



Strengthening Ugandan Food and Nutrition Security in policy and practice – Scaling innovations from food and agricultural research

Showcasing project results of the Applied Research Fund

Uganda Country Workshop, 18-20 June 2019



Workshop report prepared by



Strategic Advisory
& Research
Consulting Limited

Executive summary

A three-day workshop ***‘Strengthening Ugandan Food and Nutrition Security in policy and practice – Scaling innovations from food and agricultural research’*** was organised from 18-20 June 2019 by NWO-WOTRO Science for Global Development, Netherlands, the Food & Business Knowledge Platform (F&BKP) Netherlands and AgriProFocus (APF) Uganda. The aim of the workshop was to take stock of the insights and outcomes of the Applied Research Fund (ARF) projects in Uganda and to explore with a wide range of stakeholders how the uptake and scaling of the resulting innovations could be ensured. Over the course of three days, the workshop was attended by more than 70 participants drawn from research and academia, government, private sector and civil society organisations to jointly reflect, learn and discuss the uptake of research results related to food and nutrition security in Uganda. The workshop placed particular emphasis on the issue of scaling, and sustainability of research results. Thus, the key lessons from the workshop relate to the themes of scaling and sustainability of agricultural innovations for food and nutrition security. The workshop was structured into thematic activities and included a project day, public dialogue and field visit.

Outcomes from eight research projects were presented and discussed. The findings showed that all projects had achieved significant outcomes and exhibited potentially life changing impacts for the end users. Almost all the ARF projects have now been concluded or are nearing completion. The question, therefore of how to scale research results from these projects was central to the workshop.

Scaling, it was observed, is not simply about reaching more people with an innovation but providing an enabling policy environment and ensuring there is effective change for and among people. Scaling the innovations of agricultural research requires the concerted efforts of numerous and diverse stakeholders. Governments alone, without the involvement of the private sector, farmer organisations, non-profit organisations etc. cannot achieve the scaling of research results and thus public-private partnerships offer a more promising approach to achieving scale. Despite the enormous potential of agricultural in Uganda, lack of coordination, collaboration and the building of strategic partnerships, these stakeholders have not been able to effectively come together and create an environment for scaling - i.e. reaching more people, providing a conducive policy environment and changing attitudes and mindsets. In order to achieve scale, there is a need to build the capacity of multiple stakeholders involved directly or indirectly in the agricultural sector.

In the past, this lack of collaboration among multiple stakeholders and effective public-private partnerships have contributed to poor policy formulation and implementation. There is need to develop business cases on scaling, showcase good practices on scaling and particularly to explore how government efforts towards food and nutrition security in Uganda can be supported through research, private sector engagement and not for profit interventions. A multi-stakeholder engagement and approach offers the opportunity to tap into diverse expertise and experience to help achieve food and nutrition security for all. Increased efforts, therefore, need to be directed at creating spaces for networking, collaboration, dialogue, knowledge exchange and the creation of strategic partnerships.

At an institutional level, political will is fundamental to the creation of an enabling environment to promote the development of efficient agricultural value chains that benefit all actors. Equally, at the institutional level, issues of norms, values, beliefs and cultural practices all influence the uptake of research results and need to be effectively addressed. Factors such as gender roles, for instance, may be central to agricultural production and productivity. Thus, empowering both men and women with the

necessary skills and resources to enable them to realise their full production potential lies at the heart of scaling innovations. In terms of human and social capital, it was recognised that there is a need to train, educate, and empower both men and women. The increased use of Information Communication Technologies (ICT), which is in itself innovative, was seen as crucial in bringing on board the younger generation.

The question of sustainability is also not an issue for governments or donors alone. Sustainability must be based on addressing the interest and creating commitment of the different stakeholders in a process or co-creation of value. Thus, every stakeholder in the change process has a role to play with regard to achieving sustainability.

The workshop brought to light the importance of the context of research, how to better relate research to wider societal issues and to the need to be reflexive of the change process. Research, it was felt, needs to start with the end user in mind, involving them in the development of the research agenda and continuous research process. To be relevant, research results must lead to increased production, more employment and income opportunities as well as trade and overall economic growth. Researchers need to identify innovations, for instance drought resilient crops, higher yields, or nutritional benefit, among other attributes, to drive adoption. Food and nutrition security will not be easy to achieve. Policies need to promote private sector interests and ensure benefits for farmer whilst also taking into account the needs of the consumers. The promotion of continuous interaction among all relevant stakeholders through the creation of open space for dialogue and reflection is called for to find joint solutions to common constraints and challenges and scale innovations.

At this point in time, the workshop did not intend to identify solutions to outstanding issues related to food and nutrition security, but rather initiate discussion and engagement on how the agricultural sector in Uganda can bring to scale nutrition and agricultural innovations for the benefit of all. This workshop thus marked the first step to ensure ongoing discussion and collaboration between various stakeholders, create alliances between projects and forge new partnerships contributing to the realisation of food and nutrition security in Uganda.

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List of abbreviations

APF	AgriProFocus
ARF	Applied Research Fund
BAIDA	Bugiri Agribusiness Institutions Development Association
CSO	Civil Society Organisation
EAFF	East African Farmers Federation
F & BR	Food & Business Research
F&BKP	Food & Business Knowledge Platform
FNU	Farmers Network Uganda
FRG	Farmers' Research Group
GALS	Gender Action Learning Systems
ICRA	International Centre for development oriented Research in Agriculture
ICT	Information Communication Technology
MAAIF	Ministry of Agriculture Animal Industry and Fisheries
Mak	Makerere
MAK-FTBIC	Makerere Food Technology Business Incubation Center
MoU	Memorandum of Understanding
MUBS	Makerere University Business School
NAADS	National Agricultural Advisory Services
NARO	National Agricultural Research Organisation
NDP	National Development Programme
NECPA	National Early Childhood Program Accreditation
NGO	Non-Governmental Organisation
NWO	Dutch Research Council
PS	Private Sector
UCCU	Uganda Crane Creameries Cooperative Union
UIRI	Uganda Industrial Research Institute
UNBS	Uganda National Bureau of Standards
USPPA	Uganda Seed Potato Producers Association
VAI	Value Addition Institute

1. Introduction and background

1.1 Applied Research Fund (ARF)

The Applied Research Fund (ARF) is one of two funding instruments that are part of the Food & Business Research (F&BR) programme, supported by the Dutch Ministry of Foreign Affairs. ARF research is driven by the knowledge demands of local practitioner organisations (private companies, NGOs and governmental organisations) and is executed by these same practitioners, together with one or more research organisations. ARF is implemented and managed by NWO-WOTRO Science for Global Development, which is part of the Dutch Research Council (NWO). Currently, there are 10 ARF projects in Uganda, most of which have either been completed or are nearing completion.

ARF projects in Uganda

1. Cashew nut for income security for rural poor farmers in Northern Uganda
2. Farmer-led soil innovations to sustain food production
3. Macro-nutrient fortification of first-line food cereals with milk protein to produce affordable value added cereal products in Uganda
4. Stabilizing sesame yields and production in the Lango region, Northern Uganda
5. Strengthening agribusiness Ethics, Quality Standards & ICT usage in Uganda's value chains? (AGRI-QUEST)
6. Cassava applied research for food security in Northern Uganda
7. Enhancing rice markets in Uganda through smart micronutrient fertilisation (ENRICH)
8. Improved resilience through sustainable production of grafted tomatoes in Uganda (IRESO)
9. Enhancing Rice-Greengram productivity in Northern Uganda (ERIGNU)
10. Commercial seed systems for African Indigenous Vegetables in Uganda

1.2 Objectives and set up of the workshop

Objectives

1. To take stock of the insights and outcomes and to jointly reflect, learn and work on further uptake of results.
2. To enhance outcomes and potential impact of the ARF Uganda projects in policy and practice and facilitate further uptake of knowledge.
3. To build on lessons from previous ARF Uganda workshop.
4. To share lessons learned and best practices for change and scaling.
5. To reflect, look forward and jointly explore what is needed to make research results sustainable.
6. To provide a platform for showcasing ARF project insights and outcomes and discuss specific themes with a broad group of external stakeholders from policy and practice in order to facilitate scaling.

Workshop set up

The three-days' workshop was arranged into a project day, public dialogue and field visit. During the project day, representatives of eight Ugandan ARF projects briefed each other on research outcomes of their respective projects, through presentations of each research project followed by a short Q&A session afterwards. After the presentation of the projects, participants formed three groups, each to focus on one of the following topics: assumptions, partnerships and scaling. The participants rotated between the three thematic groups and thus had the opportunity to contribute to the discussion on each topic. Through this 'world café' exercise, topics for the were identified for the public dialogue day. The public dialogue day was organised to showcase and discuss ARF project insights and outcomes with external stakeholders

from policy and practice in order to explore opportunities for scaling. The topics were discussed in an 'Open Space' session where four different groups discussed the selected topics, with the freedom to move from group to group. Thereafter, a panel of representatives from research, government and civil society shared their views on questions that were formulated by the group moderators on the basis of the Open Space session. The public dialogue ended with a business network cocktail. The third and last day of the workshop was a field visit for the research consortia to a factory of the Value Addition Institute, Makerere Bakery and Makerere Incubation Centre.

Participants

The project day and field visit were organised exclusively for the research consortia of the eight Ugandan ARF research projects. The public dialogue was attended by more than 70 participants, representing academia, research, government, the private sector, NGOs and civil society organisations.

	Male	Female	Total
Day 1: Project day	23	15	38
Day 2: Public dialogue	47	25	72
Day 3: Field visit	20	10	30

Organisers

The workshop was organised by a team composed of NWO-WOTRO, Food & Business Knowledge Platform, and AgriProFocus Uganda. The particulars of the organisers are provided in Annex 1.



Photo 1: Workshop organisers

2. Project day (Day 1 – 18 June)

Learning and sharing of challenges and good practices between the ARF Uganda projects

2.1 Opening remarks

The workshop opened with a welcome and introductions from; Dr Julia Ekong¹; Dr Cora Govers², Lucy Asiimwe³; and Malou van Meijl⁴. Julia facilitated the workshop, moderating the presentations, discussions and all plenary sessions of the project day and public dialogue.



Photo 2: Participants during the warm up activity where they got to know each other

2.2 ARF project pitches: Outcomes and follow up

The research consortia leaders and other team members presented their research outcomes in four-minute pitches. The goal for this session was to share lessons learned among the projects with a focus on output and outcome. The summaries and presentation slides of the pitches are presented in Annex 2. Thereafter, a discussion followed on common themes across the projects:

Life after ARF funding

The project consortia revealed concerns about the sustainability of their projects after ARF funding ceased. Various projects responded to the concerns with emphasis on use of locally available materials in cases of value addition, and proper post-harvest handling to reduce food contamination through aflatoxins. In some cases, farmers have been linked to ready markets in order to contribute to project sustainability.

The funding of ARF project on cashew nuts has already come to an end. The project team has set up a business cases and started collaborating with the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) to promote the growing of cashew nut. This has resulted in a proposal for cashew nut development by MAAIF and budget allocation, initially targeting the cattle corridor. 25 demo gardens and seed multiplication centres are already in place for purposes of sustainability. This shows that there is need for a co-funding approach to enhance sustainability of the ARF projects. Another way to ensure

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² Senior Programme Coordinator (NWO-WOTRO)

³ Country Coordinator, AgriProFocus

⁴ Knowledge Broker at Food and Business Knowledge Platform

sustainability of the projects could be to work with farmer groups to access finance or credit instead of working with individual farmers.

Use of ICT

Most projects included youth, especially with respect to job creation. It was found that it is important to use ICT for better outcomes to attract youth involvement. In almost all the project pitches, the use of ICT was not prominent due to the assumption that most farmers are not ICT compliant. *“Scientists have a weakness of communicating their innovations, results and services. Targeting the youths through social media is obviously a potential breakthrough for scaling.”*

Smallholder food processor certification and requirements

It was revealed that the biggest challenge in the development domain was actually knowledge gaps. One area in particular where farmers lack knowledge is the stringent and restrictive procedures that smallholder processors undergo before they are certified to process and add value to food. It is not just the financial cost of this certification process that is restrictive, the small scale processors are not aware of the standards and regulations required to be certified. Small scale processors were advised to start by consulting the Uganda National Bureau of Standards (UNBS)⁵. *“Because processing and packaging food is a sensitive health issue, it is always going to be a restrictive process certifying food processors!”* Participants called upon UNBS to play a facilitating for processors rather than policing role to enable small scale processors obtain certification.

2.3 Scaling innovations for food and nutrition security

The afternoon session focused on ‘Scaling Innovations for food and nutrition security’. Three topics were introduced to be discussed in a World Café session: assumptions, partnerships, and scaling.

Assumptions

Theories of change and impact pathways are often used to analyse/guide the path towards change. It is crucial to make underlying assumptions of the change process explicit. For example, in food and business research, an underlying, simplistic assumption is often that higher yields will increase farmer incomes, leading to better food and nutrition security. It is important to be aware of the many other factors that may influence incomes or food and nutrition security.

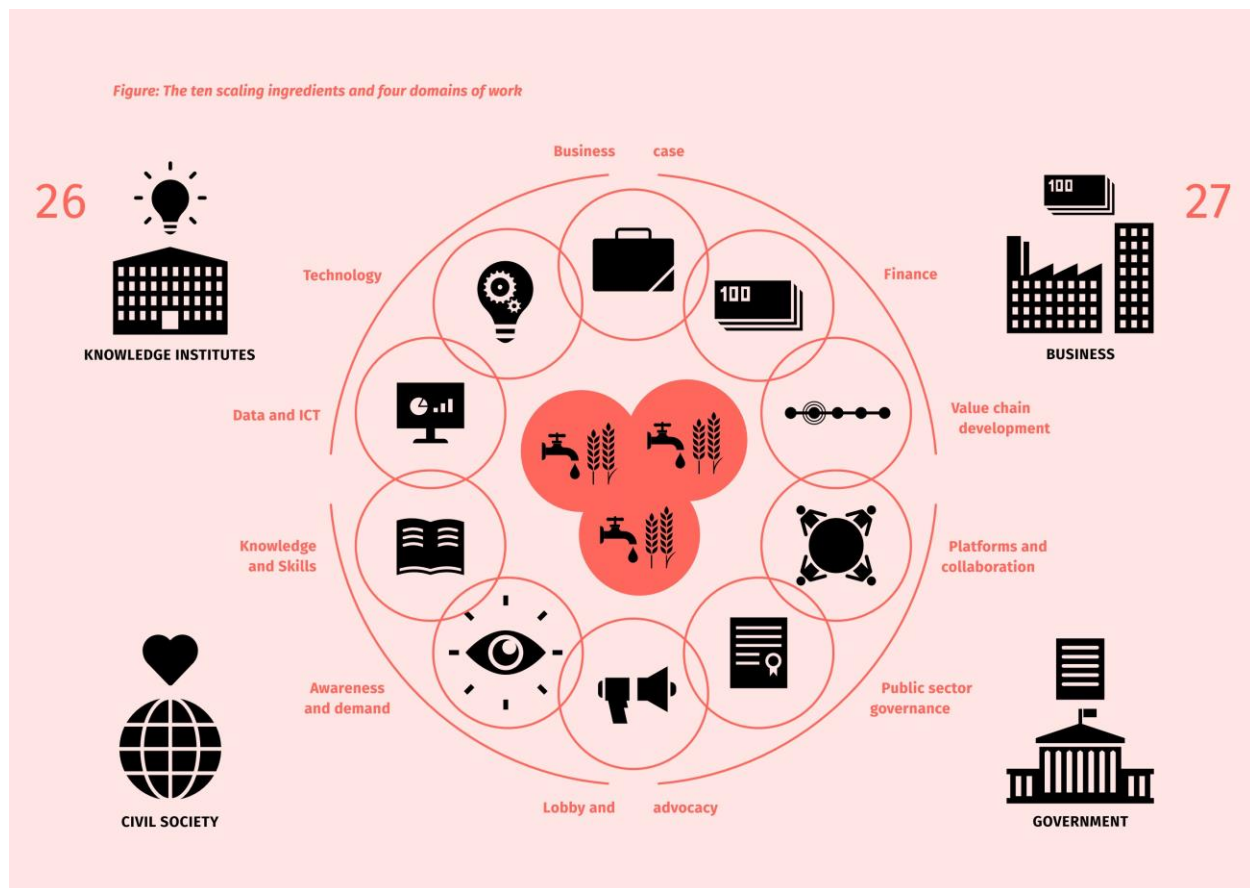
Partnerships

Knowledge co-creation in ARF is defined as a form of cooperation in research where different parties (researchers and stakeholders) in the knowledge process (demand and supply) interact and engage in joint learning to define problems, formulate possible solutions, design the research, conduct the research, assess the results and to translate these into new practices and products. Various kinds of knowledge, traditions and backgrounds are applied through the collaboration of different consortium partners from: research, the private sector (profit and not-for-profit), and the public sector. Co-creation is ensured in ARF by several conditions such as the fact that a practitioner in the lead of a transdisciplinary team and stakeholders are involved from the start.

⁵ The role of UNBS is the formulation and promotion of the use of standards in protection of the public health and safety and the environment against dangerous counterfeit and substandard products.

Scaling

Scaling is a process whereby an innovation may bring three types of benefits: 1) reaching more people, 2) a greater efficiency per person/product, 3) system change and sustainability. Three main types of scaling were distinguished. *Scaling up* involves changing institutions and aims at impacting laws and policy. *Scaling out* concerns the replication of an innovation, impacting greater numbers or different geographical scope. *Scaling deep* aims to impact cultural roots. The goal of scaling deep is to change values and relationships that might hinder the use of certain innovations. Ingredients of successful as identified by the PPPLab scaling are making a business case, finance, efficient and functional value chains. Other ingredients are existence of platforms and collaborations, public sector governance, knowledge and skills. The most important, but often missing ingredient, is 'trust'.



Source: PPPLab Food and Water 2017, Insights Series 06 Scaling through PPPs

World Café session

The introductions to the three topics were followed by a World Café in which the participants discussed a key question related to each of the three topics. Each of the topics was dealt with at a dedicated table and participants rotated to each of the tables in turn to ensure everyone could contribute to each of the topics.

Assumptions: What are key (and new) assumptions on how the research process can lead to food and nutrition security?

- Partnerships:** How do we successfully build on the diverse perspectives and interests of members in a partnership?
- Scaling:** What needs to be put in place (policy and practice) to achieve scaling of food and agricultural research?

The three questions above sought to answer the main question: *What is needed to navigate the complexity in bringing the results of agricultural research to scale?* The results of these discussions are summarised in the paragraphs below.

Assumptions

What are key (and new) assumptions on how the research process can lead to food and nutrition security? Three main assumptions came out of the discussion that followed this question. The participants discussed these assumptions and discussed if they were true or if we should think differently about these subject if we would like to be able to navigate the complexity in bringing the results of agricultural research to scale.

1. If more people are involved in food and agricultural research, the research will have more impact on food and nutrition security. This assumption, the idea that more people create more impact and a better chance of sustainability, might be false. It could be that through reaching one key person (a champion of change) you might be able to achieve more impact and the innovation might be more sustainable.
2. Knowledge from food and agricultural research is received and used by the farmers who need this knowledge. It is important to bridge the gap between research and (the education of) farmers.
3. Increased productivity of farmers leads to increased household food and nutrition security. However, this heavily depends on other important factors such as the social, political, economic, cultural and religious environment.



Photo 3: World café session

Partnerships

How do we successfully build on the diverse perspectives and interests of members in a partnership? Communication, transparency and accountability, as well as exchange and learning, form the basis of a successful partnership between stakeholders with diverse interests. But the most important element is trust. Trust in the fact that the individual members will use their strengths and use the strengths of their partners to compensate for their own weaknesses.

While trying to build successful partnerships, a number of items were highlighted as essential:

- Gender lens; need to be gender sensitive and ensure no one is left behind
- Enhance what the partnership can do; co-creation
- Documentation; property rights, this is crucial for successful partnerships
- Communication; getting rid of communication barriers
- Participatory implementation
- Private sector engagement
- Demonstrate with evidence
- Co-creation
- Strategic partnerships
- Building on the successes and strengths of individuals or networks
- Strong and reliable feedback mechanism
- Transparency and accountability

Scaling

What needs to be put in place (policy and practice) to achieve scaling of food and agricultural research? It was agreed that what needs to be put in place (policy and practice) to achieve scaling of food and agriculture research revolves around efforts to:

1. Create an enabling policy environment (e.g. subsidies, infrastructure, tax reduction). This should be done by:
 - Focussing on the implementation and dissemination of policy, by applying a multi-stakeholder approach
 - Make sure the policies are clear: they should be translated and broken down in usable parts
 - Engage the local government: local policies can be used to accelerate the process
 - Create platforms to connect suppliers with the right markets
2. Build on human and social capital
 - Make FNS part of the educational curriculum
 - Empowerment of women
 - Actively include farmers from the beginning of a programme and train them so they become knowledgeable
3. Ensure inclusive financing.
 - For farmers to gain better access to finance, they could set up cooperatives or farmer groups to get access to funding. Further, ways for farmer (groups) to access finance could be through starting crowdfunding initiatives or micro-financing.
4. Involvement of the private sector, because use of a market led approach is a game changer.

Setting the stage for day two

After the World Café session, the preparation started for the Open Space session during the multi-stakeholder dialogue on day 2 of the workshop. The participants derived four themes from the World Café discussion: gender, inclusive value chains, nutrition sensitive scaling and climate smart scaling. The group members discussed the themes at length with the intention of coming up with provocative statements that would enlist further debate from the public on day two.

3. Public dialogue (Day 2 – 19 June)

Strengthening Ugandan Food and Nutrition Security in policy and practice - Scaling innovations from food and agriculture research

3.1 Introduction by the organising institutions

The multi-stakeholder dialogue was opened by Cora Govers, who welcomed everybody and introduced NWO-WOTRO Science for Global Development (one of the three organising institutions). Malou van Meijl and Lucy Asimwe respectively introduced the Food and Business Knowledge Platform and AgriProFocus Uganda. These introductions were concluded by the moderator of the workshop, Julia Ekong, who gave a presentation on the concept of scaling. More on scaling in section 2.4 above.

Three representatives gave a presentation on their view on scaling innovations from food and agriculture research in Uganda.

Presentation NARO

In his presentation, Dr. Hillary Agaba (Director of Research at NARO/NaFORRI) introduced NARO, the apex body for guidance and coordination of all agricultural research activities in the national agricultural research system in Uganda. According to him, the main constraints of scaling agricultural research innovations in Uganda, include:

- Challenge of food distribution in the face of poor infrastructure and the high cost of transportation.
- Affordability of food; high prices and general low income levels.
- Challenge of understanding and meeting demand for food.
- Perceptions and attitudes to innovations; some beneficiaries are resistant to adoption.
- Limited awareness among stakeholders.
- Policy implementation challenges.

Presentation Private Sector Foundation (PSF)

The representative of the PSF Uganda, Eric Sempambo (Senior Private sector Development Officer (Agric & Financial services)) acknowledged the need for scaling, and discussed the fact that numerous opportunities for private sector investment have been derailed by a number of policy constraints. To overcome the constraints and facilitate scaling with private investments, a framework should be established to coordinate duties. Besides, by digitisation of processes, youth should be attracted.

Remarks by Commissioner Policy Development & Capacity Building

Dr. Muhammad Abubaker Moki (Commissioner Policy Development & Capacity Building, Cabinet Secretariat, Office of the President) informed the participants that the secretariat has supported the development of several policies that can enable Uganda achieve food and nutrition security. He stated they are open to new ideas and innovations to keep improving. The main challenge remains “scaling deep” which involves changing peoples’ mind-set. *“For scaling up we have frameworks, we keep improving. But the problems are in scaling deep; changing people’s mind-set, to put frameworks into action. The hits are not making sense to people.”*

Comments and talking points

Following the presentations from three representatives from government, research & academia and the private sector, the floor was opened for questions and comments. Participants in the room commented that the government should look into policies that encourage efficiency in production and productivity. For instance, land consolidation is the way to go but this needs to be accompanied by reduction in transaction costs. However, even when designing new policies, poor policy implementation is still clearly a challenge to food and nutrition security in Uganda. In spite of the laws protecting the environment in the country, enforcement remains poor. What are the real barriers to implementation? Could this be related to lack of political will and manpower? The government representatives however stated that not everything can be done by the government. “Everyone works in silos and expects the government to do everything; this mentality is a big problem for implementation. Everyone should work together in partnerships, also for the implementation on policies we have to work together.” Another discussion point was the fact that even though very good research has been done in Uganda, this all is shelved and now gathering in dust. It is therefore of importance to engage the private sector as off takers of what has been developed.

3.2 ARF project pitches

The research consortia presented key insights and outcomes from their ARF projects in Uganda. These presentations highlighted the main objectives, approaches and methods, as well as outcomes from implemented projects.



Photo 4: Project pitch presenters

3.3 Open Space session

With many interrelated issues around scaling, there was need to tease out the broader issue of how to scale. In an 'Open Space' session, four groups each discussed one topic related to scaling: The sessions were headed by members of the ARF research consortia, who started the discussion with a provocative statement related to the issue.

1. Gender in agricultural value chains: a missing link.

Statement: *“The Food and Agriculture sector is failing because it is dominated by women who are disempowered by society.”*

2. Climate-smart up-scaling

Statement: *"Climate change is real and will affect food and nutrition security, and thus, livelihoods in Uganda. Climate smart agriculture is a topical issue. Yet, feeding Ugandans needs scaling up agricultural innovation. What's your take?"*

3. If it won't be traded, don't bother!

Statement: *"Why hasn't all the agricultural research led to thriving sustainable business?"*

4. Scaling nutrition sensitive agriculture

Statement: *"When you go in the garden to produce, grow, harvest, process or add value, do you think what you have done will improve someone's health, animal health or nothing?"*

After the open space discussions, a plenary session followed to present the main talking points related to the corresponding theme 'what needs to be done to ensure sustainable scaling of research innovations'. These talking points are summarised below.

Gender in agricultural value chains: a missing link.

Women play an important role in production of food. However, they have limited access to productive resources, and they feel and have been disempowered. Some questions discussed during the session were: Are institutions streamlined to facilitate gender inclusiveness in agricultural value chains? What should be done to achieve gender inclusiveness in Agricultural Value Chains?

According to the group, the main issue of empowering women is their lack of both 'hardware' (assets and equipment) and 'software' (information, knowledge and training) resources which disempowers women. The group concluded that it is therefore important to empower both men and women, with both hardware and software resources. Organisations should streamline gender sensitivity in their programme and solutions should be created to change the cultural beliefs and norms.



Climate-smart up-scaling

Feeding Ugandans on nutritious food calls for the scaling of agricultural innovations. In addition, climate change is real and already affecting food and nutrition security and livelihoods in Uganda. Therefore, climate-smart agriculture is one way to go.

To start scaling food and nutrition security in a climate-smart way, focus should be on:

- Agricultural intensification through use of climate smart practices.
- Creating an environment for farmers to produce more by building farmer resilience to climate change.
- Exploring regional food redistribution, especially useful during extreme scenarios of bumper harvest and lean seasons.
- Examine and explore the use of organic and inorganic fertilizers to enhance crop productivity. However, what should be kept in mind is that when scaling up the use of fertilization, this also scales up the negative side effects of fertilizers
- Crowdfunding as a solution for the lack of finance. When farmers come together, put their resources together, raise money, and give it to a company, then in return that company manages the farm and increases productivity.
- Enforcing strong policies against land degradation.

- Striving to consolidate land and fight land fragmentation.
- Financing agriculture to levels recommended as a fraction of total national budget.

If it won't be traded, don't bother!

What challenges do researchers face? What challenges do farmers face? Researchers have to strike a balance between farmer demands and donor stipulations. In business, product development is a continuous process and for successful scaling out, the private sector must set aside a budget for continuous research and development. It is important that from the start to the end, research users remain part of the research process. Can we empower the private sector to actually carry out the research due to their more realistic connection with the farmers? Information and especially the flow and the nature of our agricultural sector is the main problem derailing uptake. Research is an expensive yet essential agenda, for thriving and sustainable agribusiness, what roles should the public and private sector play?

Agriculture research agenda needs to lead to growth: creation of jobs, food security and business opportunities. For that matter, three things need to happen:

- There is need to position the research agenda with the end user (the farmer), and processor, at the centre, to make sure it will be linked to trade.
- Identify an attribute of one of your outcomes which will drive the uptake of your results and do the marketing for your product. This attribute could be e.g. the yield or flavour of your product.
- Look at factors that could distract your research to lead to trade, and address them.

Scaling nutrition sensitive agriculture

There is a need for massive sensitisation, for example by churches, NGOs and media. Especially so called 'champions of change' have a role to play here and partnerships are crucial. How do we deal with the disconnect between indigenous and improved varieties? Nutrition is about 'seeing, feeling and tasting'.

With over 50% of under 5 year old children malnourished and over 40% of animal feed not having the required nutrients, nutrition sensitive scaling is no longer optional. For up scaling we need to understand the barriers; are they political, cultural or environmental?

- In any agricultural productivity (human or animal consumption, harvest etc.) you have to think if your work is adding to nutritional status/content.
- There is a tendency to grow crops and sell all the good harvest and keep the poor quality. This mentality has to change.
- Whoever is engaged in value addition should always ask himself whether it will add to human or animal health.

3.4 Panel discussion

The panel was composed of five discussants from government, research and academia, the private sector, and civil society representatives:

- Joseph Paul Ocatum, Ministry of Trade, Industry and Cooperatives
- Lucy Asiimwe, AgriProFocus
- Marilyne Kabalere, PELUM Uganda
- Paul Nampala, Makerere University
- Mwanga Julius, Kabalole Research and resource centre

The panellists discussed the different topics from the open space session: gender, climate-smart up-scaling, trade, and nutrition sensitive scaling. They also responded to a set of general questions arising from the discussions. As a final question, the panellists were asked what they could do in their capacity to make sure that agriculture research leads to economic growth and ultimately food and nutrition security?

The panellist came up with several matters. To start with, currently in Uganda, research for development is more research than development. Researchers need to shift their focus towards development. Further, research should become more demand driven. Farmer groups and stakeholders should be consulted at the start of research, so their needs are understood and results more useful. To do so, a space needs to be created for researchers to interact with farmers and policy makers. Another point mentioned was to gather more evidence on business cases, for the private sector to get interested. The private sector wants to see where cases have already worked before they step in. There is also a need to further encourage cooperation formation, for example by creating an enabling environment. For these farmer cooperation's it is also of importance to organise farmer clinics where farmers get knowledge e.g. on the technologies of the private sector, to demand for the right technologies and ask the right questions. Lastly, there needs to be worked on research uptake, which is often lacking because often funding is missing for this issue.



Photo 5: Panellists

4. Field visit (Day 3 – 20 June)

The third and last day a field visit was organised to the Value Addition Institute (VAI) in Kakiri Sub-county, Wakiso district, Makerere University Food Technology Incubation Centre (MAK-FTBIC), and Makerere University bakery.



Photo 6-7: Participants tour the Value Addition Institute, Kakiri, Wakiso

Francis Tucungwirwe, the Managing Director of the VAI introduced the work of VAI and explained how millet, maize and rice flour, are fortified with protein from milk. The end product can be used to make porridge for kids. VAI is a consortium partner of the ARF project 'Affordable protein fortified cereal products developed in Uganda (Afri-Taste)'. Currently, the process is still manual but the plan is to automate most of the processes. The institute has faced some challenges mainly concerning quality control. Tucungwirwe noted that working with farmers requires strong engagement and sensitisation to ensure quality control, especially foreign material in the grain. Another challenge are the power fluctuations in Uganda therefore they were exploring the use of solar energy soon for reliability and cost effectiveness of the process. Other challenges are related to taxation and the procurement of packaging materials.



Photo 8-9: Participants tour the Makerere University Bakery and Incubation Centre

Participants toured the Food Technology Business Incubation Centre of Makerere University for a practical experience on how business ideas are nurtured here and ably took the market by storm. The goal of the incubation centre is to have more graduates who are able to create employment rather than hit the street searching for jobs.



Photo 10-11: Participants inspecting the mini exhibition by student of the Makerere University

4.1 Final remarks by Cora Govers (NWO-WOTRO)

After a discussion with Dr Atukwase, Dean of the School of food technology, nutrition and bio-engineering, and Prof. William Kyamuhangire, Cora Govers gave the final remarks and thanked the participants for the input into the discussions during the three days. Many of the issues discussed related to scaling need further thought, but hopefully most of the projects will be able to use this experience and try to scale their innovations. She encouraged the participants to take on the projects further and keep NWO-WOTRO informed on progress. She emphasised that there are funding options in the Netherlands that could be explored including: The Netherlands Embassy in Kampala, the Netherlands Enterprise Agency.

5. Conclusions and follow up

This workshop was intended to share lessons learned among the projects, best practices for change and scaling, as well as reflect, look forward and jointly explore what is needed to make research results sustainable. The workshop was not seeking for solutions to existing constraints, but rather initiating a thought process within multiple diverse actors who have a stake in food and nutrition security in Uganda.

It is clear that scaling is an important segment in the research process and for sustainable impact of the project outcomes. Scaling takes the form of scaling up, scaling out and scaling deep. In order to scale innovations for food and nutrition security for smallholders, focus should be directed to scaling for gender inclusive innovations, climate smart agriculture, nutrition sensitive agriculture and innovations for agribusiness and trade. It will require a multi-stakeholder approach for sustainable scaling to be achieved. It is important to empower both men and women with hardware⁶ and software⁷ resources. Government should prioritise gender mainstreaming in agricultural value chains. In the face of climate change which is no longer just a threat but real, it is imperative that strong policies against land degradation are enforced. Creation of an enabling environment where farmers can produce more nutritious and quality food will ultimately lead to greater trade volumes and improved incomes from agriculture.

Poor policy implementation arising from poor coordination and lack of clear and strategic partnerships have all reinforced each other to the detriment of efforts to scale agricultural innovations. Strong public private partnerships coupled with strong ‘political will’ are critical if sustainable and successful scaling of agricultural innovation is to be realised.

Finally, the question of sustainability does not lie with donors and funders. It lies in how committed the different partners are in terms of value being created. The sustainability of this interaction is demonstrated in continued interest and commitment. Every stakeholder has a role to play with regard to sustainability.

⁶ These include capital and equipment

⁷ These include skills and knowledge

Annexes

Annex 1: List of organisers

Cora Govers	NWO-WOTRO, the Netherlands
Jelte Verberne	NWO-WOTRO, the Netherlands
Malou van Meijl	Food & Business Knowledge Platform, the Netherlands
Julia Ekong	iCRA
Lucy Asiimwe	AgriProFocus Uganda
Richard Mugisha	AgriProFocus Uganda
Marion Alyek	AgriProFocus Uganda
Gloria Kyomugisha	AgriProFocus Uganda

Annex 2: ARF project pitches

Development of a Gender Responsive Commercial Seed System for African Indigenous Vegetables in Uganda.

By Apolo Kasharu, CHAIN UG LTD

The aim of this project was to enhance the capacity of smallholder farmers in Uganda to produce and market AIV seeds profitably. Upgrading vegetable farmers from low return chain activities (vegetable production) to high return products (seeds) offers especially huge opportunities for women and youth. The consortium applied inclusive value chain analysis, participatory learning action, equity-focused research and creating positive deviance. They envision to increase participation in the AIV value chain, set up AIV seed systems and increase gender equity.

[Download the presentation](#)

Enhancing Rice-Green gram productivity in Northern Uganda (ERIGNU)

By Dr. Robert Amayo, NARO

The ERIGNU project aimed to eradicate existing hunger and malnutrition and promote inclusive and sustainable growth in the agricultural sector by introducing Green gram in rice cropping systems. Some important outcomes include: increased farmers' access to quality seeds of rice and green-gram, on-farm yields of rice increased through application of integrated soil fertility management options, farmers' access to agricultural information improved through establishment of ICT-enabled knowledge sharing framework, and women and youth group socio-economic decision making power was strengthened.

[Download the presentation](#)

Improved Resilience through Sustainable Production of Grafted Tomatoes in Uganda (IRESO) Project

By Julius Ssemyalo, Solidar

The project set out with the aim of improving income, nutrition, and resilience through the sustainable production of grafted tomatoes. The main objective was to assess the impact of Bacterial wilt in Tomato producing districts of Uganda. The project is excited about some outcomes; a business case exists to encourage plant host resistance as per the benchmarking. Twenty youth groups have been registered. Three groups have business plans and group bank accounts awaiting set up of nursery structures to start seedlings business. 4,000 farmers in the project area have been reached.

[Download the presentation](#)

Introduction of cashew nut for income security for poor farmers in Northern Uganda

By Acham Ketty Elungat, NECPA

The project was initiated with the goal to promote the introduction of cashew nuts for income security for the rural poor farmers in North and Eastern Uganda. The project has already increase in food production and income security at 5.000 farmers in Northern and Eastern Uganda, planting 300.000 trees, with an estimated total income of 1 million Euro per year. The project is now working on a business model for the sustainability of the project.

[Download the presentation](#)

Enhancing rice markets in Uganda through smart micronutrient fertilization (ENRICH)

By Dr Christian Dimkpa, IFDC

The project objective was to increase food, nutrition and income security of smallholder lowland rice farmers through evaluating and recommending best fertilizer (micro and macro [NPK] nutrients) options for optimising yield and produce nutritional quality. The project implementation approach involved field

experiments and on farm trials. The positive results already noted are; up to 275% rice yield gain reported by farmers upon using NPK with GAP. At least 57% of beneficiary farmers have adopted line transplanting (one GAP demonstrated in project) instead of random transplanting.

[Download the presentation](#)

Cassava applied research for food security in Northern Uganda

By Okao Okuja, NARO

This project aimed to improve food and income security in northern Uganda, targeting 2,500 beneficiaries in Oyam and Pader districts. Participatory variety selection (PVS), demonstration gardens, seed multiplication blocks, post-harvest handling and value addition as well as Gender Action Learning Systems (GALS) Approaches were used in implementing the project. 93.2% of 2,500 target beneficiaries have already been reached. Access to quality materials has also increased production/ productivity.

[Download the presentation](#)

Strengthening agribusiness ethics, quality standards and ICT usage in Uganda's Value chains (AGRI-QUEST)

By David Katamba, Makerere University Business School (MUBS)

The project aimed to initiate an agenda that can create a more ethical trading environment rooted in behavioural change of VC players since ethical conduct compliments formal laws to drive trade. As a result of the several outputs, the project has had a number of outcomes but most notable is value chain apex bodies, associations and cooperatives having had their capacity built and can help to promote agribusiness dialogue on ethical conduct and quality aspects between micro-players in the value chains.

[Download the presentation](#)

Macro-nutrient fortification of first-line food cereals with milk protein to produce affordable value added cereal products in Uganda.

By Dr. Gaston Ampe, Makerere University Food Technology Incubation Centre (MAK-FTBIC)

The objective of the project was to introduce high quality animal protein to cereal flours to improve amino acid balance and vegetables as sources of micronutrients. This is because in Africa, most efforts in cereal nutrient enrichment have been largely aimed at micronutrients and less on macronutrients. Macronutrient deficiency especially related to protein remains a challenge to millions in Africa. The innovation was enhancement of local cereal based flours with animal protein from cow milk while utilising locally available vegetables as sources of micronutrients.

[Download the presentation](#)

Annex 3: List of participants

Project day

FIRST NAME	LAST NAME	ORGANISATION
Solome	Namutebi	Makerere University
Apolo	Kasharu	CHAIN UG
Richard	Mugisha	AgriProFocus
Christopher	Kyeswa	AFRICA 2000 NETWORK UGANDA
Isaac	Elungat	Away for Africa
Emmanuel	Adira	House of Seed
Christian	Dimkpa	IFDC/AFRI
Danielle	De Winter	
Victoria	Kawuma	SARC
Patrick	Korugyendo	SARC
Pamela	Kabod	Uganda Christian University
Charity	Chelangat	OXFAM
Mercy	Apio .L.	WOUGNET
Hellen	Achan	NECPA
Lucy	A. Twinamasiko	AgriProFocus
Janet	Namuddu	Kibedi & Co
Malou	Van Meijl	Food & Business Knowledge Platform
Julia	Ekong	iCRA
Cora	Govers	NWO-WOTRO
Linda	Maat	Hanze
Africano	Kangire	NARO
Robert	Amayo	NARO
Israel	Kakye	Value Addition Institute
Gloria	Kyomugisha	AgriProFocus
Moses	Erongu .E.	MAAIF
Dr. David	Katamba	MUBS
Marion	Alyek	AgriProFocus
Jelte	Verberne	NWO-WOTRO
Anja de	Feijter	House of Seeds
Dr. Drake	Mirembe .P.	Makerere University
Okao	Okuja	NARO
Julius	Ssemyalo	Solidaridad
Thomas	Awio	AFRICA 2000 NETWORK UGANDA
Angella Lorna	Ajam	Windwood
Gaston	Tumuhimbise .A.	VAI/MUK
James	Ssemwanga	The Ssemwanga Centre
Gerald	Tumwine	VAI/MUK
Muzigo	Sselayi	SARC/Bundu

Public dialogue

FIRST NAME	LAST NAME	ORGANISATION
Richard	Mugisha	AgriProFocus
Julia	Ekong	iCRA
Emmanuel	Adira	House of Seed
Patrick	Korugyendo	SARC
Victoria	Kawuma	SARC
Muzigo	Sselayi	SARC
Marion	Alyek	AgriProFocus
Gloria	Kyomugisha	AgriProFocus
Angella Lorna	Ajam	Windwood
Joane	Ebbis	ICCO
Isaac	Elungat	Away 4 Africa
Danielle	De Winter	
Apolo	Kasharu	CHAIN UG
Cora	Govers	NWO-WOTRO
Okao	Okuja	NARO
Lilian	Apio	WOUNGWET
Robert	Amayo	NARO
Solome	Namutebi	Makerere University
Pamela	Kabod	UCU
AM	Moki	OP/CS
	Asiimwe	Farm solutions
Julius	Ssemyalo	Solidaridad
Malou	Van Meijl	Food & Business Knowledge Platform
Moses	Erong	MAAIF
Charity	Chelangat	OXFAM
Israel	Kakye	Value Addition Institute
Christian	Dimkpa	IFDC/AFRI
Rose	Nankya	NARO
Gaston	Tumuhimbise .A.	VAI/MUK
Marilyn	Kabalere	PELUM
Christopher	Kyeswa	AFRICA 2000 NETWORK UGANDA
Dr. Drake	Mirembe .P.	Makerere University
Thomas	Awio	Africa Innovations institute
Prossy	Renzaho	NARO
Anthony	Ocheng	Staircase
Gerald	Tumwine	VAI/MUK
Lucy	Asiimwe	APF
Allan	Asiimwe	HAMWE EAST AFRICA
George	Orema	SNV

Abdul	Jabber	IFDC
Arnout	Visser	WOODEDARD
Mwanga	Julius	Kabarole Research and Resource Center
Robert	Okello Omach	TRIAS E.A
Fredrick	Kagambe	Makerere University
Paul	Nampala	Makerere University
Joseph	Male	Avail group
David	Katamba	MUBS
Hillary	Agaba	NARO
Geofrey	Mugisha	New Vision
Africano	Kangire	NARO
James	Ssemwanga	The Ssemwanga Centre
Hadijah	Nantambi	World Vegetable center
Lomida	Ajedrou	Monitor
Dickson	Bilyomumaishon	TUNADO
Eric	Sempambo	PSFU
Joseph Paul	Ocatum	MTIC
Gerald	Kato	
Victoria	Nakyagaba	
Lawrence	Ssengendo	AAA
Linda	Maati	Hanze
Robinson	Odong	CAN-Y
Medard	Kacururu	NARO
Denies	Elungat	NECPA
Derick	Aliganyira	NSO
Jelte	Verberne	NWO-WOTRO
Anjande	Feijter	House of Seeds
Janet	Namuddu	
Angella.	Kawooya	GeNDER EXPART
Harriet	Ndagire	KULIKAUGANDA
Fiona	Natukunda	Monitor
Susan	Katuutu	Monitor
Mark	Matsiko	UIRI



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