Nigeria

Funded by the European Union

Technical Assistance: Empowering communities with sustainable agricultural systems - Piloting a small hydroponic system in northern Nigeria
Location: Kubau Local Government Area, Kaduna State, Nigeria
Solution: Solar-Powered Hydroponic Farming Solution
UNEP CTCN grant: USD 194,526

The Kubau Local Government Area (LGA) in Kaduna State, Nigeria, faces significant challenges from climate change and security concerns. Drought and desertification have degraded agricultural lands, leading to conflict between nomadic pastoralists and settled farmers over scarce water and land resources. These conflicts are further aggravated by the presence of violent armed groups. Compounding the situation is the high vulnerability of rain-fed agriculture to erratic weather patterns. The community is heavily reliant on agriculture, and the loss of arable land due to these crises has deepened poverty and food insecurity, with over 25 million Nigerians facing acute food insecurity.

Objectives

The project aims to pilot a small-scale hydroponics system to combat food insecurity and climate change. By introducing an innovative technology, the project intends to empower local communities, improve agricultural resilience, and mitigate conflicts by reducing dependency on traditional farming methods which are susceptible to climate change and security issues.

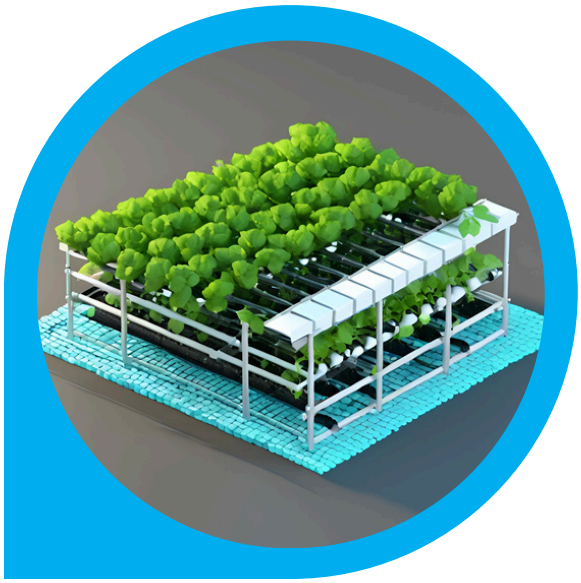
- **Climate Resilience**: Introduce a hydroponics system to enhance the community's agricultural productivity and adapt to erratic weather conditions.
- **Conflict Mitigation**: Reduce tensions between farmers and herders by providing a stable alternative to land-based farming.
- **Food Security**: Support year-round food production, improving local food security.
- **Capacity Building**: Train local communities on the setup and maintenance of hydroponic systems, enhancing local expertise and independence.

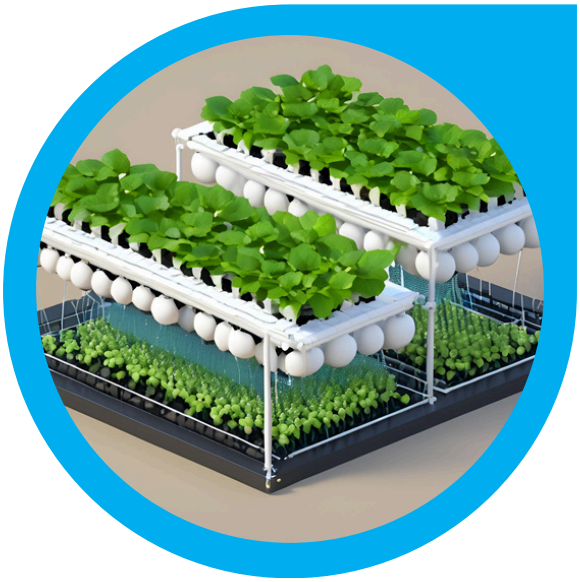
Climate Impact

- **Year-round food production**: Hydroponics allows for consistent crop production, even during droughts or erratic weather conditions.
- **Water-efficient farming**: The system uses significantly less water compared to traditional farming, which is crucial in arid regions.
- **Resilient to climate change**: Operates in controlled environments, reducing dependence on unpredictable rainfall, mitigating the impact of climate change.

Security Benefits

- **Reduced competition for land**: Provides an alternative to land-based farming, reducing tensions between farmers and herders over land and water resources.
- **Conflict mitigation**: Stable food production lowers the risk of food-related crime and conflict in a region prone to violence (as herds cannot access greenhouses).
- **Protection from violence**: Hydroponics systems shield agricultural activities from the disruptions caused by violent conflict, since greenhouses will be built closer to communities.





Social Impact

- The project targets vulnerable farming communities in Kubau LGA.
- The project targets 3,416 direct beneficiaries, which represents 30% of the Kubau LGA population.
- The project aims to provide hands-on training to 60 farmers across three cohorts, with 20 participants each. 30% of the participants are women, and 40% are youth.
- The indirect beneficiaries include the broader community which will benefit from increased food availability, local markets, and knowledge transfer.
- The community trainers, artisans, and extension officers involved will gain technical skills in hydroponics, contributing to long-term capacity building.

Food Security

- **Increased crop yields**: Hydroponics systems enhance food availability by boosting crop production.
- **Year-round availability**: Continuous food supply, mitigating food shortages during dry seasons or periods of conflicts.
- **Improved nutrition**: Local communities have more consistent access to fresh and nutritious produce.

Climate Technology

- The adoption of hydroponics is expected to significantly increase crop yields and diversify the types of crops grown, enhancing food security.
- By reducing dependence on rain-fed agriculture, the system can ensure food production even during droughts, reducing the risk of food scarcity, improving local nutrition and health.

Replication Potential

- The hydroponics system is scalable and can be replicated in other arid and conflict-prone regions of Nigeria and beyond.
- The project's training programs will equip local communities with the knowledge and skills to set up similar systems independently.
- The flexible design of the system, which incorporates locally available materials, ensures that it can be adapted to various environments.

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