Ghana



Organization: Link Ghana
Location: Navrongo, Paga and Fumbisi Cities, Upper East Region, Ghana
Solution: Scaling up aquaponic systems for climate change adaptation and mitigation in the Upper East Region of Ghana
Factsheet Period: First round of UNDP AFCIA funding (16 months); Second round of UNDP AFCIA funding (12 months)



Session on Climate Change Adaptation and Mitigation in the Upper East Region - @Link Ghana

Ghana's Upper East Region has some of the highest levels of poverty in the country, leading to widespread hunger, malnutrition and youth migration. This is aggravated by climate change as the region is largely agrarian with a single rain season and low soil nutrient levels. Link Ghana's aquaponic system technology adopts a locally based innovative solution for organic vegetable production through integrated fish vegetable production and other sustainable practices, allowing community members to adapt to climate challenges and sustainably support their livelihoods. The solution also incorporates an energy-saving fish smoking stove and organic pesticide production, which are time-saving, cost-effective and use locally available materials to support income generating activities.

Key achievements

- Constructed 7 functional aquaponic tanks with a capacity to stock 2,000 fingerlings each, directly benefiting 50 smallholder farmers per tank and 350 indirect beneficiaries.
- Equipped 364 community members (69% women), aged 19-65, with skills in integrated fish-vegetable farming, climate adaptation and livelihood diversification, further impacting 1,950 indirect members.
- Fenced 7 hectares of farmland for production of vegetables and catfish. The vegetable fields are linked to the fish tanks to maximize the usage of wastewater generated from the fish tanks. Equipped farms to increase efficiency.
- Procured 2 motorbikes and a conference table set to enhance organizational capacity and support efficient project implementation
- Provided business and financial inclusion training to community members
- Procured and distributed fish farming equipments (95% shade nets, 10 scoopnets, 12 plastic baskets and 12 aluminium basins) among the 5 project site /beneficiaries



Social impact

- Created employment opportunities, particularly for women and youth
- Anticipates a 45% increase in household incomes and nutrition, promoting resilient, diversified livelihoods

Adaptation benefits

- Reduces dependence on rainfall by utilizing minimal water sources for fish and vegetable production.
- Promotes investment in nature-based solutions and supports government agricultural and climate change policies.
- Enhances food security, water conservation and soil fertility, and provides resilient methods to adapt to drought and climate change effects.

Replication potential

- Easy to replicate using locally available materials for aquaponic systems, energy-saving stoves and organic pesticide production.
- Strong scaling-up potential, leveraging government decentralized agencies for sustainability.
- The community-led approach ensures challenges are addressed using local structures and capacities, fostering widespread adoption and institutional capacity building.







Innovation

- Innovative Farming: Combines fish and vegetable farming for efficient water use and organic production.
- Energy-Efficient Technology: Uses improved, smokeless fish smoking stoves to save energy.
- Holistic Community Approach: Reduces water and carbon footprints while enhancing land and forest management.

Funding snapshot

- UNDP-AFCIA grant: US$233,181 (initial grant: $125,000; scaling grant $108,181)



Investability	
Revenue per year	US$87,737 from the sale of fish, vegetables and organic pesticide produced through aquaponic technology.
Sustaining criteria	The solution is fully self-sustaining through revenue generation, with profits reinvested to diversify community livelihoods and increase income. An additional $250,000 investment would enable scale-up to support 500 more vulnerable people, while ensuring long-term financial stability for existing beneficiaries.
Financial innovation	Savings and Loans Groups concept linked to banks and business service providers.
Expected return	$39,755 net income, after subtracting costs of aquaponic tank construction, stocking and feeding young fish, and raw materials and labour of vegetable and pesticide production.

ADAPTATION FUND Climate Innovation Accelerator

ADAPTATION FUND

To read their story, visit UNDP-AFCIA

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