

CONCEPT NOTE

Project Title: ClimateSmart AgriTech Solutions: Revolutionizing Farming for Resilient Productivity

ClimateSmart AgriTech Solutions is a pioneering agricultural technological project dedicated to optimizing farming productivity in the face of climate change. Our innovative suite of technologies and practices empowers farmers to adapt to changing environmental conditions while maximizing yields sustainably. Through cutting-edge data analytics, precision agriculture tools and tailored climate-adaptive strategies, we revolutionize traditional farming methods. Our mission is to safeguard agricultural livelihoods and global food security by providing scalable, efficient and environmentally conscious solutions that enhance resilience and productivity in a changing climate. All of this will be achieved through introducing resilient farming practices, promoting crop diversification, facilitating access to climate-smart technologies, and offering comprehensive training, the project aims to bolster agricultural resilience. Ultimately, it strives to secure sustainable livelihoods for farmers, enhance food security, and foster a more robust agricultural sector capable of withstanding the evolving climatic conditions in Kigoma and beyond in Tanzania.

NGO Name & Details:

Organisation legal name	UMOJA WA WAWEZESHAJI KIOO
Legal status	NGO 00NGO/R2/000179
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Problem Statement:

The project by ClimateSmart AgriTech Solutions addresses several critical challenges within the agricultural sector, primarily centered around mitigating the adverse effects of climate change on farming communities. The project is aiming to solve the key problems as follows:

Climate Change Vulnerability: Smallholder farmers, especially in regions like Kigoma in Tanzania, face increasing challenges due to the unpredictable and extreme weather patterns caused by climate change. Erratic rainfall, prolonged droughts, floods, and temperature fluctuations negatively impact crop yields, leading to food insecurity and economic instability among farming communities.

Traditional Farming Methods: Conventional farming practices often lack adaptability to changing climatic conditions. Many farmers continue to rely on outdated techniques that are not resilient to climate variations, resulting in reduced productivity, crop failures, and decreased incomes.

Limited Access to Technology: Smallholder farmers often lack access to modern agricultural technologies and practices that can help them adapt to climate change. The absence of climate-smart technologies, precision agriculture tools, and data analytics hinders their ability to optimize yields sustainably amidst evolving environmental challenges.

Food Security and Livelihoods: The project aims to enhance food security by promoting resilient farming practices and crop diversification. It intends to address the vulnerability of farmers to climate change, which directly impacts their livelihoods and income stability.

Resilient Agricultural Sector: By introducing innovative agricultural technologies and comprehensive training, the project aims to create a more resilient agricultural sector. This sector will be better equipped to withstand the challenges posed by a changing climate, ensuring sustained agricultural productivity and livelihoods for farmers in Kigoma and beyond.

Goal

The goal of ClimateSmart AgriTech Solutions' project is to enhance agricultural resilience and productivity in the face of climate change, particularly in the region of Kigoma and beyond in Tanzania. To achieve this overarching goal, the project has specific objectives:

Objective

Introduce Resilient Farming Practices: Implement and promote farming techniques that are resilient to climate variability, such as drought-resistant crop varieties, efficient irrigation methods, soil conservation practices, and integrated pest management strategies.

Promote Crop Diversification: Encourage farmers to diversify their crop production, enabling them to adapt to changing environmental conditions and reducing the risks associated with relying on a single crop.

Facilitate Access to Climate-Smart Technologies: Provide smallholder farmers with access to innovative agricultural technologies, precision farming tools, climate data analytics, and modern farming equipment that can help optimize productivity while mitigating climate-related risks.

Offer Comprehensive Training: Conduct training programs and capacity-building initiatives to empower farmers with the knowledge and skills needed to implement climate-smart practices effectively. This includes training on new technologies, sustainable farming methods, crop management, and resilience-building strategies.

Enhance Food Security: Improve food security by increasing agricultural productivity and diversification, ensuring a more stable and sufficient food supply for farming communities. This objective aims to reduce vulnerability to food shortages caused by climate-induced challenges.

Foster a Robust Agricultural Sector: Strengthen the agricultural sector's resilience and sustainability by promoting the adoption of innovative technologies, fostering collaboration, and facilitating the integration of smallholder farmers into value chains and markets.

Sustainable Livelihoods for Farmers: Ultimately, the project aims to secure sustainable livelihoods for smallholder farmers by increasing their resilience to climate change impacts, boosting their incomes through improved agricultural productivity and creating more stable economic conditions within the farming communities.

Farm productivity: total **outputs** (e.g. liters of milk produced) compared to total **inputs** (total cost of production). Maximizing farm productivity increases food security & farm income & brings environmental benefits. **Key Strategies to Maximize Productivity on the Farm** including adopt **modern farming technologies** (e.g. higher-yielding seeds & fertilizer application) and **practice mixed farming enterprises** this has a potential economic & environmental benefit & reduces risks.

Proposed Solution & Activities:

Proposed Solution 1: Introduction of Climate-Smart Agricultural Practices

Activities:

- a) Conduct a comprehensive assessment of local climate patterns, soil conditions, and existing farming practices in Kigoma to identify suitable climate-smart agricultural techniques.
- b) Organize training sessions and workshops for farmers to educate them about climate-resilient practices, including drought-resistant crop cultivation, soil conservation methods, and agroforestry techniques.
- c) Establish demonstration farms to showcase the implementation of climate-smart practices and allow farmers to observe and learn from practical examples.
- d) Provide access to improved seeds, technologies, and tools necessary for implementing climate-adaptive farming methods, collaborating with local agricultural extension services.
- e) Establish farmer digital platforms to promote access to sustainable agricultural products marketing and resource pooling.

Proposed Solution 2: Capacity Building and Education

- a) Conduct awareness campaigns on climate change impacts and the importance of adopting resilient farming practices through community meetings, radio broadcasts, and educational materials.
- b) Develop and implement training programs focusing on sustainable agricultural practices, efficient resource utilization and climate adaptation strategies tailored to the needs of farmers in Kigoma.
- c) Organize workshops to enhance farmers' skills in utilizing weather information, sustainable land management, water conservation, and diversified cropping systems.
- d) Provide training and support for the installation, operation and maintenance of renewable energy infrastructure at the established demo farm.

Proposed Solution 3: Technological Integration

- a) Provide access to climate-smart technologies, such as weather forecasting tools, drip irrigation systems, and mechanized equipment, and offer training on their proper use and maintenance.
- b) Collaborate with technology providers, agricultural research institutions, and local stakeholders to introduce and customize innovative farming technologies suitable for the local context.
- c) Develop financing mechanisms to make renewable energy technologies accessible to local communities.

Proposed Solution 4: Promote Crop Diversification and Sustainable Land Use

- a) Encourage farmers to diversify crops, incorporating climate-resilient varieties suited to the changing environmental conditions in Kigoma.
- b) Promote sustainable land management practices like cover cropping, crop rotation, and organic fertilization to improve soil health and fertility.
- c) Encourage community involvement in planning and executing climate adaptation measures, leveraging traditional knowledge alongside modern innovations.

Proposed Solution 5: Monitoring, Evaluation, and Knowledge Sharing

- a) Establish a monitoring system to track the adoption of climate-resilient practices, agricultural productivity, and the effectiveness of interventions.
- b) Develop platforms for sharing best practices, lessons learned, and success stories among farmers, extension workers, and other stakeholders through workshops, newsletters, and online resources.

Beneficiaries:

Direct beneficiaries of this project are expected to 1000 farmers from Kigoma region to be trained into integrating education with Agri-business concepts for climate adaptation. Special initiatives within the project will directly target gender groups such as women and youth ensuring they receive equal training opportunities and resources, thus promoting gender equality in line with SDG 5. Alongside the direct beneficiaries, local engineers, technicians and community leaders will benefit from capacity-building initiatives by EWB EA, thus ensuring the project's impact is sustainable and community-owned.

*Expected Outcomes:***Short-Term Outcomes:**

- a) Farmers and community members are more aware of climate change impacts and have acquired knowledge about climate-smart agricultural practices and their benefits.
- b) Farmers have begun implementing climate-resilient farming practices, such as drought-resistant crop cultivation, soil conservation, and water management, on their farms.
- c) Adoption of new techniques and technologies leads to an initial increase in crop yields and overall agricultural productivity, contributing to food security at the household and community levels.
- d) Farmers have developed skills in utilizing weather information, sustainable land management, and crop diversification, improving their ability to adapt to changing climate conditions.

Long-Term Outcomes:

- a) Continued adoption of climate-smart practices leads to sustained improvements in agricultural productivity, soil fertility, and water management, ensuring long-term sustainability of farming systems.
- b) Farmers are more resilient to climate-related risks, such as droughts, floods, and erratic rainfall, due to the application of adaptive strategies and diversified farming methods.
- c) Improved agricultural productivity contributes to enhanced food security within households and communities, reducing dependence on external food aid.
- d) Enhanced productivity and resilience translate into increased incomes for farmers, fostering economic stability and reducing vulnerability to climate-induced shocks.
- e) Adoption of sustainable land management practices helps in preserving natural resources, mitigating soil erosion, conserving water, and promoting biodiversity.
- f) Successful implementation and documented results serve as models for neighboring regions, encouraging the replication and scaling-up of effective climate adaptation practices.

Monitoring & Evaluation:

There will be a comprehensive M&E framework that outlines project's objectives, indicators, data collection methods, responsible parties and timelines. This framework will serve as a roadmap for monitoring and evaluating progress and impact; there will baseline assessment at the beginning to establish a starting point for measuring progress to evaluate outcomes and impact to assess the project's overall effectiveness in achieving its objectives and desired outcomes and sustainability to determine the project's potential for long-term impact and its ability to continue delivering benefits beyond the project's duration. The key metrics for the baseline assessment will include current farming yields, community knowledge levels on climate change, and existing renewable energy adoption rates.

Request: We are requesting 495,600 USD to be used for a period of 24 months to implement all activities shown above.

As a social entrepreneurship initiative implementing this project financial sustainability will be achieved through various income-generating strategies including; establishing a business arm that sells or rents climate-smart agricultural technologies, equipment, or tools to farmers in the region; set up processing facilities to convert surplus crops into value-added products (e.g., jams, juices, dried fruits) for sale in local and potentially international markets; market and sell sustainably produced agricultural products under a unique brand that highlights the social and environmental benefits; collaborate with impact investors or venture capitalists interested in supporting social enterprises focusing on sustainable agriculture and climate resilience; offering educational tours and experiences at demonstration farms or learning centers, charging fees for guided tours or workshops; facilitate market linkages by connecting farmers practicing sustainable agriculture with markets willing to pay premium prices for ethically produced goods and create farmer cooperatives that can collectively market their produce, negotiate better prices, and access larger markets.