

The AgriFoSe2030 Annual Report 2017

AgriFoSe2030

Agriculture for Food Security 2030
- Translating science into policy and practice



MARKET ON THE MEKONG RIVER, VIETNAM.
PHOTO: EDDY (ELICKR/CORBIS) © 2017

Preamble

The Agriculture for Food Security 2030 Programme is now moving forward at full steam towards Sustainable Development Goal 2 by translating agricultural science into policy and practice. In 2017, we had several training activities in Africa, Asia and Sweden for colleagues working in the field of sustainable agriculture and food security. In these training events, we all learned how to collect and synthesize scientific data in a systematic way and how to communicate this science-based knowledge to policy-makers and practitioners. It is reassuring to see how colleagues in all the four themes apply these skills in producing scientific syntheses, reviews, reports and briefs. The coming year, AgriFoSe2030 will produce and share a lot of knowledge to partners and stakeholders around the world. This will lead to significant contributions to sustainable intensification of farming, improved market access for smallholders and strengthening the role of women and youth in the sector.

-Professor Ulf Magnusson, AgriFoSe2030 Programme Director



Program-wide activities

During the second year, AgriFoSe2030 has organized several program-wide, cross-theme and issue-specific activities. The synthesizing of knowledge we do within the program is about transformational change: how do we improve food security and make farming practices more sustainable? However, synthesised knowledge does not always lead to change. We need to bring our science to the change-makers to help them understand the implications. AgriFoSe2030 has carried out several activities with this goal in mind.

On January 2017, the first program-wide workshop was organized in Nairobi, Kenya; “How to bridge policy and science – fostering dialogue between science, practice and policy”. The workshop brought together around 50 participants consisting of agricultural scientists from around sub-Saharan Africa (SSA) along with policy-makers, representatives from agribusinesses, grassroots organizations and policy studies networks. The workshop provided participants with an arena for dialogue and how to translate state-of-the-art science in support of knowledge-driven decision-making, improved practices ensuring food security and sustainable development in SSA. The workshop resulted in an [AgriFoSe2030 report](#) and a few important key messages, see the yellow box.

In December 2017, the programme organized a webinar on “How to write policy briefs in the field of sustainable agriculture and food security”, to build capacity of young researchers in bridging science with policy. It was open to all members of the AgriFoSe2030 network and had 60 attendees from many different countries, in SSA, South and Southeast Asia and Europe. [You can watch it here.](#)

Two theory of change workshops were organized throughout the year; one for the steering committee group of the programme and one for researchers connected to the programme. Along with the second workshop, the participants also underwent a course in how to conduct systematic reviews.

The International Livestock Research Institute

Key messages from the workshop

- Governments and academia in sub-Saharan Africa (SSA) should seek ways to improve capacity to collect, manage and share data and analyse crucial knowledge gaps for further research.
- Universities and research institutions in SSA need to encourage and help scientists to communicate their research findings to policy-makers, practitioners or media.
- Governments, donors and academia in SSA should seek ways to enhance partnerships, collaborations and dialogues between scientists, policy-makers and practitioners.
- Above mentioned collaborations and dialogues should be fostered through forums, networks, interactive mechanisms and interdisciplinary knowledge brokers, increasing support for co-creation of knowledge.



Participants at AgriFoSe2030 workshop in Nairobi January 2017.

(ILRI) and AgriFoSe2030 researchers also started “A Network of Policy Analysts for Enhanced Agricultural Development, Food and Nutrition Security in Kenya” during 2017. *“The aim of the project is to develop a pool of policy analysts able to support the development, implementation, and evaluation of policies and practices for enhanced agricultural transformation and food security in Kenya”*, says the project coordinator Joseph Karugia, ILRI. Around seven experts in Kenya will provide capacity development support to the network by developing and delivering training materials as well as continuously mentoring, coaching and advising a group of PhD graduates.

Thirteen highly qualified Kenyan graduates from across the AgriFoSe2030 themes have been selected for this project aiming at improving their:

- understanding of policy concepts and the policy landscape in the Kenyan agricultural sector
- ability to use analytical tools and methods for data gathering, policy analysis and evaluation
- communication skills and ability to develop and disseminate policy briefs and policy knowledge products

Below follows a description of some of the activities carried out in each theme.



“Now, more than ever, we need scientists able to communicate and continuously engage with policy-makers and practitioners ensuring that plans, policies and interventions are evidence-based. It’s our hope that this project and network will make a difference in this regard”, says Joseph Karugia, ILRI

THEME 1

Social and economic dimensions of smallholder based agriculture and food security

KATHRYN COX, FIDA/BAY, CCO

Theme 1 has, among other activities, focused on producing country policy baseline studies during 2017. Here we highlight the study "[Local and Regional Variations in Conditions for Agriculture and Food Security in Kenya](#)", by Charles Recha, Egerton University, Kenya, who has looked at local variations and conditions of crop and livestock production in various parts of Kenya. The study highlights that variations in agro-ecological zones, distance from market, seasonal rainfall and the cultural orientation

"While supporting modern value chains and increased market opportunities for Kenyan smallholder crops and pastoralists, governments also need to assure that the transition from subsistence to commercial farming is complemented with social protection programmes targeting the poor and most vulnerable, not able to benefit from increased market access "

– Charles Recha, Egerton University

are strong determinants for agricultural productivity and food security in Kenya. "*The great diversity in the distribution of crops and livestock markets and value chains in various parts of Kenya is crucial to recognise in the design of extension support, R&D efforts and interventions in support of infrastructure, modern value chains and the transformation of small-scale farmers from subsistence to more commercial farmers*" Recha explains. The study has also looked at constraints and opportunities across value chains for livestock and crop produce.

In another baseline study – "[A review of Uganda's Agricultural Policy and how it addresses AgriFoSe2030's Target Groups](#)" – Frank Mugagga and colleagues from Makerere University, Uganda, have reviewed how agricultural policies in Uganda address the key AgriFoSe2030 target groups including smallholder farmers, women and youth.

The review about Uganda's Agricultural Policy stresses improvements needed in the agricultural policy environment, e.g.:

- The establishment of a modern and functional extension system that aim to improve service delivery and collaboration between central and local governments
- Government investments in infrastructure and human capacity development which will improve conditions for value addition and connecting smallholder to markets
- A more embracing and enabling policy environment for irrigation, conservation agriculture and use of inputs that improve crop production.

"Overall we think that the Uganda Agricultural Policy framework provide a strong basis for improving smallholder productivity and profitability in the country. There are however problems such as, lack of efficient policy implementation mechanisms, inadequate funding for functional extension services and poor participation of women and youth in policy design and implementation"

– Frank Mugagga, Makerere University



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A mechanised farm in Uganda.

THEME 2

Multifunctional landscapes for increased food security

During 2017, researcher Lisa Westholm conducted a literature review on gender issues and food production in multifunctional landscapes. The review (in press) found that the specific role of a landscape's multifunctionality for vulnerable women's opportunities to enhance food security, is rarely explicitly examined in scientific literature. Moreover, the review shows that, in a multifunctional setting, the products controlled by women are often secondary and far from markets, and therefore they risk being ignored in decision-making or by policy-makers. Further, efforts to increase the value of traditionally "female products" risk having adverse effects on women's empowerment, in cases where powerful actors take over all or parts of the value chain or seize

the benefits. However, the instability of gender relations can also work in women's favour, providing opportunities to claim new roles or resources, especially in the context of changing circumstances, such as urbanization, a shift from pastoralism to sedentary livelihoods, or an expansion of the monetary economy.

Theme 2 also organized a writeshop in Addis Ababa in September 2017. Young researchers were brought together to co-author a catalogue of success stories from their existing research, highlighting where different types of multifunctional land-use systems have proven to be a success in relation to food security. Six participants from Nigeria, Ethiopia, Burkina Faso and Kenya were selected and invited to spend a week developing the basis for a publication to be called "Success stories of research on food security from the region" (see box). During the writeshop, the researchers worked on their manuscripts, that will constitute individual chapters of the publication. The final outcome will be published after a second workshop with the participants, organized in 2018. The writeshop also resulted in a knowledge exchange.

Success stories for the catalogue:

- Maize-based systems of Nigeria: An undervalued landscape for national food security. (Julius B Adewopo)
- Shea tree management and women empowerment in Sudanian zone of Burkina Faso. (Josias Sanou)
- The role of integrated watershed management: the Tigray experience. (Kassa Tekla)
- Home gardening potentials in promoting food security in peri-urban areas of southern Nigeria. (Anthony Onoja)
- Adoption of climate smart agricultural practices of the Benuere region of Nigeria. (Simon Shomkegh)
- Success story of multifunctional landscapes of the Musuu farm, a case of fish farming, Kitui county, Kenya. (Geraldine Matolla)



Young woman processing shea nuts



THEME 3

Increased productivity and diversity in smallholder cropping systems for increased food security

HANS, PIXABAY, CCO

Theme 3 researcher Sara Namirembe and colleagues have carried out the study “Improving agricultural productivity and mitigating climate change by building up carbon stocks in soils of East Africa”. The study argues that soil organic carbon (SOC) is crucial for soil health, fertility and thus the provision of ecosystem services, including food production. Since SOC is also good for sequestering carbon it also plays a role in combatting climate change. In a review of scientific literature, Sara found that there is scientific evidence that topsoil carbon stocks in East African croplands can increase in the short-term by adopting appropriate management practices, such as returning crop residues to the soil. But, the evidence base is quite thin.

“...there is very little quantitative knowledge on how soil carbon levels in East African croplands are affected by various management practices in the longer run. These knowledge gaps are a consequence of too few studies, but also due to that changes are hard to trace, as soils are dynamic systems, where it can take decades after a management intervention until changes become apparent, and even longer until a new equilibrium is reached”, says lead author of the study Sara Namirembe.

To be able to understand in which direction carbon stocks are moving in East Africa, it is necessary to observe SOC changes over longer times both in croplands and in grasslands. But, such long-term studies in East Africa are rare. “*Grasslands of East Africa are a big unknown altogether. We do not know whether these lands currently sequester or loose carbon, as long-term studies are lacking. Further systematic field surveys are needed to address the issue, in combination with studies that quantify the potentials to increase sequestering of carbon in grassland after adoption of improved management practices*”, says Bezaye Tessema, one of the study’s co-authors. A brief based on the study will be published soon.

Sigrun Dahlin, SLU Sweden and Leonard Rusinamhodzi, CIMMYT, Kenya have reviewed the relation between yield effects and labour demand

for a range of proposed practices for sustainable intensification of crop production on smallholder farms in the study “Does labour invested in sustainable intensification practices give sufficient yield returns?”. African smallholder farmers face many barriers to increased crop productivity, one being labour shortages during key periods that strongly influence yields. For example, insufficient labour often leads to late planting and a mismatch with the growing season, and poor weed control leading to low yields. The need to increase smallholder crop productivity has produced a range of options for sustainable intensification. However, uptake of these practices has often been poor and the practices have been abandoned once external incentives have ceased. One key reason for this could be labour limitations on the farms and/or low labour productivity which often can lessen suitability and effectiveness of new practices and explain their low adoption rate.

“*Technologies for sustainable intensification can increase labour productivity if farmers are able to invest in mechanisation and/or herbicide use to reduce labour input and conserve soil moisture but should be combined with improved crop varieties, nutrient inputs and pest control*”, says Sigrun Dahlin. Sustainable intensification of crop production hinges on more efficient use of resources including farm labour. Availability to draught power (e.g. animals or tractors) and tools for mechanisation need to increase through tool development and supply chains targeted for smallholders. Herbicides, whilst efficient in reducing labour demand, carry alternative costs in terms of expenditures, environmental and health effects. Extension support to lessen the latter through appropriate handling and use is vital. A peer-reviewed paper on this is in press.

“These different technologies or practices need to be tailored to the agroecological and socioeconomic contexts, and extension systems should move away from blanket recommendations. The same solution will not work for all locations, and farmers have different production goals and assets. Hence, solutions should be evaluated and developed locally”, says Leonard Rusinamhodzi, CIMMYT.

THEME 4

Livestock-keeping among smallholders for a nutritious diet and increased food security

A week long course was organized at SLU, engaging 20 experts in animal production, ranging from insect farming to aquaculture. The participants came from 13 different countries in SSA and Southeast Asia and were handpicked from the network of the programme due to their interest in policy and practice engagement. Participants were trained in systematic reviews, meta-analysis and how to transform research into practice, and how they can, as researchers, influence change processes in society.

looking at the assumptions we make in the change processes step by step, that way I became more aware of them. I also realised it requires many brains together to realise who and what you wish to change, you can't sit and do these reflections on your own".

In theme 4, a research team has conducted a study "Livestock systems in urbanizing environments: A review and synthesis of livestock systems under land use dynamics in developing countries". The study examines interactions among livestock production, economic development and food security in urbanizing environments in developing countries.

The study "Livestock systems in urbanizing environments" concludes that many of the challenges facing the global food production and consumption lies in how livestock sectors are managed. Urbanization will have considerable impacts on developing countries' livestock production systems, influenced by both supply-side shifts in natural resources use as well as market-led demand changes.

Over the coming decades, urbanization will be a defining trend in many developing countries, posing unprecedented challenges related to hunger, food insecurity, and malnutrition. In recognition of livestock's significant contributions to livelihoods and poverty reduction, there is a growing body of literature suggesting that livestock sectors will inevitably play an instrumental role in achieving the SDGs (particularly SDG1 and SDG2), and attaining food and nutritional security in developing countries.

The results of the project will soon be published in the form of a peer-reviewed journal article. Moreover, a workshop, "Livestock systems in urbanized environments: implications for food security", will be organized in September 2018 to validate and disseminate the review results to a larger audience of researchers and stakeholders.



Livestock in Nairobi's informal settlements.

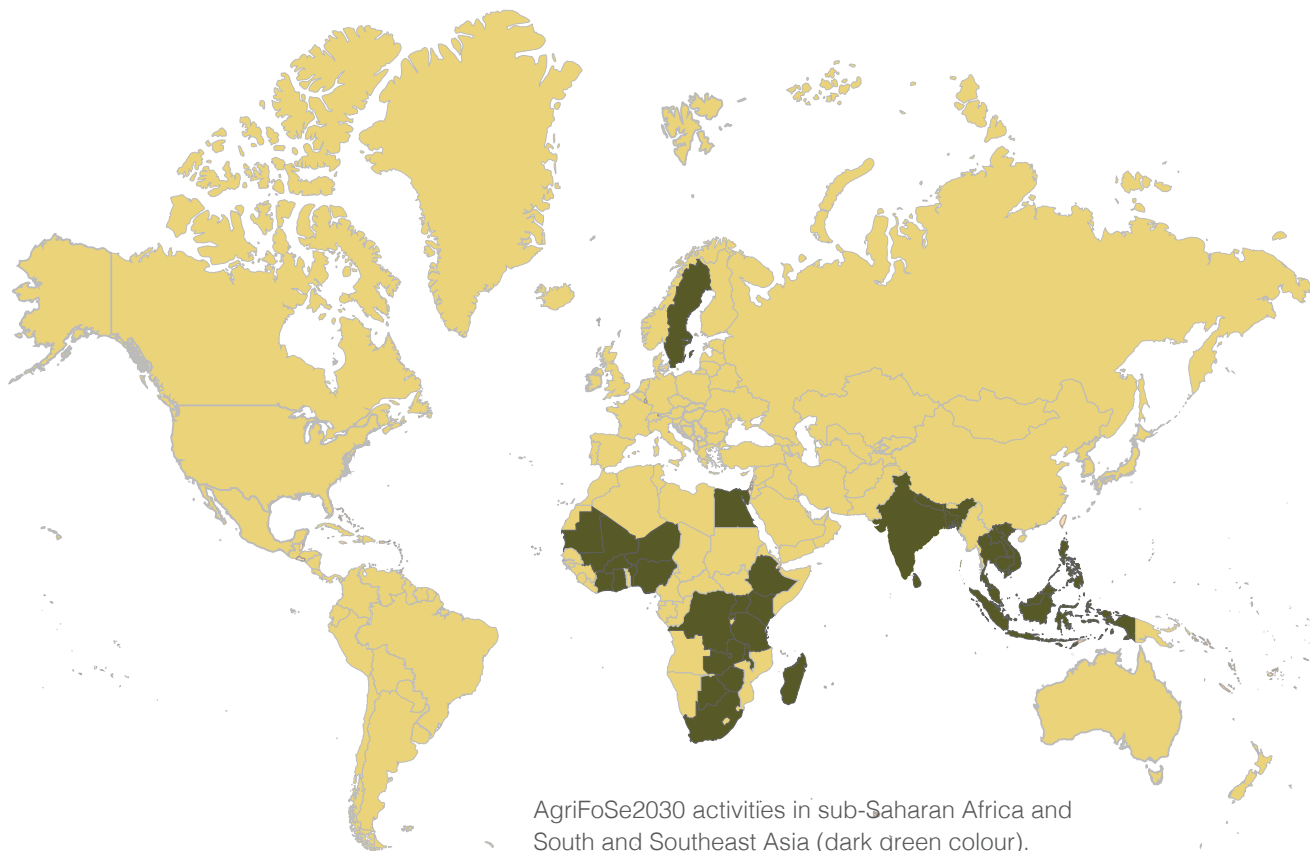
"This training is one of many steps of AgriFoSe2030 in achieving its ultimate goal: to secure and increase a sustainable food production for an increasing global population. I'm very happy we have that many participants from such diverse regions and countries," says Sofia Boqvist, one of the course coordinators. A course participant expressed: *"I really appreciated*

During 2017 the AgriFoSe2030 programme has:

- Conducted 28 research exchanges (to and from Sweden)
- Organized 3 workshops and writeshops
- Organized 5 courses and webinars
- Produced 7 knowledge syntheses, reviews and reports
- Produced 4 peer reviewed journal papers
- Produced 3 AgriFoSe2030 briefs



FELIX BROENMANN, PIXABAY.COM



AgriFoSe2030 activities in sub-Saharan Africa and South and Southeast Asia (dark green colour).

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