

Concept Note 4**Project Title:****Development and Rehabilitation of Irrigation Infrastructure for Increased Rice Production in Zambia****Total Budget:** 10,000,000 USD**Duration:** 5 Years**Implementing Partners:** Ministry of Agriculture, Zambia Rice Federation (ZRF), Zambia Agricultural Research Institute (ZARI), Farmer Cooperatives, Private Sector, Development Partners, Non-Governmental Organizations**Location:** Major rice-producing regions in Zambia (Western, Northern, Luapula, Eastern Provinces)

1. Background

Rice is an essential crop for Zambia, with potential for expanding production to meet both domestic and regional demand. The country has favourable conditions for rice cultivation, including vast arable land, suitable climate, and access to water resources in key regions. However, the productivity of rice remains low due to several factors, including limited access to reliable water resources and poorly developed irrigation infrastructure. Most smallholder rice farmers in Zambia depend on rain-fed agriculture, which exposes them to risks from erratic rainfall patterns exacerbated by climate change. The development and rehabilitation of irrigation infrastructure are crucial for enhancing rice productivity, improving water use efficiency, and ensuring year-round production. Irrigation systems enable farmers to have better control over water management, optimize rice yields, and reduce vulnerability to climate variability. In addition, improved irrigation infrastructure supports sustainable farming practices, which are vital for long-term agricultural development in Zambia.

This project aims to increase rice production by developing new irrigation systems and rehabilitating existing infrastructure in key rice-growing regions of Zambia. By providing reliable access to water for rice cultivation, the project will help farmers boost their productivity, improve food security, and increase their incomes.

2. Project Objectives

The overarching goal of the project is to increase rice production in Zambia through the development and rehabilitation of irrigation infrastructure. The specific objectives are:

1. **Increase Irrigated Rice Production:** Expand the area under irrigation in key rice-producing regions to ensure reliable water supply and improve rice yields.
2. **Enhance Water Management:** Promote sustainable water use practices through the development of efficient irrigation systems that optimize water usage and reduce wastage.
3. **Improve Farmer Access to Irrigation Facilities:** Support smallholder farmers by providing affordable access to irrigation infrastructure and technical assistance for operation and maintenance.

4. **Build Capacity for Sustainable Irrigation Management:** Strengthen the capacity of local institutions, farmer cooperatives, and irrigation user groups to manage and maintain irrigation infrastructure.
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3. Key Project Components

Component 1: Development of New Irrigation Systems (USD 5,000,000)

- **Objective:** Establish new irrigation systems in key rice-producing regions to increase the area under irrigated rice cultivation.
- **Activities:**
 - Conduct feasibility studies to identify suitable sites for the development of new irrigation schemes, focusing on areas with high rice production potential and water availability.
 - Design and construct new irrigation systems, including smallholder irrigation schemes, community-based irrigation systems, and individual farm-level irrigation units.
 - Install modern irrigation technologies, such as drip and sprinkler systems, to improve water use efficiency and ensure optimal water distribution.
 - Provide technical support to farmers and irrigation user groups to ensure proper operation, maintenance, and management of the new irrigation systems.
 - Facilitate access to irrigation inputs, such as pumps, pipes, and water storage tanks, for smallholder rice farmers.

Component 2: Rehabilitation of Existing Irrigation Infrastructure (USD 3,000,000)

- **Objective:** Rehabilitate and upgrade existing irrigation systems to improve their functionality and increase the area under effective irrigation for rice production.
- **Activities:**
 - Conduct assessments of existing irrigation schemes to identify areas that require rehabilitation, including canals, water storage facilities, and distribution networks.
 - Rehabilitate damaged or outdated irrigation infrastructure, including the repair of canals, construction of new water storage reservoirs, and installation of modern water distribution systems.
 - Upgrade existing irrigation technologies to more efficient and sustainable systems, such as converting flood irrigation schemes to drip or sprinkler systems.
 - Train farmers and local irrigation managers on the operation, maintenance, and management of rehabilitated irrigation infrastructure to ensure sustainability and long-term benefits.
 - Develop community-level irrigation committees to oversee the management and maintenance of rehabilitated infrastructure.

Component 3: Capacity Building for Water Management and Irrigation Efficiency (USD 1,000,000)

- **Objective:** Build the capacity of farmers, local institutions, and irrigation user groups to ensure sustainable water management and the efficient use of irrigation infrastructure.
- **Activities:**
 - Organize training programs on sustainable water management practices for smallholder rice farmers, focusing on water conservation, efficient irrigation techniques, and climate-resilient farming practices.
 - Establish farmer field schools and demonstration plots to showcase best practices in rice irrigation, including proper irrigation scheduling, water-saving technologies, and the use of improved rice varieties.
 - Strengthen the capacity of local institutions, such as agricultural extension services and farmer cooperatives, to provide technical assistance and advisory services on irrigation management.
 - Develop guidelines and manuals for the sustainable operation and maintenance of irrigation systems, tailored to the needs of smallholder rice farmers and irrigation user groups.
 - Facilitate knowledge exchange and learning opportunities through exposure visits, workshops, and forums that bring together rice farmers, irrigation experts, and policymakers.

Component 4: Monitoring, Evaluation, and Learning (USD 1,000,000)

- **Objective:** Monitor the implementation of irrigation infrastructure development and rehabilitation activities, and evaluate their impact on rice production and farmer livelihoods.
 - **Activities:**
 - Develop a robust monitoring and evaluation (M&E) framework to track progress on key project indicators, including the area under irrigation, rice yields, and farmer incomes.
 - Conduct baseline, mid-term, and end-of-project surveys to assess the impact of irrigation infrastructure on rice production, water use efficiency, and farmer adoption of improved irrigation practices.
 - Establish a data collection system to gather information on water usage, irrigation system performance, and rice yields in project areas.
 - Organize learning workshops to share lessons learned, best practices, and success stories from the project with stakeholders, including government agencies, development partners, and farmer organizations.
 - Prepare periodic project reports to inform stakeholders of progress and provide recommendations for scaling up irrigation initiatives in other regions.
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4. Expected Outcomes

- **Increased Rice Productivity:** Rice yields will increase by at least 40% in project areas due to reliable access to water through new and rehabilitated irrigation systems.
- **Expanded Irrigation Coverage:** At least 5,000 hectares of rice fields will be brought under irrigation through the development and rehabilitation of irrigation infrastructure.
- **Improved Water Management:** Farmers will adopt sustainable water management practices, reducing water wastage and optimizing the use of available water resources.
- **Enhanced Farmer Livelihoods:** Smallholder rice farmers will benefit from higher incomes due to increased rice production and improved market access facilitated by reliable irrigation systems.
- **Sustainable Irrigation Infrastructure:** Local institutions and irrigation user groups will have the capacity to manage and maintain irrigation infrastructure, ensuring long-term sustainability.

5. Budget Summary

Component	Estimated Budget (USD)
Component 1: Development of New Irrigation	5,000,000
Component 2: Rehabilitation of Existing Systems	3,000,000
Component 3: Capacity Building	1,000,000
Component 4: Monitoring and Evaluation	1,000,000
Total	10,000,000

6. Conclusion

The development and rehabilitation of irrigation infrastructure are critical for unlocking the potential of Zambia's rice sector. By ensuring reliable access to water for rice cultivation, this project will significantly boost rice productivity, reduce the risks posed by climate variability, and improve the livelihoods of smallholder farmers. The combination of new infrastructure, rehabilitated systems, and capacity building will create a sustainable foundation for long-term growth in the rice industry. With the support of stakeholders across the value chain, including government agencies, private sector actors, and development partners, the project will contribute to Zambia's broader goals of agricultural development, food security, and rural poverty reduction.