Objectives of the project

A small holder farmer cum innovator (GIZ/Joerg Boethling)

The goal of Water and Energy for Food project (WE4F) is to scale up climate-friendly, energy-efficient, and water-efficient innovations by working closely with the private sector to increase the sustainability of agricultural food value chains and address environmental and climate resilience in developing countries and emerging markets – with a particular focus on the poor and women. By breaking silos and strengthening coordination & cooperation at operational-, network- and policy levels in the Water Energy Food Nexus, the project contributes to a sustainable transformation of global agricultural food systems.

Background

The East African region has great potential for food production with a majority of the population living in rural areas and working in agriculture. However, small-scale farmers are often struggling with low productivity and high post-harvest losses. Moreover, food production and processing require significant amount of energy (people in rural areas typically use conventional sources, such as diesel or firewood) and groundwater, which exacerbates the depletion of natural resources, biodiversity loss and climate change.

To address these challenges, innovative Small- and Medium-sized Enterprises (SMEs) are working on solutions to make the agriculture and food sector more climate-friendly, water- and energy-efficient. However, these SMEs often lack the capacities and networks to market their innovations successfully and sustainably. Lack of access to suitable finance for innovations poses another obstacle to business development as well as for uptake by small-holder farmers.

WE4F aims to support these SMEs in their business development to reach scale and impact. Innovations may include technologies (such as weather forecast apps, solar cooling technologies, hydroponic farming approaches), business and finance models (such as pay-as-you go models for solar pumping, leasing models for e-motorbikes in rural areas) and new modes of cooperation (e.g., sharing economy model, which favours access to technologies and services over ownership).

The theory of change to achieve the objectives

WE4F aims to support and collaborate with the private sector. The overall objective (impact) of the project is to increase food production and income of smallholder farmers through greater agricultural productivity and more sustainable practices of natural resource use. The specific objective (outcome) is the upscaling of climate friendly, energy and/or water efficient innovations and to strengthen the innovative potential of entrepreneurs for a more productive and ecological sustainable food production. As such, the project contributes to Sustainable Development Goal (SDG) 2 on Zero Hunger, SDG 6 on Water and Sanitation, SDG 7 on Energy, SDG 13 on Climate Change, and SDG 17 on Partnerships.

The project is implemented through Regional Innovation Hubs. In East Africa, the Hub pursues an entrepreneurial ecosystem approach. Ecosystems often emerge through the interaction of a small group of entrepreneurs and businesses focused on a common purpose. They soon expand to other external organisations – financial institutions to seek investment opportunities, policymakers to incentivise and regulate, research organisations that support further development of solutions. As ecosystems evolve, entrepreneurs may find support through support organisations or specialised interest groups, like industrial associations. Successful entrepreneurs in the ecosystem inspire others, motivating them to also become entrepreneurs.

WE4F is thus working closely with the private sector to unleash the potential of climate-friendly, resource efficient innovations for a more sustainable agriculture system by supporting the business development and investment readiness of SMEs (Output 1). The project is also building capacities of small-holder farmers and multipliers to support the uptake of innovations, developing demonstration sites (e.g., such as a hydroponic system in Northern Kenya) and creating knowledge products (e.g., like the Toolbox for Solar-Powered Irrigation or markets studies) (Output 2). Financial access is critical for the growth of small and medium-size enterprises (SMEs). WE4F therefore works with financial institutions and other key stakeholders on developing financial mechanisms for both the SMEs we are supporting as well as their customers – typically small-scale farmers and value chain actors – to make innovations more accessible (Output 3). The WE4F East Africa Hub seeks the dialogue with policymakers, industry associations, sector networks, foundations, funds, and other stakeholders to create an enabling policy and regulatory environment for innovations to reach their full market potential (Output 4). To exchange and learn beyond East Africa, the project is also engaging and supporting various regional and global events to diffuse the innovations and to promote the partnerships we are committed to. Moreover, complementary research with the International Centre for Advanced Mediterranean Agronomic Studies (CIHEAM, Italy), the Leibniz-Centre for Agricultural Landscape Research (ZALF, Germany) and local universities are carried out to take a deep dive into some of the technical topics (Output 5).

The main risks for WE4F are (i) decision-makers doing little or nothing to foster an enabling environment; (ii) corruption hinders the business development of SMEs. It is therefore crucial to carry out a rigorous due diligence, site visits and regular review of financial reports; (iii) business failure and bankruptcy of SMEs. Which should be mitigated through individualised business advisory and coaching; (iv) unintended adverse environmental and social impacts (e.g., overuse of water resources, only few or specific ethnic groups benefiting from innovations). This should be avoided through the selection of social and environmentally minded partners as well as impact assessments; and (vi) changes in practices needed to apply innovations cannot be adopted fast enough or cannot be sustained, making capacity development and dissemination activities essential.

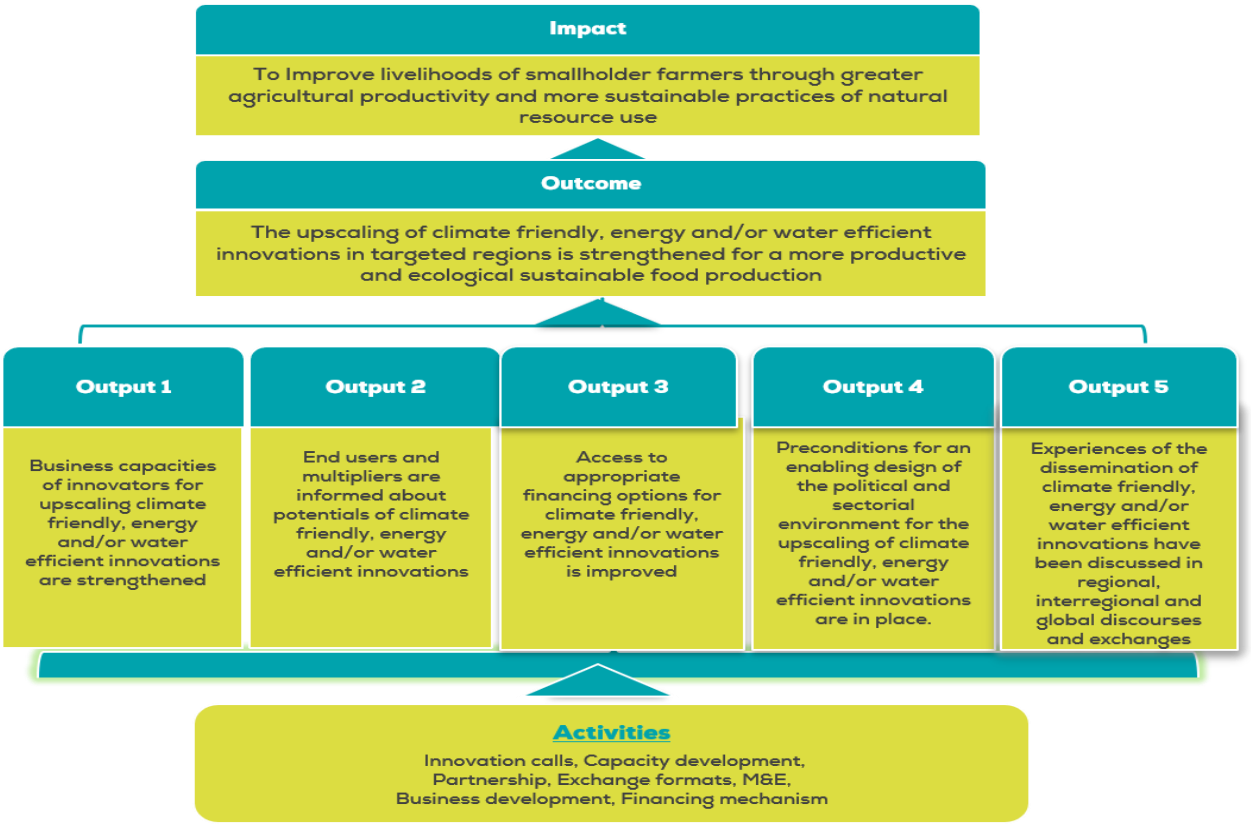

Figure: Theory of Change of WE4F

Main activities

The main activities of the projects include:

- ✓ **Output 1**: As WE4F seeks to support the private sector in marketing and scaling their climate-friendly and resource efficient innovations, it implements a) an Innovation Call to which SMEs working on the water-energy-food nexus can apply for financial and business development support, and b) partnerships with the private sector to make operations more resource efficient or to pioneer innovative technologies and service models.
- ✓ **Output 2**: The project also supports the set-up of demonstration sites, trainings of smallholder farmers and other value chain actors and other sensitisation activities together with SMEs, universities, and NGOs to take further steps towards the uptake of innovations.
- ✓ **Output 3:** Another supporting measure is a) the development of a financing mechanism for end users together with local financial institutions, and b) the leveraging of additional investment through advisory support, matchmaking, and partnerships with potential investors (including funds, foundations, angel investors and venture capitalists).
- ✓ **Output 4:** In order to create an enabling environment for the innovations of the SMEs to reach scale, the project seeks the dialogue and consultations with policy makers, industry associations and other key stakeholders. The activities will be further specified once the Innovation Call (Output 1) is completed to support the SMEs most effectively.
- ✓ **Output 5:** The East Africa Hub works closely with its partners and the other WE4F Regional Innovation Hubs to share knowledge, host study tours, create global knowledge tools and platforms and expand technical networks.

Results achieved to date (December 2022)

The WE4F project has achieved significant results in advancing its mission of improving the interplay among the water, energy, and food sectors to enhance food security, poverty reduction, and sustainable development. The project's inclusive approach has particularly benefited the poor, youth, and women, creating income opportunities in an environmentally friendly manner.

Key achievements include the upscaling of climate-friendly energy and water-efficient innovations in food value chains. Through financial and technical assistance, the project has supported 43 small and medium enterprises (30% women-led), disseminating their innovations to over 145,000 smallholder farms. This has resulted in the production of more than 962,000 tons of food and the processing of over 19,000 tons.

The project's innovations have also made substantial water and energy savings. With reduced water use of 130,172,000 liters and energy savings exceeding 8,380,000 kWh, the project promotes sustainable water management and energy efficiency in agriculture.

The project enabled SMEs to mobilise over US$7 million in investment to scale innovation, leading to increased productivity and environmental sustainability in food production.

The WE4F project has effectively communicated its work and advocacy efforts, notably at COP27 and other global events. This has raised awareness about the interconnectedness of water, energy, food, and climate change, leading to international recognition and validation of the project's contributions.

Furthermore, the project's collaborative approach has fostered trust and cooperation among partners, resulting in more effective joint programming and implementation. This approach has been acknowledged for its functionality and impact, attracting new partners such as the Norwegian Agency for Development Cooperation (NORAD).

Overall, the WE4F project has achieved remarkable results by promoting sustainable practices, inclusivity, and the integration of the water, energy, and food sectors. These achievements have positively impacted smallholder farmers, innovators, and end users, contributing to improved food security, poverty reduction, and gender equality while enhancing the resilience of agricultural and food systems.

Organization

The project is implemented as contribution to the international, multi-donor initiative Water and Energy for Food (WE4F) of the German Federal Ministry for Economic Cooperation and Development (BMZ), the European Union (EU), the Ministry of Foreign Affairs of the Netherlands, the Swedish International Development Cooperation Agency (Sida), the Norwegian Agency for Development Cooperation (NORAD), and the U.S. Agency for International Development (USAID).

The WE4F steering structure consists of a Steering Committee and a Secretariat. The Steering Committee members are all the involved funding partners. The Secretariat, with two units managed by GIZ and USAID, are responsible for the overall management of activities.

The project itself is realised through the Nairobi-based Regional Hub and is embedded in the GIZ structures, including administrative, financial, and operational aspects. The Hub is supported by the WE4F Secretariat in Bonn, Germany, particularly for communication, Monitoring and Evaluation (M&E) and reporting.

Implementing organization

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Partners of the project

- ✓ *Entrepreneurs*: from Innovation Call, Accelerator Program and Development Partnerships with the Private Sector (iDPP)

Kenya	Eenovators Ltd, Miyonga Fresh Greens, WeTu, SokoFresh, Hydroponics Africa, SafiOrganics, Synnefa, MaceFoods, Sunculture, Olivado
Malawi	aQysta, Green Impact Technologies
Tanzania	Kazi Yetu, HannyG, Guavay
Rwanda	Munyax Eco, GOT IT
Uganda	Emata, Tulima, Innovex, Asili Farms, Amped
Ethiopia	Lersha

- ✓ *Business advisory partners*: NIRAS & Intellecap, Alphamundi Foundation
- ✓ *Research*: Turkana Basin Institute, Dedan Kimathi University of Technology; CIHEAM IAMB - Mediterranean Agronomic Institute of Bari, Leibniz Centre for Agricultural Landscape Research (ZALF)
- ✓ *NGOs*: Energy for Impact
- ✓ *Financial Institutions*: K-Rep, Pamoja, MicroLoan Foundation (MLF) Malawi, Kenya Bankers Association
- ✓ *Industry Associations:* Global Off-Grid Lighting Association (GOGLA)
- ✓ *Governmental Bodies:* Lake Basin Development Authority (LBDA)

Other main stakeholders

Ministry of Foreign Affairs of the Netherlands, the Swedish International Development Cooperation Agency (Sida), Norwegian Agency for Development Cooperation (Norad), and the U.S. Agency for International Development (USAID).

Localisation

East Africa, including Kenya, Uganda, Rwanda, Tanzania, Ethiopia, Somalia and Malawi

Funding and co-funding

EU	€ 6,000,000
German Federal Ministry for Economic Cooperation and Development (BMZ)	€ 7,000,000
Total budget	€ 13,000,000

Duration

5 years, January 2020 – December 2024

Website

we4f.org

Updated on 21/06/2023