

THE FOLLOWING ARE THE KEY CHALLENGES FROM THE ASSESSMENT

- **Maintenance and repair**

The irrigation infrastructure management faces a significant challenge due to aging and poorly maintained systems, leading to water losses and inefficient distribution. Examples include dead dam gates and damaged sills in Cyunuzi - Kirehe, as well as damaged and non-functional water outlets in Kinoni 1. Additionally, erosion and flooding in different irrigation schemes make this issues complicated.

- **Limited Access to finance**

Farmers face challenges in investing in irrigation due to financial constraints and limited technical knowledge, impacting the effective operation and maintenance of irrigation systems. They struggle to finance repairs for damaged structures despite collecting water fees. However, these fees are insufficient for maintenance and repair, leading to issues highlighted in the Rwanda irrigation master plan.

- **Inadequate monitoring and evaluation**

The existing lack of adequate monitoring and evaluation systems, despite the presence of water user associations, results in a shortage of data for assessing scheme performance and water usage. Moreover, limited stakeholder engagement and cooperation present challenges in decision-making and management processes.