

Enhancing Resilience in Food Systems: Project Newsletter

This initiative is a flagship project of the ETH Zurich World Food System Center. Collaborators include the Sustainable Agroecosystems Group (SAE), Climate Policy Group and TdLab at ETH Zurich.

New projects funded

The Sustainable Agroecosystem Group, chaired by Prof. Johan Six, and their partners were awarded funding by the Global Programme Food Security of the Swiss Agency for Development and Cooperation for their project "The rural-urban nexus: Establishing a nutrient loop to improve city region food system resilience (RUNRES)". The project will be conducted in the Democratic Republic of Congo, Rwanda, Ethiopia and South Africa in collaboration with the International Institute of Tropical Agriculture (IITA), the University of Arba Minch (UAM), and the University of KwaZulu-Natal (UKZN). The objective of the project is to co-establish safe, efficient, and socially acceptable innovations to close the nutrient loop and install a circular economy to improve the resilience of people in the targeted city region food systems. This objective will be addressed in a first phase of four years in pilot studies in the four city food regions and if successful will be scaled up in a second phase of four years. The project is now in a pre-phase before it officially starts on 1st May 2019.

In collaboration with CABOZ AG (a cocoa trader), we received funding by the Swiss State Secretariat for Economic Affairs (SECO) for a three-year project "Village post-harvest processing and farmer support centres". In this collaboration, we will support the project with baseline studies and monitoring activities to ensure an independent scientific analysis of the viability of cocoa post-harvest and farmer support centres. The project will start in January 2019.

Organic versus conventional: the case of cocoa and banana value chains

As part of a PhD research project on assessing the role of organic value chains in enhancing food system resilience (OrRes), funded by a Mercator World Food System Grant, Mr. William Thompson carried out a drought resilience assessment among 480 organic, "climate-smart" and conventional smallholder farmers across two key cocoa growing regions in Ghana. He built the assessment tool on knowledge generated from a transdisciplinary

workshop, five focus group discussions (Figure 1) and several one-to-one interviews held with cocoa farmers. Additionally, William conducted biophysical assessments of a subset of 70 cocoa farms where he looked at soil properties, shade tree biodiversity, shade levels and cocoa tree planting density. For the banana case study in the Dominican Republic (DR), we are preparing for a transdisciplinary workshop in February 2019, which aims to bring together a range of key stakeholders from the DR-UK banana value chain. After this workshop, William will conduct a resilience assessment for banana in the DR, similar to the cocoa case in Ghana.



Figure 1: Focus group discussion with cocoa farmers in Ghana

Resilience and sustainability of tomato producers in Morocco and Ghana

As part of a three-year PhD research project, funded by a Swiss Excellence Scholarship, Ms. Kenza Benabderrazik investigates the resilience of tomato producers in face of a drought and market price variability in Morocco and Ghana. From March to June 2018, Kenza conducted two surveys among tomato producers in Morocco and Ghana, interviewing in total 600 producers. Currently, she is modelling the Moroccan tomato production system using system dynamics. In this modelling, she compares open field domestic production versus greenhouse production for the export in the context of drought and groundwater depletion. Preliminary results from the simulation shows that there is a crucial need to build resilience through a sustainable

groundwater use. Scenarios analysis shows that this could be done through inter-sectoral water transfers.



Figure 2: Tomato market in Ghana

Resilience of the Swiss food system

In a three-year PhD project funded by the Swiss Federal Office for Agriculture (FOAG), Ms. Elena Monastyrnaya, analyses the resilience of the milk, beef, wine, wheat and potato value chains in Switzerland. In spring 2018, she has conducted surveys to assess the capacity of seed producers, farmers, processors and retailers to withstand three scenarios of shocks: summer dryness, biological diseases and introduction of a free trade on food with the European Union. The objective of these surveys was to assess how actors perceive the consequences of shocks on their activities. The preliminary results show that farmers expect higher financial losses than processors. In a next step, Elena will organise stakeholder workshops to discuss interventions to enhance the resilience of stakeholders in the five value chains.

Innovations to build resilience

As part of our collaboration with the Food and Agricultural Organization (FAO) and FOAG, Ms. Dominique Barjolle led a workshop in Torino, Italy, on 19-20 September 2018. This workshop focused on the plurality of channels for measuring the resilience at the farm-system scale and emphasized the importance of taking into account the dynamics and complexities of this system. Tools (Self-Evaluation and Holistic Assessment of Climate Resilience of Farmers and Pastoralists [SHARP], Resilience Assessment Benchmarking and Impact Toolkit [RABIT]) and resilience frameworks at different scales (value chain approach, Resilience Index Measurement and Analysis [RIMA]) were presented. Stakeholders (donors, researchers, etc.) at this workshop highlighted the need to adapt those tools to the direct use by and for the farmers and to define clearly the purpose of assessments. The workshop concluded with a presentation of key challenges when implementing tools, like SHARP, in countries such as Sudan and Burkina Faso. The

workshop was a great opportunity to promote an exchange within the resilience assessment community and identify potential synergies.

Resilience of the tef and cocoa value chains

The project entitled "Assessing and Enhancing the Resilience of the Tef and Cocoa value chains" (AERTCvc) in Ethiopia and Ghana, funded by a COOP World Food System Grant, is in the final stage. After conducting a resilience assessment among value chain stakeholders (input suppliers, cooperatives, farmers, traders, retailers and consumers) in the first year of the project, we focused in 2018 on identifying measures to build resilience in both value chains. For this, we adopted 'design thinking' techniques to generate a structured thinking process that enables an efficient integration of knowledge of stakeholders. In June, we conducted stakeholder workshops (Figure 2) in both case study locations to finalise action plans and identify strategies for building resilience in the tef and cocoa value chains in Ethiopia and Ghana. Final project reports are available on our website. Our master students, Braida Thom and Luzian Messmer, developed their master thesis research on this study and analysed the viability of the proposed action measures for enhancing the resilience of smallholder farmers in Ethiopia and Ghana.



Figure 3: Discussions to identify strategies for building resilience in the tef value chain in Ethiopia

Publications

We have published project reports from our AERTCvc project and the master thesis of Braida Thom and Luzian Messmer on <http://www.resilientfoodsystems.ethz.ch>.

If you have any questions or would like to contact us, please send an email to Jonas Joerin: jonas.joerin@usys.ethz.ch or Johan Six: jsix@ethz.ch