

## LEAP–Agri

### „African European collaborative research on Sustainable Agriculture and Aquaculture and on Food and Nutrition Security“

### *STEP-UP „Sustainable Transition to Entrepreneurial Production in Agriculture through Upgrading“*

<b>country/countries</b>	Uganda, Kenya
<b>funding agency</b>	Federal Ministry of Food and Agriculture – BMEL
<b>project management</b>	Federal Office for Agriculture and Food – BLE
<b>project coordinator</b>	Leibniz Centre for Agricultural Landscape Research (ZALF), Germany
<b>project partner(s)</b>	Wageningen University (WUR), The Netherlands Jomo Kenyatta University of Agriculture and Technology (JKUAT), Kenya

	<p>National Environment Trust Fund (NETFUND), Kenya</p> <p>Environmental Alert (EA), Uganda</p> <p>National Agricultural Research Organisation (NARO), Uganda</p> <p>Solidaridad Network, Uganda</p> <p><u>Advisory board:</u> Solidaridad–NL, International Institute of Tropical Agriculture (IITA), Kenya Bureau of Standards</p>
<b>project budget</b>	<b>830.000,- €</b>
<b>project duration</b>	01.09.2018 – 31.12.2021 (in Kenya and Uganda until 31.08.2022)
<b>key words</b>	Value chain, participatory action research, co–creation, sustainable intensification, market linkage, solar dried fruits.
<b>background</b>	<p>Sustainable intensification of agriculture is a potential way to meet the growing demand for food on a global scale. In practice, however, the implementation of promising solutions for sustainable intensification faces challenges, including inadequate market linkages (inputs and outputs) and high investment risks. Kenya is one of the leading mango producers in East Africa with a current annual production of 600,000 to 800,000 tons. However, a large proportion of the man–gos spoil due to lack of processing facilities, poor quality and poor infrastructure. Uganda is the leading banana–growing country in Africa. The East African Highland Banana (EAHB) is a staple food for an estimated 10 million Ugandans. Previous initiatives have focused on increasing banana productivity, but banana marketing depends on complex value chains and is also hampered by poor infrastructure.</p>
<b>objective</b>	The project "Sustainable Enterprise Development through Upgrading Strategies in Rural Production and Marketing" (STEP–UP)

aims at food security by strengthening the entrepreneurial market participation of smallholder farmers and small enterprises in Africa. STEP-UP is a European-African research network and operates in Kenya and Uganda. In cross-country cooperation, the impact of different innovative production enhancement and marketing strategies on food quality and availability is tested in two value chains. STEP-UP aims at a) effective sustainable intensification and market development strategies within the mango and banana value chains. These should simultaneously meet multiple buyer expectations (from producers to consumers) and make a decisive contribution to the achievement of the Sustainable Development Goals (SDGs). Also, b) flanking measures and standards that have a poverty-reducing effect, reduce gender inequalities and include youth without increasing the entrepreneurial risk of farmers and enterprises. STEP-UP will c) apply knowledge-sharing and participatory methods that balance potential conflicts of interest, and d) effectively transition strategies into subsequent dissemination and development programs.

Farm systems analysis will serve to understand heterogeneity, and participatory strategy development will enable interactions of actor platforms along food value chains. Necessary capacities will be fostered through various co-learning activities. The accompanying impact assessment will identify actors, criteria and indicators for sustainability assessment of the strategies. A synthesis will inform decision support as well as policy dialogue. For policy and practice, key barriers and alternatives in banana and mango value chains and scaling options will be identified.

**results**

Following the stakeholder mappings already established in 2018, actors, their relationships and their influence along the value chains were identified. In 2019, this was complemented by a characterization of agricultural systems. Participatory visioning workshops identified a shared vision, necessary steps in that direction, and sustainability indicators. Next, stakeholders prioritized two interventions. The market of mango in Kenya is increasingly becoming a cash crop, but seasonal crop fluctuations lead to production peaks, resulting in large post-harvest losses. To ease the predominantly local and regional market, the export of mangoes was discussed. It was found that high requirements to keep the products free from fruit flies together with a strong dependence on pesticides prevented entry into the export market. In line with the stakeholders' shared goal of improving the environment and human health by reducing the use of chemicals, STEP-UP conducted a training on good agricultural practices for mango production in the fall of 2019. Alternative export products such as dried mango fruit are also being tested as a way out of production surpluses or lack of markets in the project. In all interventions, we have considered and strengthened the different roles and impacts for women, men and youth. Through capacity building within smallholder groups, equitable private sector involvement, and the engagement of policy makers, STEP-UP is helping to develop a sustainable transition to an entrepreneurial smallholder sector. In Kenya (and with some offset in Uganda), in line with STEP-UP's research approach, the long-tested methods of the project partners were implemented in a series of events and trainings on strategy development, strategy selection and strategy evaluation in 2019.

The ex-ante evaluation of sustainability indicators as a result of our interventions was started in Kenya in late 2019 and completed in Uganda in early 2020, before the outbreak of the COVID 19 pandemic. The ex-post evaluation was conducted in 2021 as a hybrid workshop series. The evaluations were analyzed in the context of scientific theses (2 MSc, 1 BSc). The close cooperation of the partner organizations JKUAT and NET-FUND, with the county government in Kenya and the partner project NARIG enabled a series of workshops and field work under the difficult conditions of the pandemic. In particular, the ToT concept with a long series of STEP-UP trainings led to the training of more than 60 trainers, who have already passed on their knowledge to more than 600 follow-up trainers in the newly established ten horticultural cooperatives or so-called mango clusters. Fortunately, many women and young people have been reached through the STEP-UP approach. The consumer surveys conducted in Germany on the dried mangoes produced in the project also led to significant results.

In Uganda, several training sessions were held on integrated soil fertility, nutrient management, processed products and marketing strategies for banana cultivation. A gender mainstreaming training was integrated into the ISFM trainings in 2021, enabling a study on gender issues to further develop concrete action points for follow-up during the project. Demonstration fields on banana cultivation were also established and managed with the ISFM measures trained. Due to the pandemic situation caused by COVID 19, physical meetings between partners and stakeholders were kept to a minimum in 2020 and 2021. Cross-country visits were cancelled altogether.

<b>recommendations</b>	<p>Through existing and new networks of the partners, a connection of the project to currently running programs in the target regions could be achieved. The strong participatory approach of STEP-UP made sense here. The stakeholder workshops and forums for the participatory identification of agricultural transformation paths as well as the co-creation of necessary and feasible strategies made it possible to integrate the activities of the project precisely into the further development programs. STEP-UP, through its university and research partners, places a scientific emphasis on the linked training content, which reinforces confidence in the processes and results.</p> <p>To achieve food security for 8.5 billion people by 2030 and beyond, the planned project activities are a small part of the global strategy to intensify agriculture and use existing farmland as efficiently as possible. The stakeholders and partners of STEP-UP were able to identify several most promising starting points in the study regions, while considering project resources and capacities. The introduction and continuation of integrated measures, among others for plant protection and improvement of soil fertility as well as for minimization of post-harvest losses, further processing and marketing, contribute their part to the change of a complex system.</p>
<b>photos</b>	source: Photos from Götz Uckert, (exceptions, see in brackets at photo description: Temi Mutia, Salama Lerantilei)



Fig. 1: Stakeholder workshop in Kampala, Uganda, early 2020. Participatory selection of agricultural transformation pathways of STEP-UP interventions for implementation (left). Hybrid training in 2021 on business models in mango value addition in Kitui County, Kenya (right, photo S. Lerantelei).



Fig. 2: FoPIA workshops in Isingiro (left) and Bunyangabu (right), Uganda. Assessing the potential impact of selected interventions on sustainability.



Fig. 3: Collection of soil samples from the fields of the demo plots for testing in the laboratory in Isingiro, Uganda. Debriefing with farmers (intervention on integrated soil fertility management).



Fig. 4: Processing of dried mangoes in the solar dryer: product and brand development of the farmer cooperative in Mwingi West, Kitui County, Kenya. (Yellow arrow: label with STEP-UP logo on the sales unit) (Photos Temi Mutia).



Fig. 5: Developing markets and reducing postharvest losses in Rugaaga, Uganda. Packing East Africa Highland Banana (EAHB) plantains into shipping crates.