

Concept Note 1

Project Title: Development of Improved Rice Varieties in Zambia

Total Budget: 850,000 USD

Duration: 3 Years

Implementing Partners: Ministry of Agriculture, Zambia Agricultural Research Institute (ZARI), International Rice Research Institute (IRRI), Farmers' Cooperatives, Private Sector, and Development Partners

Location: Major rice-producing regions in Zambia (Western, Northern, Luapula, Eastern Provinces)

1. Background

Rice is a staple food crop with significant potential to contribute to Zambia's food security, rural livelihoods, and economic development. However, rice productivity in Zambia remains low compared to other countries due to various factors, including the use of low-yielding, traditional rice varieties that are vulnerable to pests, diseases, and climate change impacts. Smallholder farmers, who constitute the majority of rice growers, often lack access to improved rice varieties that are more resilient and productive under local conditions.

Zambia's growing population and the increasing demand for rice, both domestically and regionally, necessitate the development of high-yielding, climate-resilient, and pest-resistant rice varieties. Improved varieties would enhance yields, reduce crop losses, and increase farmers' incomes while supporting national food security goals. This project aims to address these challenges by developing, testing, and promoting the adoption of improved rice varieties tailored to Zambia's agro-ecological zones.

2. Project Objectives

The project's overall goal is to increase rice productivity and enhance food security by developing highly yielding, disease-resistant, and climate-resilient rice varieties. The specific objectives are as follows:

1. **Develop New Rice Varieties:** Breed and test rice varieties that are suitable for Zambia's diverse agro-ecological zones, with a focus on increasing yields, improving resistance to pests and diseases, and enhancing tolerance to drought and floods.
 2. **Enhance Seed Production Systems:** Strengthen the seed production and distribution system to ensure smallholder farmers have access to certified seeds of the improved varieties.
 3. **Build Capacity of Stakeholders:** Train researchers, extension officers, and farmers in the development, testing, and adoption of improved rice varieties.
 4. **Promote Adoption of Improved Varieties:** Facilitate the dissemination and uptake of new rice varieties through farmer cooperatives, extension services, and private sector engagement.
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3. Key Project Components

Component 1: Rice Variety Development and Field Testing (USD 350,000)

- **Objective:** Develop high-yielding, pest-resistant, and climate-resilient rice varieties adapted to Zambia's agro-ecological zones.
- **Activities:**

- Conduct research and breeding programs at ZARI and partner institutions to develop improved rice varieties.
- Identify genetic traits for higher yields, drought tolerance, and disease resistance.
- Conduct multi-location field trials to test the performance of developed rice varieties in different agro-ecological zones (Western, Northern, Luapula, and Eastern Provinces).
- Engage smallholder farmers in participatory breeding trials to select varieties with desirable traits.

Component 2: Strengthening Seed Systems (USD 200,000)

- **Objective:** Ensure the availability and accessibility of high-quality seeds of improved rice varieties.
- **Activities:**
 - Establish seed multiplication schemes with farmer cooperatives and private seed companies.
 - Train local seed producers on quality seed production techniques.
 - Certify and distribute improved rice seeds to smallholder farmers through national seed distribution channels.
 - Build seed storage infrastructure at strategic locations to ensure year-round availability of improved seeds.

Component 3: Capacity Building for Researchers and Farmers (USD 150,000)

- **Objective:** Enhance the capacity of researchers, extension officers, and farmers to develop, test, and adopt improved rice varieties.
- **Activities:**
 - Train agricultural researchers and breeders on modern rice breeding techniques, including molecular breeding, marker-assisted selection, and biotechnology.
 - Conduct workshops and field demonstrations for extension officers and farmers to improve their knowledge of improved rice varieties and agronomic practices.
 - Develop training manuals and guidelines on the production and management of improved rice varieties.

Component 4: Promotion and Adoption of Improved Varieties (USD 100,000)

- **Objective:** Promote the widespread adoption of improved rice varieties among smallholder farmers.
- **Activities:**
 - Implement a communication and dissemination strategy to raise awareness about the benefits of improved rice varieties.
 - Organize farmer field days, demonstration plots, and on-farm trials to showcase the performance of improved varieties.
 - Collaborate with farmer organizations, agro-dealers, and private sector players to promote the use of improved seeds.
 - Monitor the adoption rate and performance of the new varieties among farmers and assess impacts on productivity.

Component 5: Monitoring and Evaluation (USD 50,000)

- **Objective:** Monitor project implementation and assess the impact of improved rice varieties on yields, income, and food security.
- **Activities:**
 - Develop a robust monitoring and evaluation framework to track progress and outcomes.
 - Conduct baseline, mid-term, and end-of-project evaluations to assess project performance and impact on rice production.
 - Collect data on yields, adoption rates, and farmer income to inform future scaling-up efforts.

4. Expected Outcomes

- **Increased Rice Productivity:** At least a 25% increase in average rice yields among participating farmers using improved varieties.
- **Improved Seed Availability:** At least 10,000 smallholder farmers will have access to certified seeds of improved rice varieties.
- **Enhanced Resilience:** Improved rice varieties will show better resistance to pests, diseases, and climate variability, leading to more stable production.
- **Capacity Building:** Strengthened capacity of 100 researchers, extension officers, and 500 farmers in modern rice breeding, production, and management techniques.
- **Increased Adoption:** At least 60% of rice farmers in target regions will adopt the new rice varieties by the end of the project period.

5. Budget Summary

Component	Estimated Budget (USD)
Component 1: Rice Variety Development	350,000
Component 2: Strengthening Seed Systems	200,000
Component 3: Capacity Building	150,000
Component 4: Promotion and Adoption	100,000
Component 5: Monitoring and Evaluation	50,000
Total	850,000

6. Conclusion

This project aims to address the low productivity of rice in Zambia by developing improved varieties that are high-yielding, disease-resistant, and climate-resilient. Through the development and promotion of these new rice varieties, the project will contribute to increased rice production, improved livelihoods for smallholder farmers, and enhanced food security. The collaboration between Zambian research institutions, international partners, and farmers will ensure that the improved varieties meet the specific needs of Zambia's rice-growing regions and lead to sustainable agricultural growth.