



Catalogue of Innovations

Enhancing Smallholder Agriculture
and Food System Resilience

EAST AND SOUTHERN AFRICA



Investing in rural people

Originators:

International Fund for Agricultural Development
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Acronyms

CASP	conservation agriculture service provider
CBFI	community-based financial institution
COVID-19	Coronavirus disease 2019
EAFF	East African Farmers Federation
ESA	East and Southern Africa
FSP	financial service provider
GLTN	Global Land Tool Network
JVLUP	Joint Village Land-Use Planning
KCEP-CRAL	Kenya Cereal Enhancement Programme – Climate Resilient Agricultural Livelihoods Window
KM	knowledge management
LDSF	Land Degradation Surveillance Framework
LIMS	Laboratory Information Management System
MIVARF	Marketing Infrastructure, Value Addition and Rural Finance Support Programme
4Ps	public-private-producer partnerships
PRELNOR	Project for the restoration of livelihoods in the Northern Region
PROSPERER	Programme de Soutien aux Pôles de micro-entreprises Rurales et aux Economies Régionales
SAPP	Sustainable Agriculture Production Programme
SDCP	Smallholder Dairy Commercialization Programme
SRMP	Sustainable Rangeland Management Project
UTaNRMP	Upper Tana Natural Resources Management Project
VODP	Vegetable Oil Development Project
WAMPP	Wool and Mohair Promotion Project

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1. Introduction

1.1. Background

Sub-Saharan Africa has been facing unprecedented challenges that affect the sustainability of food and agriculture systems, putting food and nutrition security at significant risk. The region has experienced alarming levels of natural resources deterioration in addition to the impacts of climate change, such as frequent droughts and floods. The recent desert locust invasions in some of the East African countries will continue to exert pressure on food systems, threatening food security of more than two million households. The COVID-19 pandemic, which is currently raging across the world, is expected to have widespread impacts on overall global economic growth and disrupt food supply chains in several parts of the world. Border closures, quarantines and disruptions in input and output markets and trade will further restrict access to sufficient and nutritious sources of food for consumers. Already, global hunger and malnutrition are on the rise, with an estimated 821 million people experiencing chronic hunger.¹ The impacts of the COVID-19 pandemic in sub-Saharan Africa due to transport restrictions and quarantine measures are likely to impede the access of smallholder farmers

The food system challenges require simultaneous action across different sectors and concerted efforts of diverse players in food systems. While past efforts inclined towards boosting agricultural production, today's focus has shifted to influencing transformative changes to the entire food systems continuum, from production and processing to marketing and distribution, using innovative solutions.

¹ Food and Agriculture Organization of the United Nations, "The State of Food Security and Nutrition in the World" (2019), www.fao.org/state-of-food-security-nutrition.

to input and output markets, thereby decreasing their productive capacities. Shortages of labour are also likely, which could disrupt production and processing of food, most notably for labour-intensive crops. Closure of domestic and international transport routes, particularly for fresh food supply chains, may also result in increased levels of food loss and reduced farm incomes.

The food system challenges require simultaneous actions across different sectors and concerted efforts of diverse players in food systems. While past efforts inclined towards boosting agricultural production, today's focus has shifted towards influencing transformative changes to the entire food systems continuum – from production, to processing, marketing and distribution – using innovative solutions. In October 2019, the Sustainable Production Markets and Institutions (PMI) Division and the East and Southern Africa (ESA) Division of the International Fund for Agricultural Development (IFAD) organized the Knowledge Sharing and Learning Event in Nairobi, Kenya, for partners implementing IFAD-supported investment projects and grants across the ESA region. The event showcased several innovative interventions, approaches and tools that provide potential solutions to the challenges of smallholder farmers, resilience of food systems and inclusive transformation of poor rural people, particularly in the wake of the COVID-19 pandemic.

1.2. About the catalogue

Through its investment projects and grants across the regions, IFAD has generated numerous innovative technologies, approaches and tools that provide solutions that contribute to the achievement of food and nutrition security and are targeted to addressing the challenges of climate change, natural resource management, youth unemployment, rural markets, empowerment of rural

The innovations cover a wide range of topics: crop and livestock production, natural resource management, rural finance and markets, in conjunction with IFAD's mainstreaming themes, such as youth, gender and climate change.

women, among others, and thereby also contribute to the achievement of the Sustainable Development Goals (SDGs). A set of 23 innovations from more than 10 countries in the ESA region that were shared during the Nairobi event have been documented in this Catalogue of Innovations. The detailed innovation fact sheets are presented in section 3 of this catalogue, while table 1 gives a quick overview

of each innovation. The innovations cover a wide range of thematic topics: crop production, natural resource management, rural finance and markets, in addition to mainstreaming themes, such as youth and gender, climate change and livestock production systems, and food and nutrition. Innovations on **crop production** include modernizing agri-inputs distribution through an electronic voucher scheme for managing inputs and service subsidies, adoption of social media for effective programme delivery, and coordinating and supporting farmers through mobile plant clinics. The innovations on **natural resource management** include geospatial tools for tenure security, human-wildlife conflict management, decision dashboards for landscape-level baseline assessment

and monitoring, Joint Village Land-Use Planning (JVLUP) for land tenure security, participatory development of Land Degradation Surveillance Framework (LDSF), taking successes in land restoration to scale and enhancing investment flows and governance for integrated natural resources management.

For **rural finance and markets**, the catalogue sets out innovations in public-private-producer partnerships (4Ps) for agribusiness development, trading platforms to improve the competitiveness of rural enterprises, a hub model used by cooperatives or privately owned small and medium-sized enterprises (SMEs) to consolidate farm produce for marketing, and linking community-based financial institutions (CBFIs) to formal financial service providers (FSPs) through mobile money. The **climate change and livestock production systems** innovations include climate-smart dairy systems in East Africa and incentive-based interventions for reducing the climate impact of livestock production, also in East Africa. **Food and nutrition** innovation include interventions on food trees for diversified diets for smallholders in East Africa, fostering sustainability and resilience for food security in sub-Saharan Africa, and methodologies to mainstream nutrition-sensitive programming in rural markets. Finally, **youth and gender** innovation present initiatives that support the establishment of youth platforms in agribusiness and the creation of microenterprises and employment through incubators, rural youth employment and household methodologies for gender mainstreaming.

1.3. Objectives of the catalogue

The Catalogue of Innovations aims to showcase solutions to challenges faced by small producers and extended food systems, with demonstrated impacts on youth and women's employment, unlocking the challenges of rural finance, boosting farmers' yields and incomes, enhancing resilience, reducing rural poverty, and improving food and nutrition security.

The catalogue offers practical solutions and lessons to governments, private sector entities, and bilateral and multilateral donors to shape their response to various challenges constraining smallholder agriculture and food systems, such as climate change-related disasters (recurrent droughts and floods), the current COVID-19 pandemic and locust invasions. In the context of COVID-19, some of the innovations provide "ready-to-use solutions" to curb medium-term and long-term impacts of the COVID-19 pandemic and other disasters. The following are examples of such innovations:

The Catalogue offers practical solutions and lessons for use by governments, private sector organizations, and bilateral and multilateral donors in shaping their response to the challenges of small-scale agriculture and food systems generally.

- **Modernizing agri-inputs distribution scheme through e-vouchers**
 - an electronic voucher scheme that offers timely solutions/lessons to help farmers to access farm inputs, such as seeds, fertilizers, herbicides, post-harvest management, crop insurance, extension services and market linkages.

- **Virtual one-stop agribusinesses market place in Kenya, Uganda, Burundi and Rwanda and Youth Mentorship in Kenya** – to support youth by using working capital to set up and run profitable agri-enterprises, create jobs and strengthen the capacity of youth entrepreneurs. Innovations include providing a one-stop agribusiness virtual market place and peer-to-peer mentorship that enables service delivery, marketing and access to finance for youth enterprises.
- **Food trees for diversified diets** – is an innovative approach for selecting ecologically suitable and nutritionally rich foods from tree and crop species, filling harvest “gaps” and addressing certain micronutrient “gaps”, targeted to rural smallholders who rely predominantly on foods from their own farms.
- **Decision dashboards for strengthening landscape-level baseline assessment and impact-monitoring in East and Southern Africa** (Lesotho and Tanzania) – is one of several clustered land-based innovations that offer solutions on land tenure security and restoration and real-time data decision tools to monitor environmental conditions. These important innovations support long-term recovery and transition from disasters, such as locust invasion, and build resilience to climate change-related challenges, such as droughts. Land users are empowered to assess the condition of their land, make the right diagnosis and select appropriate long-term interventions.
- **Anchoring rural enterprises into sustainable institutions in Madagascar** – is one of several innovations driven by the public-private sector that endeavours to match producers organizations and market operators to facilitate rural enterprises in accessing special rural investment funds, joining value chain platforms and negotiating for the development of rural market infrastructure, such as joint processing units, storage spaces and collective marketing.
- **The public-private-producer partnership (4Ps) trading platform for delivery in Tanzania** establishes a trading platform through 4Ps arrangements that connect different value chain actors to competitive markets (e.g. access to finances, inputs, produce market, timeliness of supply and quality).



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2. Context and definitions

2.1. Knowledge management strategy

IFAD has embraced a new strategy for knowledge management (KM) that promotes sharing of knowledge products and lessons in different countries and regions. The strategy aims to foster sharing of information and knowledge relating to what works and what does not. The strategy recognizes that KM can be a powerful tool to improve how IFAD generates, accesses, shares and uses/ reuses the best available knowledge based on evidence and practice to achieve results, impact and influence while also recognizing that knowledge does not reside in repositories but in people. Therefore, developing knowledge is about collaboration and connecting people. In addition to research, monitoring and evaluation, IFAD emphasizes peer-to-peer knowledge-sharing and learning and use of tools, such as communities of practice and networks to support perpetual learning and sharing.

During the consultative process of developing the strategy, three broad challenges were identified: (i) a lot of information and knowledge generated at the project level in the countries is not easily accessible; (ii) existing knowledge is not shared efficiently; and (iii) project-generated knowledge does not become part of the knowledge base in countries, regions or IFAD, where it could be used to shape project designs. In response to these challenges, some activities were proposed in the strategy, including knowledge generation, knowledge use and providing an enabling environment. To improve access to knowledge, the plan is to: (i) link information platforms to a systematic hub to identify and promote the right incentives that motivate staff to generate, share, use and reuse knowledge;

(ii) link staff to relevant capacity-building opportunities; (iii) provide access to relevant KM tools and approaches that will be accessible on the new KM hub, as well as role modelling by managers.

2.2. Knowledge-sharing and learning

IFAD advocates learning and sharing between countries and regions, use of knowledge to influence policy and scale up what works, as well as incorporating the knowledge and lessons learned into operations. Learning events have played a catalytic role in harvesting knowledge from IFAD-supported operations. The events offer an avenue for project implementers to come together to share and analyse success and failures from projects and identify and document successful solutions to food and agriculture systems with potential for scaling up. To reach a wider audience, such events are usually organized at regional or sub-regional levels or sometimes integrated in IFAD global events, such as the International Year of Family Farming, Global Farmer Forum and Indigenous People Forum. The region of Asia and the Pacific (APR) has organized numerous knowledge-sharing and learning events to promote sharing of knowledge generated for IFAD operations across the region. Other regions have recently followed suit in response to the new KM strategy.

In the countries of ESA, although IFAD has funded numerous projects in the agriculture, livestock and environment sub-sectors integrated with cross-cutting themes, the knowledge and innovations generated through these projects have not been shared in a systematic manner. The limited sharing of knowledge and innovations from projects has translated into missed opportunities for scaling up solutions that could be applied globally or widely in the ESA region to address challenges surrounding agriculture and food systems. This catalogue, which contains innovations shared at the ESA knowledge and learning event in Nairobi, serves as a vehicle to drive innovations from selected ESA operations to other regional destinations to support their scaling up and broaden their respective impacts.

2.3. Definition of terms

This section presents IFAD definitions of relevant terms used in this catalogue as part of broader processes of KM and learning.

Knowledge management: a set of processes, tools and behaviours that connect and motivate people to generate, use and share good practice, learning and expertise to improve IFAD's efficiency, credibility and development effectiveness.

Innovation: a process that adds value or solves a problem in new ways. An idea, product or approach qualifies as an innovation if it is new to a specific context, useful and cost-effective in relation to an intended objective, scalable and sustainable.

Best practices: a method or technique that has been accepted as superior to any alternatives because it produces results that are superior to those achieved by other means.

Lessons learned: documented information that reflects both the positive (what has worked well) and the negative (what has not worked) experiences of a project or programme throughout the implementation period.

Scaling up: taking to scale (expanding, replicating, adapting) successful development interventions, policies, approaches and tools in different country or regional contexts to reach a greater number of people in order to increase socio-economic gains, such as improved agricultural productivity, rural incomes and nutrition for greater development impacts on poverty reduction.

Sustainability: the ability of the innovation to continue to generate similar development outcomes over time.



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3. The innovations

3.1. How to use the catalogue

The catalogue presents 23 innovation fact sheets clustered in six themes: **crop production, natural resource management, rural finance and markets, climate change and livestock production systems, food and nutrition security** and **youth and gender inclusion**. Each innovation fact sheet describes: (i) the features of the innovation; (ii) benefits to rural communities; (iii) lessons learned; and (iv) scalability and sustainability prospects. In addition, the fact sheets include the contact address of each project team and links to additional resource materials.

3.2. The innovation fact sheets

Table 1 provides an overview of each innovation.

Table 1. The innovations at a glance

Innovation	Country	Description
CROP PRODUCTION		
Modernizing agri-inputs distribution schemes through e-vouchers	Kenya	An electronic “e-voucher” scheme to improve farmers’ access to agri-inputs and offer a coordinated solution through 4Ps. E-voucher card wallets are issued by competitively recruited financial institutions and enable smallholder farmers to access various agricultural inputs (i.e. conservation agriculture, seed, fertilizer, post-harvest equipment and insurance).

Innovation	Country	Description
Adoption of social media for effective programme delivery in eight counties of Kenya	Kenya	A communication group that uses the WhatsApp application to bring together the regional programme coordination unit office, county directors of agriculture, sub-county agriculture officers, ward agriculture officers, agro-dealers, farmer trainer of trainers/farmers, partners (such as financial institutions), and other stakeholders in the value chain. The WhatsApp group transformed the flow of information to stakeholders, ensuring real-time communication and faster feedback of ongoing activities, and encouraged inter-county competition in the implementation of activities, with positive achievements and lessons learned posted by different counties.
Supporting farmers through mobile plant clinics	Uganda	An inclusive approach to farmer capacity-building that empowers farmers to identify their own context-specific production and environmental challenges affecting agricultural production. Under mobile plant clinics, extension staff are trained as "plant doctors" who train farmers to make correct diagnoses of pests, diseases and mineral deficiency in crop fields. The plant doctors link farmers to soil testing services and provide them with recommendations on management options.
NATURAL RESOURCE MANAGEMENT		
Simple and affordable geospatial tools for tenure security	Uganda	A simple and affordable geospatial tool that uses participatory enumeration and mapping to document land and natural resource rights at scale. The development and implementation of a "farmer-driven enumeration" uses a social tenure domain model (STDM) to upgrade land database systems for farmers. Trained farmers can use the STDM application, spatial and attribute data collection, database management, data analysis and generation of reports.
Partnerships in fencing for human-wildlife conflict management	Kenya	A 4Ps approach to control human-wildlife conflict. The use of recycled plastics as poles simultaneously contributes to the reduction of plastics in the environment and reduces cutting of trees for fencing, while the use of solar energy application saves costs on the use of other forms of fuel and reduces greenhouse gas emissions. The short time it took to complete the fencing attests to the effectiveness of a well-managed 4Ps approach.
Decision dashboards for strengthening landscape-level baseline assessment and impact-monitoring	eSwatini, Kenya, Lesotho, Malawi and Uganda	An innovation to strengthen project baseline data to improve decision-making through an Earth Observation-assisted knowledge system, via the development of an indicator framework and monitoring protocols for biophysical and socio-economic data, to assess the demand for landscape-level information and piloting of improved data-collection tools. Using open source technologies, the dashboard enables layering of different components/projects/data in one online location and brings together the various IFAD-supported projects into one interactive platform for data visualization and uptake.
Joint village land use plan for land tenure security	Tanzania	A JVLUP innovation that brought together three villages to discuss the contentious issues of resource planning, sharing and sustainable rangeland management. The participatory mapping, development of a base map delineating shared resources and of shared grazing area, water points, livestock routes and other communal resources improved tenure security.
Participatory development of a Land Degradation Surveillance Framework	Lesotho	Development of predictive climate models and maps depicting soil condition, vegetation cover, land degradation and risk factors based on identified sentinel sites. This was complemented by a stakeholder-responsive, SMS-based climate information system and early warning system whereby farmers received weather updates via SMS that informed their planning. The other element of the innovation was the introduction of the Participatory Integrated Climate Services for Agriculture (PICSA) to extension workers and farmers. This planning process ensured that weather forecasts were considered in agricultural activity planning by farmers and has reduced animal mortality and improved planning among smallholders.

Innovation	Country	Description
Taking successes in land restoration to scale in East Africa and the Sahel	Kenya, Niger, Mali, Ethiopia	An innovative approach to achieve scaling through adopting a co-learning approach to accelerate development impact by embedding research in documentation, monitoring and sharing of experiences. Monitoring the interactions among research and development partners allowed tracking of the way research results and tools were used by the stakeholders. Dialogues between nested communities of practice helped development actors and researchers understand each other's needs and expectations and facilitated the generation of timely research outputs that were incorporated in the development cycle.
Integrated natural resources management in Upper Tana watershed	Kenya	An innovative approach to financing watershed management. The model combined governance and financing instruments with legal basis as a charitable public trust that creates a platform for participation of public, private and development actors and communities to provide leadership, partnerships, financing and a delivery mechanism for watershed conservation where downstream water users provide incentives (funds) for upstream communities to conserve the sources of water.

RURAL FINANCE AND MARKETS

Public-private-producer-partnership (4Ps) trading platform	Tanzania	A trading platform that pulls together all the actors in the value chain in a mutually beneficial relationship. The platform positions actors to be much more informed and responsive to market needs, to have the opportunity to improve their service delivery and to enable them profit from the acquired business knowledge, relationships and interactions.
Anchoring rural enterprises into sustainable institutions	Madagascar	Setting up project structures to work with national and regional chambers of commerce to identify local enterprises for cooperation for inclusive value chain development and for policy dialogue between government and private sector to improve the enabling environment for enterprise development. Anchoring rural enterprises into sustainable Institutions contributes to rural enterprises competitiveness and enables business development services to be accessible to rural enterprises.
Hub approach to climate resilient post-harvest and agribusiness support	Rwanda	A hub model in which cooperatives or privately owned SMEs consolidate farm produce, such as grains, which are dried, cleaned, sorted, bagged or stored prior to dispatch to market. This innovation formed hubs, strengthened the capacity of the members and introduced an approach that played a vital role in the success of cooperatives.
Linking community-based financial institutions to formal financial service providers through mobile money	Zambia	This innovation used different models, such as solidarity groups, savings and internal lending communities and village savings and loan associations to promote linkages between CBFIs and FSPs. Using field officers or private service providers (the CBFI promoters build the capacity of CBFIs and assist them in registering formally so that they can open bank accounts. In rural areas with limited access to formal FSPs, the innovation promotes mobile banking and mobile money to increase access to financial services, thereby solving problems associated with safety of savings, increasing access to formal financial services and enabling linked groups to access credit/loans from FSPs and other products, such as insurance.

CLIMATE CHANGE AND LIVESTOCK PRODUCTION

Climate-smart dairy systems in East Africa	Rwanda and Tanzania	A climate-robust innovation that increased current productivity and adaptive capacity of small livestock producers under projected future climate variability while simultaneously enhancing environmental benefits (soil fertility, mitigation). The innovation tested best-bet forages in demo plots for learning and scheduled farmer field days and exchange visits to ensure farmer-to-farmer learning. To help farmers gain access to tropical forages, agricultural research and extension systems were used to reach a wider group of farmers to gain access to and acquire the skills and knowledge needed to integrate the forages into their farming systems and feeding strategies.
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Innovation	Country	Description
Incentive-based interventions for reducing the climate impact of livestock in East Africa	Kenya and Tanzania	A research innovation that generated high-quality evidence on the social mechanisms and disaggregated pathways relating to dairy intensification and commercialization (a main means of pursuing low-emission dairy development) in an innovative way of ensuring social equity targets are considered alongside environmental and macro-economic targets relating to investments in low-emission dairy development.
FOOD AND NUTRITION		
Food trees for diversified diets	Kenya and Uganda	An innovation to overcome seasonal food and nutrient gaps and diversify predominant staple-based diets of rural smallholders. The innovation is based on an approach developed by World Agroforestry (ICRAF) for selecting ecologically suitable and nutritionally valuable food tree and crop species for production on farms. The approach, which involves a variety of tools to allow triangulation of data sets, fills harvest gaps, and addresses certain micronutrient 'gaps' by matching the identified tree foods and crops with food composition data. It also provides an example of how agriculture can be used to promote nutritionally rich foods.
Foster sustainability and resilience for food security in sub-Saharan Africa	East Africa and Sahel countries	An innovative regional hub project approach that brings together several countries and several sectors. The hub approach links the country projects to ensure that the programme will comprise more than a set of disconnected country projects, which has been a risk with programmatic modalities in the past. The innovation in this project has therefore been the provision of additional funding for a cross-cutting project. The hub has four key components and aims to ensure overall coordination by facilitating the exchange of knowledge and scaling up of best practices as well as joint tracking of impact at national and regional levels.
Systems innovative methodologies to mainstream nutrition-sensitive programming in rural markets	Mozambique	An innovation that considers nutrition education as a necessary step in intensifying the contribution of the market programme to nutritious diets. The innovation includes tailor-made capacity-building for both the programme team and service providers to mainstream nutrition sensitivity into their programme through training in nutrition-sensitive value chain development, concepts and components of monitoring, evaluation and impact assessment, customizing nutrition-sensitive strategy guidelines, and recommendations for markets programme.
YOUTH AND GENDER		
Virtual one-stop agribusinesses market place	Kenya, Uganda, Burundi and Rwanda	A one-stop digital market place based on a webpage virtual network geared towards solving supply and demand problems for various agricultural commodities and financing of youth enterprises. By offering space for youth business pitches, an advertising avenue for different service providers (input suppliers, financial services, machinery and technology solution, linkage to markets), the market place offers sustainable solutions to challenges facing youth businesses.
Youth mentorship in dairy production and marketing	Kenya	Young programme beneficiaries are attached to dairy farms that are commercially managed by young people for hands-on, peer-to-peer learning. Successful dairy enterprises are used as training venues to facilitate youth training in producing quality, cheaper fodder, breeding techniques, maximizing production through better land utilization and boosting dairy-related income, among other essential dairy production skills.

Innovation	Country	Description
Rural youth employment	Burundi	This innovation identifies, guides and supports individuals and collective initiatives of rural youth through training, coaching and mentoring to stimulate the creation of microenterprises for self-employment and the creation of decent jobs for other young people. The innovation follow a four-step sequence: • Information and awareness-raising. • Selection and pre-incubation of economic initiatives (by category). • Incubation focused on providing tailored support (technical support, equipment, training including tailored entrepreneurial modules, coaching and mentoring. • Post-incubation: scaling down support to microenterprises to supervision and coaching only.
Tailor-made cultural household approach tool for gender mainstreaming	Malawi	A “household approach” innovation that supports the involvement of all household members in the development of a common vision through participatory household decision-making processes that promote household equality. It involved institutionalization of gender mainstreaming tools in the Ministry of Agriculture in Malawi, aligning them to the specific cultural contexts (patrilineal and matriarchal), and the use community-based facilitators to increase effectiveness of the methodology.



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Innovation CP-1: Modernizing agri-inputs distribution schemes through electronic vouchers (“e-vouchers”)

Project title	Kenya Cereal Enhancement Programme – Climate Resilient Agricultural Livelihood Window (KCEP-CRAL)
Implementing institution	Ministry of Agriculture, Livestock and Fisheries, Government of Kenya

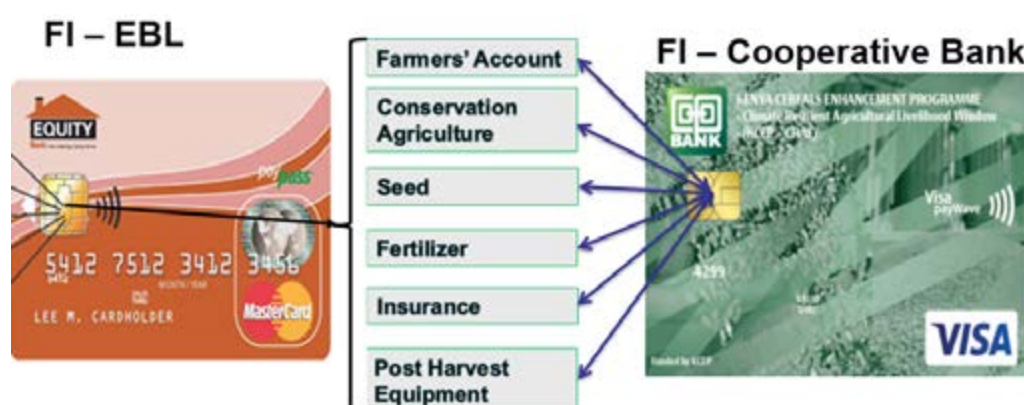
Overview

The “e-voucher” scheme is an innovative electronic voucher platform designed for managing agri-inputs and other associated subsidies through a 4Ps agreement. Central to e-voucher success is the private sector players. The e-voucher card wallets (see figure 1) issued by the participating programme financial institutions recruited competitively, including cooperative and equity banks, to enable smallholder farmers to have access to various agricultural inputs (i.e. conservation agriculture, seed, fertilizer, post-harvest equipment and insurance).

Modernizing agri-inputs distribution schemes through electronic vouchers (“e-vouchers”).

Smallholder farmers are mobilized and recruited by field extension workers in collaboration with other stakeholders according to established and validated eligibility criteria for farmer-based targeting and screening. The financial institutions handle account opening, enrol selected farmers in the field and

Figure 1: The sample e-voucher card. EBL = Equity Bank Limited.
FI = financial institution



accept a 10 per cent deposit from farmers as their contribution through either branches/outlets of the financial institutions themselves, bank agents or mobile banking (M-Pesa). The financial institutions then train farmers on financial service modules, particularly management of debit cards, PIN and financial literacy aimed at the smallholder farmers becoming financially included. The farmer's initial deposit triggers input(s) access from the e-voucher platform and contribution from the programme. The financial institutions credit the payrolls, which are then shared with the targeted sub-counties to mobilize farmers to swipe for the inputs at pre-selected agro-dealers who are also mobilized, recruited and trained by the Agricultural Market Development Trust. In addition, the agro-dealers double up as financial institution merchants and bank agents.

Description of the innovation

The aim of the e-voucher innovation scheme is to improve farmers' access to agri-inputs and offer a coordinated solution through 4Ps arrangements. An electronic platform, which is an improvement to the initial and common paper voucher previously used in other programmes, is a useful and efficient way to screen selected beneficiary farmers and ensure that the agro-dealers and conservation agriculture service providers are paid in real time. The e-voucher also generates data to monitor fund utilization in each e-wallet.

The e-voucher subsidy is implemented through the steps illustrated in figures 2, 3 and 4.

Benefits to rural communities

The total number of smallholder farmers cumulatively accessing different agricultural inputs through the e-voucher scheme has reached 82,723 (adult males – 27,797 [34 per cent], adult females – 39,637 [48 per cent], male youths – 5,290 [6 per cent], female youths – 9,999 [12 per cent]), representing 59 per cent achievements (figure 5). Cumulatively, the programme has spent more than KSh 1.5 billion to access various inputs. During the implementation period, cereal yields have increased by 25 per cent from the baseline (figure 6). Salutory lessons

Figure 2: Smallholder mobilization, recruitment and enrolment process.
MoU = memorandum of understanding



Figure 3: Agro-dealer mobilization and recruitment process.
SCPCC = Sub-County Programme Coordinating Committee. POS = point of sale.
AGMARK = Agricultural Market Development Trust



Figure 4: E-voucher process flow (KCEP-CRAL)

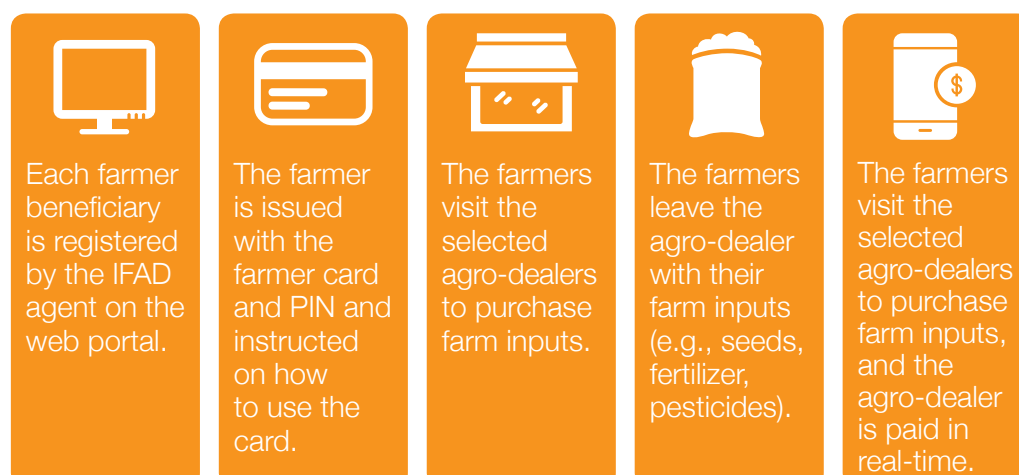


Figure 5: Cumulative smallholder farmers accessing inputs

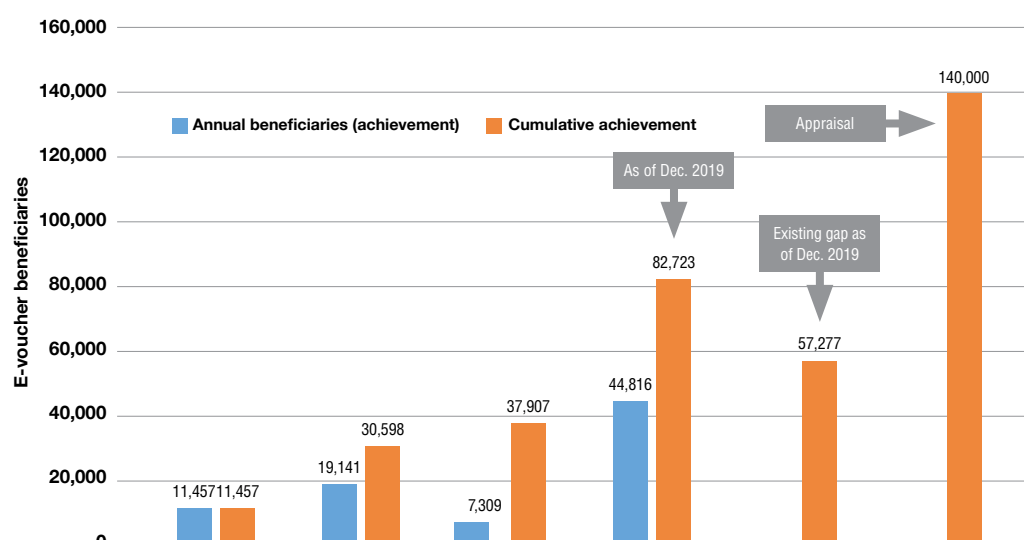
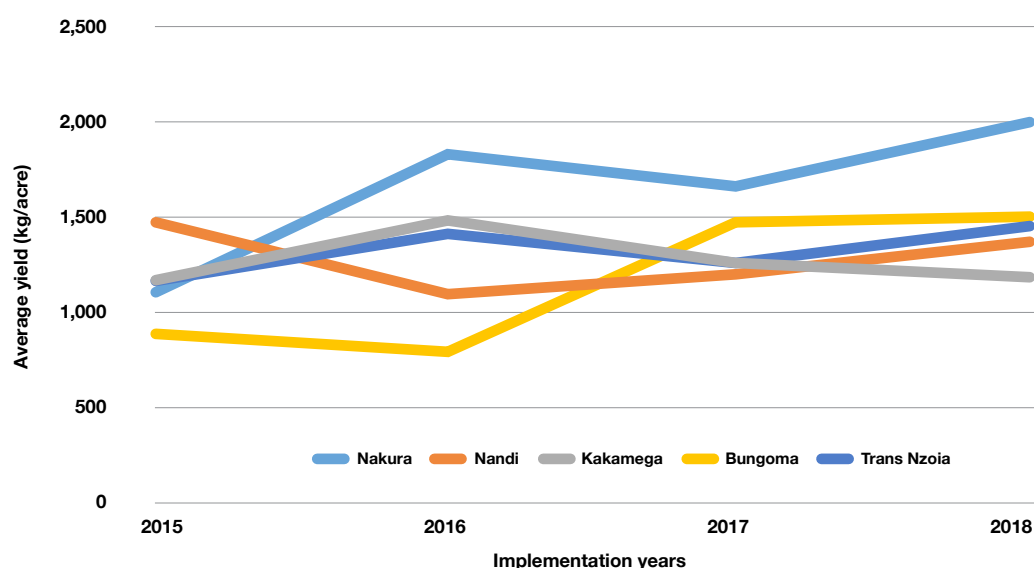


Figure 6: Maize yield (kg/acre) increase



from the e-voucher scheme demonstrate that farmers who optimally applied the issued inputs and planted on time were 1.1 times more likely to achieve better yields than the non-beneficiaries. Post-harvest losses significantly reduced from 20 per cent to 13.6 per cent among cereal-growing farmers. Up to 7,183 mt of grains (cereals) have been added to reduce the national grain deficit in the four cropping seasons (2016–2019). The programme has a total of 526 agro-dealers, saving farmers who have recorded increased sales as their businesses have witnessed tremendous growth. A total of 187 conservation agriculture service providers have offered their services to farmers, while the programme has recruited and vetted a total of 860 private extension service providers across all the implementing counties. The financial institutions have introduced and rolled out four savings and loans schemes that have enabled and promoted a savings culture among the farmers and enhanced their financial inclusion.

Lessons learned

- **Mobilization and awareness-raising** – an early start on this process is recommended, since getting the final list of farmers and agro-dealers is a laborious process. This should be coupled with ensuring accuracy of data captured, especially farmers' names and identity card numbers. These data are crucial parameters used during screening by financial institutions.
- **Accurate and timely communication** – due to the seasonality of agriculture, there is a need for efficient planning, coordination and execution of all activities leading to farmers gaining access to inputs through the e-voucher system.
- **Input supply monitoring** – this process should be conducted regularly with agro-dealers to ensure farmers can access the recommended inputs (type, quantities, pricing) and to monitor compliance with recommended good agricultural practices.
- **Timely delivery of inputs** – this is important for early planting. Late planting leads to yield loss and susceptibility to pests and diseases, such as grain borer and head smut.

Scaling up and sustainability

There is emerging evidence of programme sustainability for the e-voucher scheme, as shown by the adoption of improved inputs autonomously by the beneficiaries and strengthened linkages between the beneficiaries and bulk buyers. The Ministry of Agriculture, Livestock and Fisheries has taken this innovation and is scaling up the e-voucher scheme through the State Department of Crop Development and Agricultural Research with expanded value-chain scope that will allow subsidized inputs to be issued to farmers in 37 selected counties.

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Resources

- Equity Bank (Kenya) Limited documentary on the national launching of the e-voucher system (August 2015) and follow up on early cropping season: <https://www.youtube.com/watch?v=TyqhDekEr3o&feature=youtu.be>
- Nakuru farmers expecting better harvest during an IFAD communication visit to the European Union funded programme in December 2017: <https://www.youtube.com/watch?v=m-JzR6oqj3k&feature=youtu.be>
- Documentation of KCEP-CRAL success stories: <http://www.kcepcral.go.ke/learn-how-2/gallery/videos/>
- IFAD Rural Solution Portal: <https://ruralsolutionsportal.org/en/-/e-finance-vouchers-support-growth-for-kenyan-smallholders>



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Innovation CP-2: Adoption of social media for effective programme delivery in eight counties of Kenya

Project title	Kenya Cereal Enhancement Programme – Climate Resilient Agricultural Livelihood Window (KCEP-CRAL)
Implementing institution	Ministry of Agriculture, Livestock and Fisheries, Government of Kenya

Overview

The Kenya Cereal Enhancement Programme – Climate-Resilient Agricultural Livelihoods Window (KCEP-CRAL) is a partnership programme that brings together various actors within the private and public sectors and farmers to leverage their comparative advantages in order to deliver the programme objectives. The objectives of the programme are to graduate smallholder farmers to commercially oriented, climate-resilient agricultural practices and productivity, post-production management practices and market linkages for targeted value chains. However, communication among the various stakeholders has been a major challenge in programme implementation; critical information required for major decision-making at the grassroots has often been delayed and has affected the delivery of programme results. The sharing of information through routine channels such as email proved ineffective. For example, the e-voucher breakdown reporting by farmers to bank via agro-dealers took a long time, which disrupted delivery of inputs and extension services. There was also a

need to coordinate activities between stakeholders, including farmers, agro-dealers, banks and extension service officers, to ensure efficient delivery of project objectives. To address the challenges, the programme embraced the technology innovation of integrating a social media platform for sharing project implementation information.

Description of the innovation

The Regional Programme Coordination Unit formed a communication group using WhatsApp to bring together the regional programme coordination unit office, county directors of agriculture, sub-county agriculture officers, ward agriculture officers, agro-dealers, farmer trainer of trainers/farmers and partners, such as financial institutions (Equity and Cooperative Bank) and other stakeholders in the value chain.

The WhatsApp group greatly transformed the flow of information to stakeholders, ensuring real-time communication and faster feedback of ongoing activities. The WhatsApp social media platform has had a positive effect by enhancing and encouraging positive inter-county competition in implementation of activities, with all counties being encouraged to post their positive achievements and lessons learned from their areas. Knowledge-sharing and experiences have also been enhanced.

Benefits to rural communities

The use of WhatsApp has resulted in greater effectiveness and efficiency and greater impact on the programme's implementation processes. Key achievements include fast execution of planned activities. More than 50 per cent of planned activities have benefited from better coordination, reduction of duplication of efforts, quick resolution of challenges and increased learning about better methods for the conduction of some activities. Through the platform, the KCEP-CRAL programme managed to address issues arising from the e-voucher system (such as card declines) that have been affecting farmers' access to inputs. The programme has also used the platform to capture the best knowledge generated by implementing partners, monitor activity progress and ultimately improve service delivery to the farmers. Response times in addressing issues affecting farmers, agro-dealers and extension staff have been reduced.

There is now effective coordination among stakeholders and through the WhatsApp platform:

- The programme coordination unit, county staff and financial institutions were able to respond in real-time to challenges deriving from the use of points of sale and debit cards used when inputs were being issued by agro-dealers to farmers. This is a critical and time-sensitive activity because there is a need to ensure farmers are able to plant on time, with the onset of rains, in most cases over a period of 3–4 weeks.

- One of the key benefits of the innovation has been an increase in yields for cereals and associated pulses among smallholders as a result of better coordination and information sharing. Improved coordination among stakeholders has resulted in timely access to inputs and enabled farmers to plant early. Smallholder farmers have been able to increase their maize yields by 25 per cent. Agro-dealers have also been able to increase their sales.

Lessons learned

Social media can facilitate the communication of information that is vital to decision-making at all levels by providing an avenue where all stakeholders can share, learn and solve challenges together. It can also provide an avenue for quick feedback on areas that are not working well so that remedial measures can be put in place. Equally, information can be shared on areas that are working well so that they can be documented and adopted.

Scaling up and sustainability

To scale up the innovation, improved connectivity in the rural areas of implementation will be required for easy access to internet. Availability of and access to smart phones that can host social media platforms will also be required by the stakeholders, especially the farmers.

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Resources

- <http://www.kcepcral.go.ke/learn-how-2/success-stories/>
- <http://www.kcepcral.go.ke/learn-how-2/gallery/videos/>
- <http://www.kcepcral.go.ke/publications/>



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Innovation CP-3: Supporting farmers through mobile plant clinics in Uganda

Project title Project for the Restoration of Livelihoods in the Northern Region (PRELNOR)

Implementing institution Ministry of Local Government, Uganda

Overview

The Project for the Restoration of Livelihoods in the Northern Region (PRELNOR) is a seven-year Government of Uganda project (2015–2022) financed through a loan from IFAD, a grant from the Adaptation for Smallholder Agriculture Programme (ASAP) and beneficiary contributions. ASAP is IFAD's flagship programme for channelling climate and environmental finance to smallholder farmers. It is managed by the ministry of local government and has three interlinked components: (i) rural livelihoods, (ii) market linkages and infrastructure, and (iii) project management and coordination. The project objective is to increase the sustainable production, productivity and climate resilience of smallholders, while also extending access to domestic and export markets.

Mobile plant clinics have reduced pest and disease incidence, increased agricultural productivity and benefited approximately 36,000 households.

Description of the innovation

PRELNOR employs an inclusive approach to farmer capacity-building that ensures that communities are empowered to identify their own context-specific

production and environmental challenges affecting agricultural production. A number of participatory rural appraisal techniques and tools are used to understand the context within which farmers operate. This translates into the identification of existing farmer structures (groups or individual households), major production and marketing constraints, and natural resources and environment management issues. The mobile plant clinics is a new approach in which extension staff are trained as plant doctors. Farmers are trained to correctly identify pests, diseases and mineral deficiency in their crop fields. The plant doctors (extension staff) link farmers to soil testing services and provide them with recommendations on management options. The innovation also supports the pest and disease surveillance functions of district local governments. This is expected to guide planning and budgeting for extension services and crop protection functions in local governments.

Benefits to rural communities

The mobile plant clinics approach is already bearing fruit, having achieved the following outcomes:

- Reduced pest and disease burden, thereby contributing to an increase in agricultural production and productivity. Approximately 36,000 households are already benefiting from the services.
- Reduced use of agrochemicals and promoted use of organic fertilizers.
- Established community-level extension services for pest and disease diagnosis and soil fertility testing: prescriptions are being adopted by farmers.
- Improved capacity of smallholders in planning, leadership, financial literacy and farming activities through the training and mentorship of 600 farmer group members and 4,000 households.

Lessons learned

- Even though the mobile plant clinics services are currently limited to project beneficiaries, the burden of pests and diseases go beyond project groups and there is need for scaling up.
- Additionally, the competence of the plant doctors is limited to a few diseases and pests. It is important to broaden the range of diseases and pests that the plant doctors can deal with.

Scaling up and sustainability

- Sustainability of the mobile plant clinic services requires training of all the extension staff to become plant doctors.
- More effort should be put into raising community awareness of the available services.

- The mobile plant clinics can be integrated into government extension systems through policy changes, planning and financing.
- There is need to improve skills in operationalization of plant clinics.

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Resources

- <http://prelnor.molg.go.ug>



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Innovation NR-1: Simple and affordable geospatial tools for tenure security

Project title Global Land Tool Network (GLTN)

Implementing institution United Nations – Habitat

Overview

The Global Land Tool Network (GLTN) is a multi-sector alliance of more than 80 global, regional and national partners created to respond to gaps in land governance, administration approaches, tools and systems that hamper the delivery of land tenure security at scale. In close collaboration, GLTN partners improved land tenure security for many smallholders, with special focus on women, youth and vulnerable groups, by developing and disseminating inclusive land tenure approaches and innovative tools. To address the many challenges caused by undocumented and unclear individual and communal land and water rights, land disputes and the lack of evidence-based data for resolving land tenure, the GLTN innovation introduces simple and affordable geospatial tools for farmers. The tools use participatory enumeration and mapping to document land and natural resource rights at scale. Through the Vegetable Oil Development Project (VODP) in Kalangala, Uganda, GLTN innovations supported the development and implementation of “farmer-driven enumeration” whereby the GLTN’s STDM is used to upgrade land database systems for farmers under the Kalangala Oil Palm Growers Trust (KOPGT). Farmer-driven enumeration uses the

STDM, a package composed of participatory enumeration and appropriate and affordable geospatial technologies, to map land and natural resources tenure rights for the smallholder oil palm out growers in Uganda.

Description of the innovation

With support from IFAD, the Government of Uganda, through the KOPGT, has been providing support to the tenant/squatter farmers to regularize their settlement and farming so that farmers have security of tenure for their land. To buttress these efforts, GLTN supported the development and implementation of farmer-driven enumeration in the Kalangala district, where the GLTN's STDM was used to upgrade land database system for farmers under the KOPGT. Participatory enumeration, combined with appropriate and affordable geospatial technologies in farmer-driven enumeration, was used to map land and natural resources tenure rights for the oil palm out-growers. GLTN provided STDM software and trained VODP and KOPGT staff and farmers in the use and application of STDM, spatial and attribute data collection, database management, data analysis and generation of reports.

Benefits to rural communities

Use of the geospatial tools has allowed the following achievements:

- The KOPGT land information management system (LIMS) for the second phase of VODP 2 in Kalangala was enhanced with a complete database of 1,535 smallholder oil palm farmers registered with the KOPGT, which showed farm boundaries and was useful in reducing conflict and improving tenure security.
- Socio-economic and spatial information on 1,535 smallholders and their respective gardens were collected in seven blocks (Kalangala, Bujumba, Kayunga, Bbeta East, Bbeta West, Kagulube and the Islands block – Bunyama and Bubembe islands) and provided necessary data for the management to use in planning and the provision of infrastructure and services.
- Through the LIMS database hosted by KOPGT, maps showing the location of all smallholder farmers and their garden boundaries, allowing the respective tenure situation to be developed. These maps will facilitate field operations to provide seeds and fertilizers, among other extension services, for the farmers.
- The STDM database is used by KOPGT to resolve boundary disputes among the farmers and determine farmer requirements, such as the quantity of farm inputs, loans and other field necessities.
- Staff capacities have been enhanced to manage QGIS, an open source geographic information system, and its application in recording and monitoring land tenure and farm production. The staff are therefore able to

sustainably manage land information and use it to improve tenure security and monitor farm production.

Lessons learned

- Farmer-led participatory documentation of land and natural resource rights provides clear and open engagement with projects and strengthens the capacity of communities to gainfully and sustainably manage land and natural resources.
- Securing of smallholders' land and natural resource rights calls for a multi-stakeholder process that lends itself to better dialogue with farmers, their communities and local leadership and can foster relations with national and local governance structures.
- Advancing and integrating pro-poor tools and approaches for securing land and natural resource rights in development programmes requires flexibility in understanding the local contexts and pro-activity in integrating local mechanisms with available approaches.
- Implementing land tenure tools is a dynamic process that brings together different components of the project, including monitoring, evaluation, learning and mainstreaming reporting using geospatial technologies.

Scaling up and sustainability

- Community empowerment is key to scaling up. When fully empowered, communities can engage with geospatial technologies in recording land and natural resource rights.
- VODP project staff have indicated a need to scale up the use of GLTN tools in Uganda's National Oil Palm Programme, which is an indication of confidence in the positive outcomes resulting from the Kalangala engagement.

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Resources

- <http://gltn.nets.tsli.esa>



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Innovation NR-2: Partnerships in fencing for human-wildlife conflict management in Kenya

Project title	Upper Tana Natural Resources Management Project (UTaNRMP)
Implementing institution	Ministry of Environment, Water and Natural Resources, Government of Kenya

Overview

The Upper Tana Natural Resources Management Project (UTaNRMP) is an eight-year project (2012–2020) that aims to increase sustainable food production and incomes for poor rural households and sustainable management of natural resources. However, achieving these objectives is constrained by the proximity of human settlements and farmlands at the periphery of Mt. Kenya Forest that negatively impact forest reserves and ecosystems, wildlife and human livelihoods. Wildlife control fences along sections of Mt. Kenya have been used to reduce the problem. The fences were previously installed independently, either by government agencies or the private sector. The end result has been a slow implementation rate and consequent delay in benefits to the target population. For example, installation of 86 km of a six-strand fence by Mount Kenya East Pilot Project for Natural Resource Management took four years. Innovation was therefore needed in the approach to fencing and fencing materials.

Description of the innovation

The primary innovation has been the use of the 4Ps approach, which brought together key players in the private and public sectors to control wildlife using a solar-powered fence. This resulted in fuel cost savings and subsequently reduced greenhouse gas emissions. The use of recycled plastics as poles is also innovative because it contributes to the reduction of plastics in the environment and the felling of trees for fencing material. The short period of time it took to complete the project is one commendable aspect and attests to the effectiveness of the 4Ps approach.

The 4Ps agreement is between the UTaNRMP project, government agencies (Kenya Wildlife Service and Kenya Forest Service) and the private sector (Rhino Ark and Mount Kenya Trust). To formalize the partnership, a management agreement was developed, stipulating the specific roles and responsibilities of the partners. Under the management agreement, UTaNRMP procured fencing materials; the Kenya Wildlife Service provided technical backstopping, supervision security, and built and maintained energy storage houses; and Rhino Ark and Mount Kenya Trust were assigned the role of constructing the fencing and other day-to-day operations; the Kenya Forest Service was given the role of fence alignment and building community gates; the community forest associations provided labour and participated in the fence construction committees.

Benefits to rural communities

The partnership effectively delivered 60 km of eight-strand comprehensive fencing in two years instead of the planned six years, thereby allowing the target community to benefit from the fence earlier than scheduled. The innovation has resulted in various social economic benefits to the communities living near the fenced areas. Additional benefits to the government and the ecosystem include:

- **Change in land cover** – the natural forest cover has increased by 0.68 per cent due to regeneration and enrichment planting, whereas grassland has declined by 62 per cent. The improved security from electric fencing has increased the area under annual crops (maize, bananas, vegetables) by 12 per cent, whereas perennial crops, such as tea and coffee, have declined by 7 per cent.
- **Biodiversity conservation** – on the whole, there is clear physical evidence of regeneration of flora and fauna. There is an increase in the number of elephants and antelopes, which are no longer being poached.
- **Crops diversification** – 91.4 per cent of farmers in the vicinity of the fenced area now engage in cropping, which is up from 75.9 per cent from before the fence. Farmers have also introduced new crops, such as bananas, vegetables and horticultural crops (onions, cabbages, tomatoes, kales and French beans). The communities have also adapted new technologies,

especially irrigation, which has gone up from 59.1 per cent to the current 68 per cent since the fence was erected.

- **Food security and nutrition** – the increase in cropland has led to increase in crop production, resulting in food security. Areas that were net food importers have now become food exporters.
- **Management costs** – the cost of responding to human-wildlife incidences was reduced by almost 99 per cent (from KSh 6.7 million in 2004–2013 to below KSh 61,625 in 2014–2019). For the government agencies involved, the fence has reduced the cost of responding to conflicts from KSh 453,150–25,975 annually, representing a 94 per cent cost reduction.
- **Increased land value** – the mean price of land per acre in the area has increased by almost 86 per cent (KSh 917,000–1,703,421). This is a capital gain on land for the community.
- **Health** – there is reported improvement in human health due to the reduction in risks arising from wildlife attacks, reduced exposure to unfavourable weather conditions when guarding against wild animals, food security and availability of variety of food crops, which has in turn improved human nutrition.
- **Tourism** – the fenced section of Mt Kenya Forest has one national forest reserve gate (Chogoria), which leads to a national park gate. The gate has reported a 47 per cent improvement in tourism revenue.

Lessons learned

The key lesson learned is that a strategic partnership based on a defined set of partnership skills/resources results in the achievement of synergistic outcomes in a more effective and efficient manner due to the collaborative advantage it provides. However, because of the consultations and negotiations involved, initial costs might appear high and time-consuming, but in the long term, the investments in terms of both time and money are worthwhile.

Scaling up and sustainability

The scaling up and sustainability of fencing projects require community ownership from the planning, implementation and operation stages; clear overall ownership and responsibility for technical backup to ensure fencing provides the required services efficiently; quality designs and specifications for materials to ensure longevity and effectiveness; and maintenance schedules and security staff arrangements for the fence equipment.

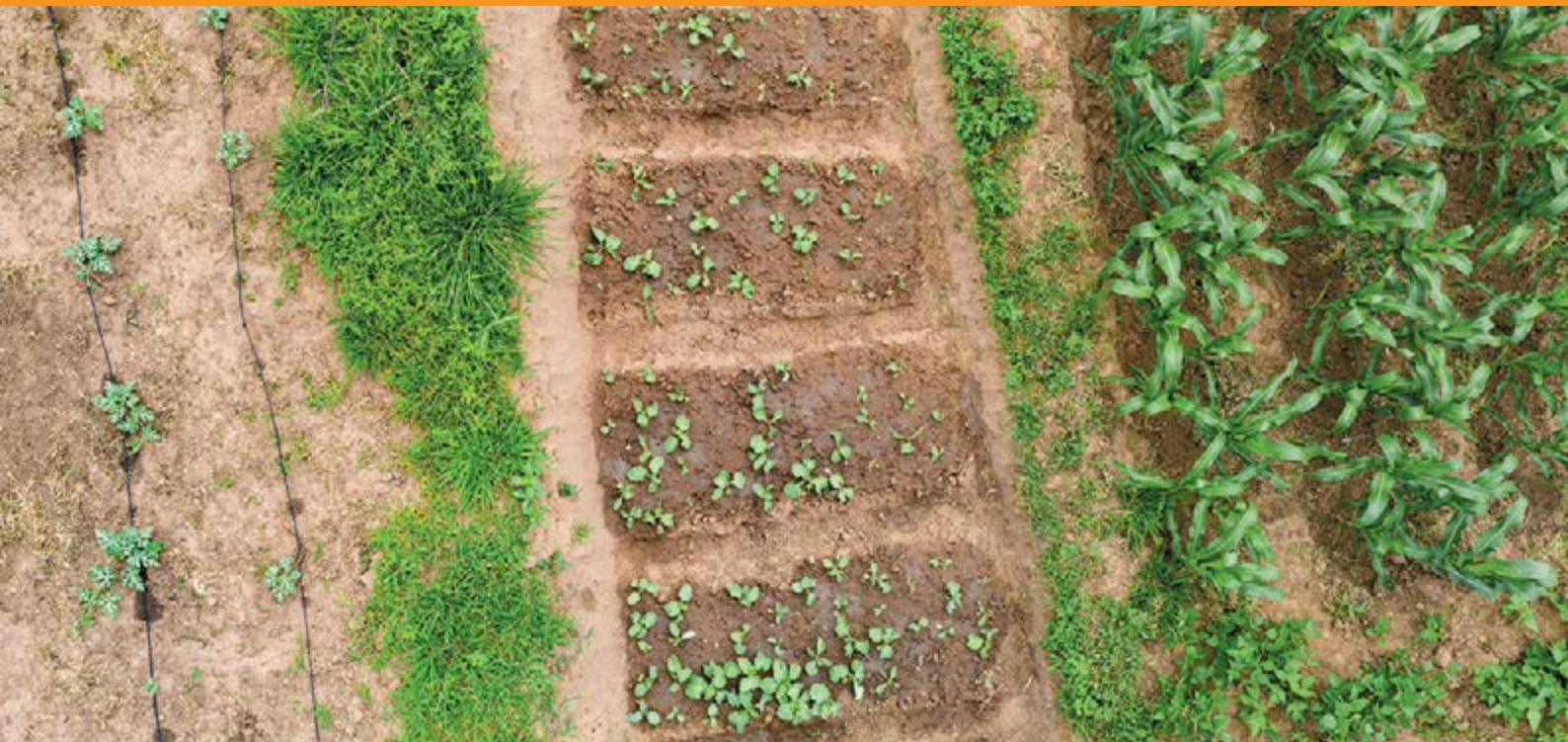
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Resources

- www.utanrmp.or.ke
- <http://www.utanrmp.or.ke/blog/fence-secured-homes-man-and-beast>



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Innovation NR-3: Decision dashboards for strengthening landscape-level baseline assessment and impact monitoring in East and Southern Africa

Project title Strengthening Landscape-Level Baseline Assessment and Impact-Monitoring in East and Southern Africa

Implementing institution World Agroforestry (ICRAF)

Overview

The overall goal of the Strengthening Landscape-level Baseline Assessment and Impact-Monitoring in East and Southern Africa project is to enhance the contribution of available Earth Observation approaches to improving the food security and resilience of smallholder farming and agro-pastoral systems in eSwatini, Kenya, Lesotho, Malawi and Uganda. The project objectives are twofold: (i) to enhance access to high-quality data and diagnostic evidence on ecosystem health and household resilience for national stakeholders and their development partners; and (ii) to develop the capacity of the users of such data and evidence to strengthen the design, monitoring and on-going refinement of development programme interventions and investments.

Description of the innovation

A decision dashboard is a key innovative technology for strengthening project baseline data and information collation for improved decision-making. The dashboard is based on Earth Observation-assisted knowledge system via development of an indicator framework and monitoring protocols for biophysical and socio-economic data, assessing demand for landscape-level information and piloting of improved data-collection tools. The innovation adopts a user-centred approach to co-design the dashboard with all stakeholders: government, project managers, investors, NGOs, land managers and farmers. Using open source technologies, the dashboard enables layering of different components/projects/data in one online location and brings together the various IFAD-supported projects into one interactive platform for data visualization and uptake.

Benefits to rural communities

The online platform has facilitated data visualization and interpretation for the different stakeholders. Benefits and achievements of the initiative include:

- Key needs and entry points to rangeland management design were identified through structured stakeholder consultations with IFAD country offices, project coordination units and IFAD staff.
- Available socio-economic data from surveys was linked with biophysical indicators from the LDSF. This included co-location of household surveys sites and LDSF sites.
- Co-design frameworks were developed for the programme to guide the user-based co-design of the Earth Observation-assisted platform
- Capacity development of key stakeholders through workshops on data analytics for assessment of rangeland health was arranged in Lesotho.
- Co-development and piloting of a new framework for the national assessment of rangeland health, building on existing methods used in Lesotho, has begun.
- A new curriculum for training of trainers on rangeland resource management was developed in Lesotho.
- Several cross-project dialogues and learning exchanges took place.

Lessons learned

Extensive data gathering and inputs require successful stakeholder engagement. There is also a great opportunity to create more synergies and implementation alignment between IFAD programmes operating in similar geographic contexts. There is a need to consider from the outset that government focal points have been engaged to allow the dashboards to be embedded within appropriate ministries and equip the national institutions hosting the Earth Observation system with the capacity to run and maintain it.

Scaling up and sustainability

To successfully scale up the innovation, stakeholder priorities, needs and data requirements must be spelled out clearly from the start through regular workshops and structured stakeholder dialogues. Continuous communication and being adaptive to country needs and contextual and human resource changes within the projects is also required.

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Resources

- <http://blog.worldagroforestry.org/index.php/2018/02/27/explaining-complex-putting-best-available-evidence-hands-decision-makers/>



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Innovation NR-4: Joint village land use plan for land tenure security in Tanzania

Project title	Sustainable Rangeland Management Project (SRMP)
Implementing institution	International Livestock Research Institute and Tanzania Natural Resource Forum

Overview

The Sustainable Rangeland Management Project (SRMP) is a land governance project with the goal of fostering inclusive land governance for improved food security and economic development in the context of competing land demands.

In Tanzania, joint village land-use planning shaped the development of government manuals, strategies and policies on community lands.

It works with three villages – Lerug, Ngapapa and Orkitikit – in the Kiteto district and Manyara region that share boundaries and grazing resources. The villagers are predominantly Maasai pastoralists, Ndorobo hunter-gatherers and some farmers, most of whom are seasonal migrants. There were no rules

or guidelines on how to manage the shared resources, and this was a source of potential conflict among the villagers. The project initiated JVLUP, bringing together the three villages, to discuss the contentious issues of resource sharing and sustainable management.

Description of the innovation

The innovation is the JVLUP and agreement developed under the law of Tanzania and based on community use of the land and resources (not necessarily

“traditional” but instead current use and the rules/regulations/agreements related to this). To acquire a shared identity across the three boundaries, the JVLUP was named “OLENGAPA”, incorporating a part of each village’s name (Orkitikiti, Lerug and Ngapapa). In order to understand the different resources in the villages and their spatial distributions, the SRMP supported the villagers in carrying out participatory mapping. They developed a base map showing all the resources shared by the villages. The villagers then produced individual village land-use maps and plans, and a joint village land-use map and plan. A joint village land-use agreement that detailed and ultimately protected the shared grazing area, water points, livestock routes and other shared resources was drafted, signed and approved by the Joint Village Land Use Association. The three OLENGAPA village councils then established a Joint Grazing Land Committee made up of members from all three villages. The committee is responsible for the planning, management and enforcement of by-laws applicable to the OLENGAPA as well as the coordination of the implementation of the OLENGAPA land-use agreements and the joint land-use plan.

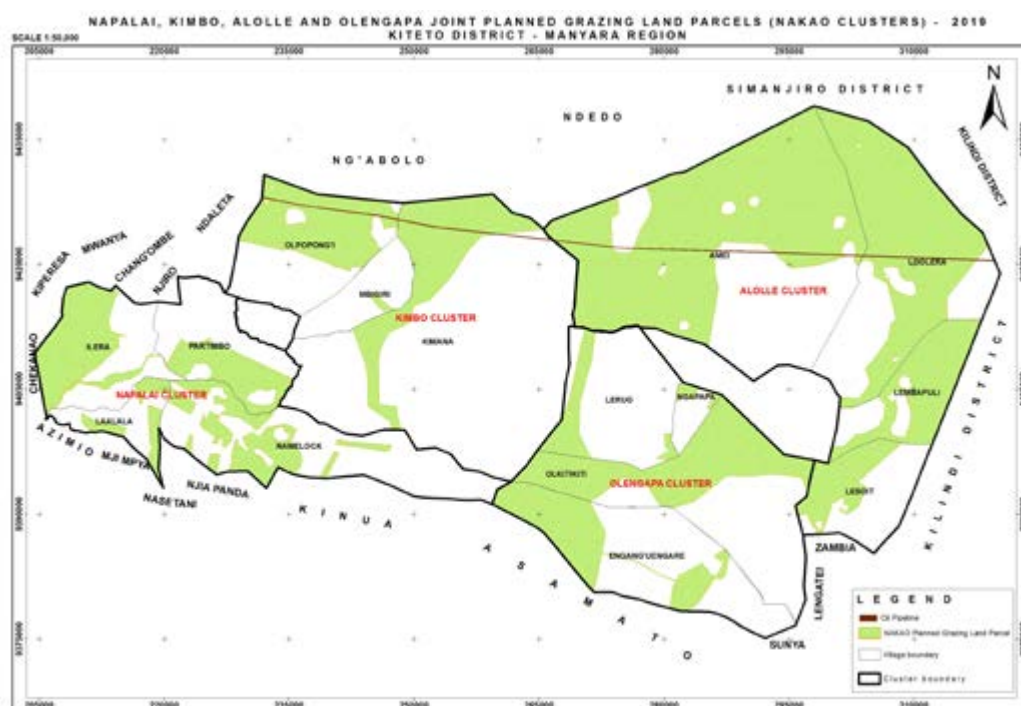
In the second phase, a fourth village joined OLENGAPA and doubled the shared grazing land available. In 2018, the Ministry of Lands approved and registered the village land boundary maps and deed plans for the four villages. In the end, each village assembly approved the joint village land-use agreement, which allocated 20,706.73 hectares of land (about 40 per cent of the total area of the villages) for shared grazing. The agreement is based on rules/regulations related to current community use of the land and resources. By-laws for the management of the resources were developed and adopted.

Benefits to rural communities

The project supported the development of a JVLUP for the OLENGAPA cluster, Kiteto, expanded to include an extra village, resulting in an increase of the shared grazing area to 30,000 hectares. It has helped mainstream the process in government documents and has provided inputs to the development of government manuals, strategies and policies. It is anticipated that the Ministry of Livestock and Fisheries will be scaling up the approach in the coming years. The project supported the first-ever registration of a grazing area and issuing of a group certificate of right of occupancy (CCRO) through JVLUP to the OLENGAPA livestock keepers association in September 2018.

A recent survey revealed that there is now a higher degree of land tenure security among community members in the project areas and consequently greater willingness to invest in rangeland management activities. It is believed that the JVLUP has indeed strengthened land governance and security. Community members are now taking steps themselves to enforce the JVLUPs, raising issues, such as encroachment with the district government. According to farmers, the rangeland condition has improved and there have been improvements in rangeland productivity.

**Figure 7: Jointly planned grazing parcels of land in Kiteto district.
NAKAO cluster: Napalai, Kimbo, Alolle and Olengapa**



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A Livestock Keepers Association was established and officially registered with the Ministry of Lands in September 2015. Group CCROs have been issued to the association, one for each village for the part of the grazing area that falls under its jurisdiction (see figure 7). Signboards and beacons marking the boundary of the shared grazing area have been put in place.

Lessons learned

Key lessons learned from this innovation include:

- As long as the benefits are visible from the start, communities are willing to participate and support the process.
- Production of plans is not enough – investment is required to assist communities and other stakeholders in implementing the plan.
- There is a need for intensive preparation before the planning process takes place, including ensuring that all stakeholders understand the JVLUP process and implications.
- Preferably, no village in the cluster should have a previous village land-use plan allowing all villages to start the planning process together and in parallel before coming together.
- The process of village land-use planning is complex, resource-intensive and time-consuming. It is therefore important to have adequate funds and skilled personnel in place.

- Important characteristics for replicating the approach are: focus on current land uses, conflicts and types of conflicts, and willingness of various stakeholders to participate in and support the process.

Scaling up and sustainability

To scale up this innovation, long-term commitment is needed, from the village communities to national government. Land-use plans for neighbouring communities are also needed. To sustain the process, in addition to the community making their own contribution (in-kind and/or financial) to the process, funding can be sourced from elsewhere (e.g. the Ministry of Livestock).

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Resources

- https://www.youtube.com/watch?v=_fF0fcSBXcY&t=14s
- <http://africa.procasur.org/index.php/our-work/lr-sorted-by-year/item/262/262>
- <https://landportal.org/debates/2017/learning-initiative-innovative-practices-and-tools-reduce-land-use-conflicts-between>
- <http://africa.procasur.org/index.php/our-work/lr-sorted-by-year/item/81-10/81>
- <https://cgspace.cgiar.org/handle/10568/51348>
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Innovation NR-5: Participatory development of a land degradation surveillance framework in Lesotho

Project title	Wool and Mohair Promotion Project (WAMPP)
Implementing institution	Ministry of Agriculture and Food Security, Government of Lesotho

Overview

The Wool and Mohair Promotion Project (WAMPP) targets smallholder producers of wool and mohair and assists them in climate-proofing their production systems by, for example, introducing climate-smart rangeland management and disease

SMS-based weather information and early warning systems enable farmers to factor in weather conditions when planning their agricultural activities.

surveillance systems. These require a strong rangeland monitoring and evaluation system and knowledge base to shape land management decisions. The last comprehensive rangeland assessment in Lesotho was conducted in 1987, resulting in a data and information gap spanning more than 30 years. The WAMPP

developed a cost-effective land degradation surveillance framework (LDSF) with support from ICRAF and the involvement of all key stakeholders.

Description of the innovation

Development of the LDSF was initiated by the identification of 10 sentinel sites and acquisition of high-resolution satellite imagery for these sites. Predictive

models and maps depicting soil condition, vegetation cover, land degradation and risk factors were generated. Climate models and scenarios for district-level agricultural use were then generated. WAMPP also supported the introduction of a stakeholder-responsive, SMS-based climate information system and early warning system. Farmers receive weather updates via SMS and the early warning system provides weather information that is used by farmers to aid planning. Another key element of the innovation was the introduction of PICSA, aimed at extension workers and farmers. This is a process that ensures that weather forecasts are considered by farmers when planning agricultural activities. The development of the LDSF has reduced animal mortality and improved planning among smallholders.

Benefits to rural communities

One of the main results of the innovation is a national baseline assessment of rangelands that is almost complete. The national baseline will aid planning by closing a gap of three decades in national data. This will enable the carrying capacity of rangelands to be determined. Climate risk and vulnerability maps for rangelands target hot spots and SMS weather information updates were also key outputs of this innovation. Farmers are now able to receive regular weather updates that previously were unavailable to them due to limited radio coverage in the mountainous parts of the country (with radio being the main medium used in the past to transmit weather updates). It is estimated that by 2020, at least 30,000 farmers will receive regular (weekly) weather updates on their mobile devices, thus allowing them to factor in weather conditions when planning their agricultural activities.

Lesotho's rangelands and wetlands which are sources of many rivers in the country.



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Lessons learned

Key lessons learned on this innovation include:

- Rangeland management and rural development in Lesotho are not separable. Rangeland rehabilitations are not sustainable unless programmes are tailored to improve livelihoods through income-generating activities.
- In order to engage youths in rangeland management, it is important to clarify the importance and economic contribution of these natural resources through creative communication interventions.
- It is critical to nurture requisite human resources for rangeland management through training, knowledge-sharing, learning and development (including curriculum review and development).

Scaling up and sustainability

To scale up the innovation, accurate targeting is a key factor, as are the following:

- Identification of livelihood activities consistent with poverty levels in the community.
- Extension services need to have the capacity to apply participatory approaches and thus achieve meaningful interaction, monitoring and evaluation, and knowledge sharing.

To mainstream the concepts of rangeland management in programmes, all relevant stakeholders should be encouraged to incorporate an LDSF into their approaches.

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Innovation NR-6: Taking successes in land restoration to scale in East Africa and the Sahel

Project title Restoration of degraded land for food security and poverty reduction in East Africa and the Sahel: taking successes in land restoration to scale

Implementing institution World Agroforestry (ICRAF)

Overview

Decelerating degradation through land restoration is one key pathway to achieving food security and eradicating poverty for some of the most vulnerable people living in Africa's drylands. However, to achieve the United Nations SDGs systematically, successful restoration efforts should reach a larger number of farmers and hectares over the coming decades. Yet, a key constraint to scaling up is the fact that the ecological, economic, sociological and institutional context varies from household to household. While the reasons for poor adoption are many, there is no silver bullet. What is urgently needed are locally relevant restoration options that will work for different people in different places. Therefore, the goal of this project is to reduce food insecurity and improve the livelihoods of people living in African drylands by restoring degraded land and returning it to effective and sustainable tree, crop and livestock production systems, thereby increasing land profitability and landscape and livelihood resilience.

Description of the innovation

The project developed innovative ways to achieve scaling up through a co-learning approach that accelerates the development impact by embedding research in, for example, methods to document and monitor the experiences of farmers and then adapt the technologies to local contexts. The research developed a model that operates through engagement with key development partners, including IFAD country programmes, NGOs, European Union country programmes, governments, universities and the private sector. By monitoring interactions among research and development partners, the innovation tracked the way research results and tools were used by stakeholders. Such dialogues, which take place through nested communities of practice, help development actors and researchers understand each other's needs and expectations and facilitate the generation of timely research outputs that can be incorporated into the development cycle.

Benefits to rural communities

In Niger, evaluation of a farmer-managed natural regeneration (FMNR) scheme, coupled with micro-dosing of organic and inorganic fertilizer within legume intercropping, led to an increase in grain yields of between 30 and 48 per cent. For example, data on millet grain and total dry matter yields in 2018, from 551 farmers in 120 villages, indicated a higher overall yield in all FMNR practices (yields 40 per cent higher than those in control cases). In real terms, average millet grain yields varied from 250 kg/ha in the control treatment to over 300 kg/ha in all FMNR schemes. Scaling up bio-reclamation of degraded lands in Niger aimed to convert degraded crusted soils into productive lands to improve food production and reclaimed 175 hectares of degraded land.

In Mali, production of grafted fruits is contributing to household nutrition and increased income from fruit sales in local markets. The use of fertilizer micro-dosing and earth banks has doubled crop yields and increased household incomes by 40 per cent. These households are now able to meet their cereal food requirements throughout the year.

In Kenya, maize and legume yields were two to five times higher in planting basins than they were for control farmers, with the greatest impacts being observed in Kitui and Makueni counties. Cowpea yields were observed to be over four times higher in planting basins in Kitui and two times higher in Makueni than controls, and green gram yields were between two and four times higher in planting basins in Kitui. Farmers are reporting increased food security and income due to the higher yields.

Initial results from the participatory gender assessment suggest changes are occurring in household decision-making and labour patterns. Women have become increasingly involved in farm management decisions, and they participate in development projects and agricultural training.

Lessons learned

Nested communities of practice are a key ingredient to the scaling up and out of land restoration, stimulating co-learning and sharing of knowledge about what works where for whom and at what cost and level. Communities of practice capitalize on the multiple learning opportunities across stakeholder groups and thus increase uptake of information and interventions. Key elements of the communities are structured facilitation and documentation, which allow for effective sharing and sustainability of the communities and the scaling up of options, while also providing valuable insights that can be adapted for project management.

On-farm workshops with farmers provide a more congenial co-learning environment than traditional workshop facilities at hotels. The importance of closing the learning loop to keep information and evidence flowing across the project is another key lesson from the intervention. This keeps motivation high and ensures sustainability of impact. Another key lesson learned is the importance of research in the development approach to encourage co-learning with evidence.

Scaling up and sustainability

A key consideration for scaling up is the strong engagement of multiple stakeholders, from solution prioritization to evidence generation and interpretation, all of which contribute to the durability of impact.

Successful scaling up requires the creation of a framework to identify cost-effective, evidence-based and locally appropriate land restoration options that are visible, measurable and scalable. Such a framework should be able to measure impacts on key indicators, including agricultural productivity, reduction of land degradation and improvement of livelihoods. The evidencing and communication of such impacts is expected to create the necessary political commitment, investment and social momentum to both sustain and further promote the project's customized land restoration options, thereby generating sustained impact at scale.

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Resources

- Project brief: http://www.worldagroforestry.org/sites/default/files/2019%20IFAD_EC_Project%20Brief_Land%20Restoration.pdf
- Project website: <http://www.worldagroforestry.org/project/restoration-degraded-land-food-security-and-poverty-reduction-east-africa-and-sahel-taking>
- Gender project brief: http://www.worldagroforestry.org/sites/default/files/Gender%20land%20restoration%20brief%20IFAD%20EC_V1_MC_0.pdf
- Blog: <https://forestsnews.cifor.org/65320/agroforestry-basins-stir-up-big-benefits-for-women-in-kenya-drylands?fnl=en>



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Innovation NR-7: Integrated natural resources management in Upper Tana watershed

Project title Upper Tana Nairobi Water Fund

Implementing institution The Nature Conservancy

Overview

The Upper Tana Nairobi Water Fund (UTNWF) aims to achieve a well-conserved watershed with improved water quality and quantity for downstream water users by: maintaining regular water flows throughout the year; promoting freshwater and terrestrial biodiversity; enhancing ecosystem services; and improving human well-being and quality of life for upstream local communities. The UTNWF is a five-year programme funded by the Global Environment Facility through IFAD and implemented by The Nature Conservancy (TNC).

Description of the innovation

The innovation included the following key elements:

- **Water fund model** – an innovative approach to financing watershed management. The model is a governance and financing mechanism with a legal basis as a charitable public trust that creates a platform for participation of public, private, development actors and communities (4Ps) to provide

leadership, partnerships, financing and a delivery mechanism for watershed conservation where downstream water users provide incentives (funds) for upstream communities to conserve the sources of water.

- **Endowment fund** – a financial instrument that ensures financial sustainability of both the organization and conservation interventions. This is guided by a business case (plan) that scientifically provides the costs and benefits of long-term investments in conservation through funds invested in market systems to provide high returns in perpetuity.
- **SMS platform** – this is a mobile phone-based messaging and pooling platform that supports an efficient and cost-effective approach to reach and mobilize thousands of farmers with awareness, extension advice, information on project services and pooling for feedback and critical data through mobile technology. The platform is adaptable and agile for timely messaging and pooling.
- **Farm planning tool** – a simple visioning and mapping tool to guide farmers and extension officers to visualize, itemize, quantify and present in spatial and temporal dimensions a farmer's aspirations to achieve integrated sustainable land management interventions on a farm.

Benefits to rural communities

- A **governance and financing mechanism** has been set-up and registered as a public charitable trust with the participation of public, private, development actors and communities. Through this mechanism, a sustainable financing pillar has been created and over US\$1.7 million has already been raised for the long-term financing of trust operations and conservation activities.
- **Outreach** – the project has directly reached more than 23,000 farmers, with a total of 196,000 acres put under sustainable land management. The farmers have adopted rainwater harvesting technology (water pans), and over 10,000 water pans have been installed in the watershed.
- **Farmers have planted trees** – 1.9 million tree seedlings have been planted on agricultural lands, with over 139,000 bamboo seedlings planted to conserve river banks. As a result, water turbidity in key rivers serving Nairobi city has been on a declining trend. At the micro-watershed level where intensive interventions are carried out, turbidity has been reduced by an average of 35 per cent.
- **Rain water harvesting** – water pans contribute to total water storage of approximately 792 million litres/year, which would have otherwise been wasted as surface runoff, eroding farmlands, clogging river systems and silting up dams.

- The **harvested rainwater** has helped farmers diversify their crop production and practice, meaning they can also grow crops in dry seasons. In addition, the farmers now spend more time on their farms because time spent fetching water has been reduced.
- The **1.7 million trees** planted in the watershed have helped to improve soil nutrient fixing, reduce erosion, contribute to carbon sinks and increase farm incomes through sales of seedlings, fruits, wood products and milk because of feed diversification from more nutritious grasses and fodder shrubs.
- **Business opportunities** – UTNWF has partnered with Murang'a county to plant 1 million avocado seedlings in two years. The joint project is aimed at diversifying farm incomes and food security for farmers in the watershed, while also contributing to the overall conservation goal. This year, 500,000 avocado seedlings have been planted on individual farmlands.
- **Terraces and grass strips** – farmland with stabilized terraces through planting of Napier grasses and grass strips experienced improved crop yields and abundance of livestock fodder. The resulting improvement in crop yields and livestock productivity contribute to improved household nutrition and income from the surplus sold to neighbours and local markets.
- **Biogas** – approximately 50 biogas units have been installed in households, thus reducing dependence on firewood for cooking. Farmers are also supported by an efficient drip irrigation technology that utilizes harvested rainwater to optimally grow their crops.

Lessons learned

- The establishment of an endowment fund as a sustainability pillar from the start of the project is key for the success of the water fund model. However, fund-raising for endowment is slow and more time is required to achieve optimal capitalization of the fund.
- Conservation of a watershed as large as Upper Tana involves many actors and different interventions. To be successful, an honest and trusted convener for the stakeholders is crucial to ensure greater collaboration and optimal inclusion of different stakeholders with diverse interests and goals. This can be achieved through transparency and the participation of stakeholders in planning, resource mobilization, monitoring and sharing of results.
- Projects such as the Water Fund generate a lot of data and information (socio-economic, biodiversity, hydrological). Continuous analysis, synthesis and dissemination of is crucial to inform project implementation, policy engagement and institutional strengthening. This requires an adequate human resource capacity, which was overlooked at the project design stage.
- There is a high potential for replication to other cities in Kenya where scoping and feasibility studies have already been completed, for example in

Mombasa and Eldoret. Regionally, other cities in Africa (e.g. Tanga, Dar es Salaam in Tanzania and Freetown in Sierra Leone) have expressed interest.

- Inspired by the Nairobi Water Fund, and borrowing lessons from it, the Greater Cape Town Water Fund in South Africa has been established to address water shortage problems.
- The prospects for sustainability are good. TNC and the Nairobi Water Fund are engaging other stakeholders and players; transparency and stakeholder participation are needed to support stakeholder commitment and ownership; having a sustainable financial mechanism in place should ensure continuity.

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Resources

- Information materials: <https://bit.ly/2Vtvsrw>
- Water funds toolbox: <https://waterfundstoolbox.org>



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Innovation RF-1: Public-private-producer-partnership (4Ps) trading platform for delivery in Tanzania

Project title Marketing Infrastructure, Value Addition and Rural Finance Support Programme (MIVARF) Producer Empowerment and Market-Led Linkage Facilitation

Implementing institution Office of the Prime Minister, Government of Tanzania

Overview

The Marketing Infrastructure, Value Addition and Rural Finance Support Programme (MIVARF) is a seven-year programme aimed at supporting sustainable and profitable links between smallholders and markets. The programme is informed by previous IFAD-supported marketing and rural finance projects that showed that, in the absence of strategic linkages to markets, most smallholders push products to the market based on a comparative or competitive advantage. In this situation, smallholders are not informed or responsive to market needs, but rather they take an opportunistic and uncoordinated approach to marketing their products. This organization of value chain partners does not lend itself to delivering win-win outcomes for diverse actors along the chain. MIVARF tried out the consortium model as an innovative way to develop partnerships that deliver.

Smallholder farmer participation in a trading consortium in the Karatu district increased from 4,429 onion farmers in the 2016/17 season to 5,646 farmers in the 2018/19 season.

Description of the innovation

The consortium model is an inclusive agribusiness development initiative that involves a 4Ps arrangement in the form of a trading platform that pulls all the actors in the value chain into a mutually beneficial network. The idea is that, this way, the actors are better informed and more responsive to market needs and have an opportunity to improve their service delivery and position themselves to profit from business knowledge and experience in the sector. The platform brings together value chain actors with profitability and growth challenges who otherwise would have limited access to competitive markets (for example, because of lack of access to finances, inputs, produce markets, timeliness of supply and quality). Consortium members organize pre-season meetings to establish market requirements, including inputs, finance and produce market requirements. They then sign memorandums of understanding or contracts to firm up their relationships. Follow-up meetings are conducted during the season to ensure agreed objectives are being met as expected, or to make any necessary adjustments. End-of-season meetings then allow consortium members to reflect on performance and prepare for the next season. Four consortiums have been established in Mbeya, Songea, Mbulu/ Manyara and Shinyanga, with members including lead firms, input suppliers, financial partners and smallholder farmers.

Benefits to rural communities

The achievements and results of the consortium model include:

- **Increase in smallholder farmers' enrolment** – smallholder farmers participating in the consortium arrangement have increased. For example, the number of onion farmers in the Karatu Onion Consortium increased from 4,429 in the 2016/17 season to 5,646 in the 2018/19 season.
- **Increased sales volume** – sales of red onion marketed by consortiums increased by 60 per cent, and sales of maize increased from 17,674,040 kg in 2016/17 to 24,605,021 kg in 2018/19.
- **Improved profitability** – an increase in unit margins resulted from economies of scale and competitive access to inputs and produce markets. For example, in the paddy subsector in the southern zone, there was a decrease in the cost of production from TZS 548/kg in the 2016/17 season to TZS 349/kg in the 2018/19 season. There was an increase of more than 100 per cent in the profit margin, from TZS 252/kg in 2016/17 to TZS 528/kg in 2018/19.
- **Increased access to affordable finance** – financial institutions have managed to develop products suitable for actors participating in the consortium. For example, Vision Fund Tanzania developed a loan package for small groups of five farmers with no collateral. The arrangement helped 68 paddy farmer groups to acquire loans amounting to TZS 102,630,000 in the 2017/18 season.

Lessons learned

Key lessons learned on the consortium model include:

- Trust is key for the success of the consortium.
- The incentive for all involved should be clear from the outset.
- Value chain financing, especially for produce bulking, is key for ensuring volumes will be traded and access to productive assets.
- Stakeholders should understand their roles and responsibilities in the consortium.
- Dependence on rain-fed agriculture can compromise anticipated production volumes and affect buyers' confidence.

Scaling up and sustainability

For the scaling up of the innovation, it is necessary to have willing lead firms, including off-takers and processors. The smallholder farmer organizations must also be willing to participate in the arrangement. There should be clear market opportunities and agreement on what the constraints are and what action needs to be taken by the actors. Business tools, including business plans and data collection instruments, are a must for consortium actors to remain focused on their respective seasonal financial and marketing objectives. The facilitating agency should be able to customize its support in line with beneficiary requirements. For sustainability, ongoing monitoring and supporting of the relationships in the consortium is of the utmost importance.

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Resources

- <https://www.youtube.com/watch?v=1Y0E7rHPVNk>



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Innovation RF-2: Anchoring rural enterprises into sustainable institutions in Madagascar

Project title	Support Programme for the Rural Microenterprise Poles and Regional Economies (PROSPERER)
Implementing institution	Ministry of Agriculture, Livestock and Fisheries, Government of Madagascar

Overview

The Support Programme for Rural Microenterprise Poles and Regional Economies (PROSPERER) facilitates the participation of rural enterprises in mainstream economic development. It aims to address the situation of limited engagement and support relating to the rural private sector in Madagascar, and ultimately, to reduce rural poverty. Engagement of the rural private sector in rural enterprise development is constrained by the fact that the Federation of Chambers of Commerce and Industry (FCCI) represents mainly formal and informal businesses and industries in urban areas and tends to exclude rural enterprises. The project is working on anchoring regional teams in the regional chambers of commerce and industry and the national team in the FCCI, thus ensuring rural enterprises are represented in the FCCI.

Description of the innovation

PROSPERER anchors rural enterprises in sustainable institutions by setting up project structures that work with national and regional chambers of commerce to

identify local enterprises that can cooperate in inclusive value chain development. The objective is also to promote policy dialogue between government and private sectors to improve the enabling environment for enterprise development. Anchoring rural enterprises in sustainable institutions contributes to raising the competitiveness of rural enterprises and enables the setting up of business development services at the rural level.

The project supports the matching of producer organizations and market operators. This is possible because market operators are members of chambers of commerce where the project is represented. Market operators determine the characteristics of the products sought by the market and these characteristics are communicated to member producer organizations working with the project. The regional chambers of commerce and the FCCI manage the market operators and the market database. They also survey market trends and facilitate meetings and negotiations between producer organizations and market operators. For the elaboration of the national strategy for developing rural entrepreneurship, the regional chambers of commerce and the FCCI are represented in the Technical Committee for Political Orientation. They have become the voice of rural businesses and the private sector in general. The same approach was adopted for the formulation of the national strategy for the development of cooperatives.

Benefits to rural communities

Business development services (training; advisory support; financial services, such as savings/credit; market and technology information) are now available at the rural level. Through district branches of the chambers of commerce, rural enterprises have been able to access these services. Key results include:

- US\$9,340,000 cumulative turnover.
- US\$5,548,000 private-sector investments in rural enterprises.
- 35,545 rural enterprises linked up in 274 producer organization/market operator pairs.
- 16 operational value chain platforms providing services to members.
- US\$80,000 of credit and loan granted.
- 21 rural market infrastructures developed (showrooms, processing units, storage spaces).
- Chambers of commerce and the FCCI enable rural enterprises to have access to technical and financial support from international agencies, such as the United Nations Development Programme and the Technical Assistance to the Employment and Regional Integration Support Programme (PROCOM).

The capacity of the chambers of commerce and the FCCI has been strengthened, resulting in improved services to their members.

Lessons learned

Key lessons from this initiative are:

- Chambers of commerce are potentially capable of developing and sustaining business development services. Anchoring rural enterprises here and within the FCCI ensured that the experiences and lessons of a short-term initiative could be mainstreamed in private or public structures, thus promoting sustainability.
- Skills should be transferred at the beginning of the project/programme and not on completion.

Scaling up and sustainability

For sustainable scaling up, enterprises should be anchored within structures that are well established, mature and experienced to facilitate efficient implementation. Selection of appropriate partner institutions is critical to ensure good performance and the achievement of programme targets.

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Resources

- https://prosperer-madagascar.mg/?page_id=34
- https://www.youtube.com/channel/UCytPvEW0ROzm9jwg26_Aqlg/videos



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Innovation RF-3: Hub approach to climate-resilient post-harvest and agribusiness support

Project title	Climate-Resilient Post-Harvest and Agribusiness Support Project (PASP)
Implementing institution	Government of Rwanda, Rwanda Agricultural and Livestock Development Board

Overview

Aggregating produce for markets, supporting transformation and creating value addition to enable smallholders to capture a higher share of the value has been a long-standing challenge. To address this concern, hubs were created as part of cooperatives or existing or newly formed SMEs to allow them to benefit from value addition. A typical hub model in dairy production could be an existing milk collection centre developed under a government programme. In maize or bean production, a hub could be the place where cooperatives or privately owned SMEs consolidate grain for drying, cleaning, sorting, bagging or storage prior to dispatch to market.

The hub approach has reduced losses among cooperatives. Some 226 cooperatives have graduated to diverse commodity hubs while food-processing companies registered a decreasing rejection rate from 50 to 20 per cent.

Description of the innovation

The newly created hubs introduced an approach that played a vital role in the success of cooperatives. More than 130 young graduates in agribusiness have been deployed in cooperatives through the partnership of the Rwanda Youth in Agribusiness Forum (RYAF) and the Climate-Resilient Post-Harvest and Agribusiness Support Project (PASP). The new graduates were assigned to help cooperatives graduate according to the hub criteria. After their year-long contracts, the graduates have shown that significant change has been achieved in the management of the cooperatives and income at the cooperative level has increased twofold or threefold.

Benefits to rural communities

The hubs have significantly reduced post-harvest losses among cooperatives, which in turn has improved the competitiveness of rural produce on the national and international market in terms of food standards and safety. In 2018 alone, food processing companies registered a decrease in rejection rate from 50 to 20 per cent.

The hubs have increased the level of farmer understanding of savings and bank services, where 100 per cent of cooperative members receive payment for their produce through financial institutions.

Through the hub capacity-building approach, 226 cooperatives have graduated as hubs in different commodities, where they serve as aggregation points. The cooperatives are the main service providers for their own members, with all necessary services being available at the aggregation point (input distribution, post-harvest handling services, training centres, bank services and food boutiques).

Lessons learned

Youth are the engine of change in agricultural development. Involving youth in cooperatives is a better way of transferring knowledge within a short period of time.

Post-harvest infrastructure is needed by all cooperatives to enhance their level of post-harvest handling. The project has supported cooperatives with a contribution of post-harvest infrastructure equal to 30–50 per cent. This contribution has created a sense of ownership among the cooperative members because each member holds a share in the contribution.

Scaling up and sustainability

Youth need to be involved as a potential service provider in hub development through the Rwanda Agriculture Board. A number of entities are essential:

(i) a start-up of a technical assistance facility targeting beneficiaries in youth-led agribusiness; (ii) FSPs targeting young agribusiness entrepreneurs; and (iii) public and private actors whose activities can benefit and strengthen youth-led

agribusinesses. Services and facilities in place will promote investment-friendly regulations that in turn promote investments for young people in agribusiness. The technical assistance, when linked to key national development frameworks and priorities, will increase the effectiveness and development impact of the various efforts that have been deployed by government and development partners, including funding modalities, by supporting investees with dedicated technical assistance and other activities that are critical to their success and growth.

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Resources

- The success of the RYAF cooperative supports officers in the transformation of farmers' livelihoods: <http://ryaf.rw/?p=2716>
- The IFAD Acting Coordinator of the Single Project Implementation Unit urged cooperative support officers to develop an entrepreneurial mind-set and start new businesses: <http://ryaf.rw/?p=2746>
- Rwandan youth urged to seize opportunities available in agribusiness: <http://www.topafricanews.com/2019/07/20/rwandan-youth-urged-to-seize-opportunities-available-in-agribusiness/>



© National Agriculture Information Services (NAIS), Zambia

Innovation RF-4: Linking community-based financial institutions to formal financial service providers through mobile money

Project title	Rural Finance Expansion Programme (RUFEP)
Implementing institution	Ministry of Finance, Government of the Republic of Zambia

Overview

CBFIs provide financial services to rural people, who are often otherwise financially excluded. Traditionally, CBFi operations include: (i) mobilizing savings of CBFi group members, (ii) making loans to group members from the accumulated savings, and (iii) holding surplus cash savings in a safe location. The risk of losing group savings through fire or theft as a result of this approach reduces trust in the CBFi. To mitigate this risk, the Rural Finance Expansion Programme (RUFEP) in Zambia links CBFIs with formal FSPs through mobile money to safely deposit the surplus savings.

Description of the innovation

RUFEP establishes operational links between CBFIs and formal FSPs, including banks and building societies. RUFEP partners with organizations that promote CBFi development using different models, such as solidarity groups, savings and internal lending communities and village savings and loan associations, to promote CBFi linkages with FSPs. Through field officers or private service

providers, CBF promoters build the capacity of CBFs and assist them in formally registering so that they can open bank accounts. For rural areas with limited access to formal FSPs, RUFEP promotes mobile banking and mobile money to increase access to financial services. For example, in the eastern and southern provinces of Zambia, RUFEP partners with MicroLoan Foundation to support women's solidarity groups in accessing loans using mobile money. Working with MicroLoan, all women's solidarity group members access their loans through mobile phones. Loan disbursements all take place through mobile money. Linking the rural savings group to formal financial institutions solves three problems at the same time:

- Safety of savings.
- Increased access to formal financial services.
- Greater effectiveness in that linked groups can access credit/loans from FSPs and other products, such as insurance.

Benefits to rural communities

Over 100 CBFs were formally registered and linked to FSPs under this innovation. Linked savings groups are no longer exposed to the risks of fire and theft as group savings are now safely held in banks. Women's solidarity group members accessing loans from MicroLoan using mobile money do not need to go to the bank to collect money or to pay back loans. In addition, time and resources spent accessing financial services in urban centres has been saved as women can now draw their loans from mobile money agents.

The security brought by the innovation has seen more rural men, women and youth join CBFs, and this has helped to improve their livelihoods by increasing household incomes. Through capacity-building, poor community members have learned how to save and access loans to embark on income-generating activities and increase their household incomes throughout the year. Apart from the social cohesion and solidarity in rural communities that have embraced CBFs, savings groups have reduced household poverty through improved livelihoods. With the savings and loans accessed through the CBFs, members have been able to send their children to school, improve their nutrition and upgrade their housing from grass-thatched to iron-sheeted.

CBFs have made communities more resilient to climate change, as they are no longer dependent on farming or agriculture as their only source of income. Their sources of income have been diversified through other income-generating activities throughout the year.

Lessons learned

Key lessons learned through this innovation include:

- Traditional FSP products and services may not be entirely appropriate for CBFIs. When more aware of the needs of CBFIs, FSPs are able to develop products and services that respond to requirements.
- Linkages between CBFIs and FSPs can result in increased costs for the CBFIs in terms of transport to deposit and withdraw money for the groups. This challenge needs to be managed by ensuring the benefits outweigh the costs. Continuous awareness-raising and financial literacy and education campaigns designed for the saving groups are important.
- Rural people's access to mobile banking and mobile money is constrained by poor network services and availability from mobile network operators. Where the network is available, access and usage can be limited by lack of electricity lines and/or renewable energy for rural people to charge their phones. Network operators will need to improve their services and coverage in rural areas so that the potential offered by mobile phones can be leveraged and, particularly, to increase rural financial inclusion.
- For the innovation to meet the needs of rural areas, there is need to understand the saving cycles of the CBFIs. The risk of keeping money in boxes tends to be higher near the sharing periods as a large part of the finances is loaned out to group members during the savings cycle.

Scaling up and sustainability

To promote the sustainability of this innovation, documentation and dissemination of emerging good practices takes place on both the supply and the demand side. FSPs must provide information on how successful groups are performing and, to avoid mistrust and concerns about hidden charges, they need to ensure clarity on the terms and conditions of their products and services for CBFIs. CBFIs need to provide the FSPs with information on the different models used by the groups to improve the understanding of savings cycles and investment needs and ensure that products and services that meet CBFI-specific needs are developed.

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Resources

- RUFEP newsletter, volume 2 June 2018 edition: <https://www.rufep.org.zm/index.php/rufep-newsletters/>
- RUFEP video on YouTube: <https://www.youtube.com/watch?v=hHpDda-StFs>
- Facebook page: <https://www.facebook.com/pages/category/Financial-Service/RUFEP-188923111551843/>
- RUFEP website: www.rufep.org.zm



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Innovation CC-1: Climate-smart dairy systems in East Africa

Project title Climate-Smart Dairy Systems in East Africa through Improved Forage and Feeding Strategies: Enhancing Productivity and Adaptive capacity while Mitigating Greenhouse Gas Emissions

Implementing institution International Center for Tropical Agriculture (CIAT)

Overview

The growing demand for meat and milk, combined with increased intensification of smallholder dairy production, has raised the pressure on the natural resource base. Although the mixed crop-livestock systems produce 70 per cent of the meat and 90 per cent of the milk in Eastern and Central Africa, while also providing livelihoods for some 50 million of Africa's poor rural people, they also cause significant environmental impacts and urgently require a process of

sustainable intensification. However, livestock forage and feed remain an outstanding challenge to many smallholder dairy systems in East Africa. Responding to this, this project supports the sustainable intensification of smallholder dairy production in Rwanda and Tanzania.

Improved forage and climate-smart dairy systems have allowed farmers to increase their incomes by selling a 12–20 kg bale of Rhodes grass hay at a price of US\$1.4 to US\$6.9.

Description of the innovation

The innovation identified climate-robust options that are likely to increase productivity, now and under future climate conditions while, at the same time, enhancing environmental benefits (soil fertility, mitigation). It has the following elements:

- At the farm level, best-bet forages are tested in demo plots across 12 villages in Rwanda and Tanzania. Additionally, some seeds and cuttings are provided to the farmers to be planted on their own farms. Farmer field days and exchange visits ensure farmer-to-farmer learning.
- Agricultural research and extension systems are used to increase the capacity of farmers and reach a wider group of farmers to gain access to tropical forages and acquire skills and knowledge to integrate the forages into their farming systems and feeding strategies.
- Application of existing tools, such as the FEAST assessment tool, has taken place across several districts to identify best-bet feed interventions. The milk collection centres have access to useful information on the best-bet forage options being piloted.

Benefits to rural communities

Farmers have started to observe some positive impacts from feeding improved forage to their livestock:

- High biomass yield, even in periods of recurrent drought and an increase in milk yield have been seen.
- Farmers have also reduced the time searching for grasses, mainly natural grasses, which become unavailable during the dry period.
- In Tanzania, the improved forage has become a direct source of income. Farmers are selling a 12–15 kg bale of Rhodes grass hay at US\$1.4 and a 20 kg bale of Brachiaria hay at US\$6.9 (May 2019).
- Making hay from Brachiaria is found to have a more positive impact on both milk yield and household income.
- The introduction of improved forage in the southern highlands of Tanzania has led to more farmers keeping improved breeds of cows with the aim of increasing milk yields.

Lessons learned

In the long term, work is needed to set-up a sustainable forage seed system to bridge the supply gap in access to seeds and planting materials.

Although the impact of improved forage and feeding strategies has already been observed among farmers, robust farm-level data are required to quantify large-scale impacts.

Although data are being collected and good information is expected to come out of the project, the extent of potential impacts on soil health, water use and greenhouse gas emissions is not yet fully understood. No data are being collected, on the other hand, to quantify the potential impact on food and nutrition security. This could be the topic of a targeted accompanying study.

Scaling up and sustainability

Through farmer-to-farmer exchanges, participation in agricultural shows and media coverage (radio and TV), the research work in the southern highlands has drawn the attention of other farmers in Tanzania (as far as Bukoba, Mwanza and Tanga). Due to the potential for increasing milk yield, farmers are keen on *Brachiaria* grass.

In Rwanda, interest has been observed, and scaling out is expected to be facilitated through close collaboration with the Rwanda Dairy Development Project. In both countries, further strengthening of the networks with a wider variety of stakeholders will help in reaching a wider group of stakeholders.

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Resources

- <https://ciat.cgiar.org/drought-resilient-grass-could-bring-millions-of-dollars-to-east-african-dairy-farmers/>
- <https://ciatshare.ciat.cgiar.org/sites/climatesmartdairy/SitePages/Home.aspx>



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Innovation CC-2: Incentive-based interventions for reducing climate impact of livestock in East Africa

Project title Greening Livestock: Incentive-Based Interventions for Reducing the Climate Impact of Livestock in East Africa

Implementing institution International Livestock Research Institute (ILRI)

Overview

The distribution of benefits from the intensification and commercialization of the dairy sector is uneven. To assess this, an interdisciplinary social science team conducted in-depth research on an intertwined set of topics relating to changes in dairying in Kenya and Tanzania. These topics vary from gendered aspects of commercialization and intensification, household surveys to develop a typology of interest and ability to invest in low-emission dairying practices, value chain analysis to understand power dynamics within the sector, and a policy analysis. Although low-emission development in the East African dairy sectors is starting to attract more international investment, the rationale for these investments usually focuses on environmental targets (reduced greenhouse gas emission intensities) and macro-economic targets (growth in the sector). However, these metrics gloss over the question of how benefits from rapid transformation of the dairy sector (in the form of increased intensification and commercialization) are socially distributed.

Description of the innovation

This research innovation generated high-quality evidence on the social mechanisms and disaggregated pathways relating to dairy intensification and commercialization (the main means of pursuing low-emission dairy development) in an innovative way: ensuring social equity targets were considered alongside environmental and macro-economic targets relating to investments in low-emission dairy development.

Benefits to rural communities

As a research project in support of low-emission planning, the impact pathway has primarily focused on providing evidence-based inputs to key national stakeholders and associated platforms to guide investment priorities and strategies. The research has been deliberately designed to highlight variability in the dairy sector – within and across households as well as in value chains. This affects the social equity outcomes stemming from large-scale investment in rapid transformation of the dairy sectors.

The evidence-based product is being brought into national low-emission development strategy discussions so that social equity outcomes can be considered alongside environmental and macro-economic outcomes, with an eye towards making potential trade-offs and synergies clear. The impact upon rural communities will manifest itself over the coming years through the implementation of low-emission interventions that have been informed by our research findings.

Lessons learned

Women tend to be disenfranchised by commercialization for a variety of reasons. First, dairy processors tend to pay farmers in bi-weekly or monthly payments made through digital currency. These bulk payments aggregate what had been small daily income streams, often less than a dollar a day, into substantial sums of money. Due to cultural norms, such substantial sums of money should go to the household head, meaning women lose their income stream. Conversely, women are often able to find more favourable opportunities in the informal dairy sector, which tends to be marginalized by efforts to commercialize the formal dairy sector.

In terms of inter-household variability, the key lesson has been that ability and interest in investing in low-emission dairy practices (which amount to intensification) is uneven across cattle-keeping households. This is a function of differences in access to labour and capital, as well as how dairying fits into the overall diversified livelihood strategy.

In Tanzania especially, the dairy sector is highly localized, without a national coherence in terms of how the value chains are organized and dairy producers' ability to profit from commercialization.

Scaling up and sustainability

The research design and methodological tools developed for this project lend themselves to easy adaptation to new contexts, including other agricultural sectors beyond dairy. Research instruments would need to be repopulated with the relevant technical reference points for the agricultural sector/practices of interest. However, this work will be most meaningful in the context of countries that are preparing to make significant investments in low-emission agricultural development.

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Resources

- <https://www.ilri.org/news/'greening'-white-gold-tanzania-supporting-low-emissions-dairy-development-smallholder-livestock>
- <https://mazingira.ilri.org/2018/07/20/feedback-workshops-yield-significant-insights-for-smallholder-dairy-farmers-in-nandi-and-bomet/>
- <https://knowledge4food.net/research-project/gcp4-inclusive-low-emission-development-led-east-african-dairy/>
- <https://www.nwo.nl/en/research-and-results/research-projects/i/26/29926.html>



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Innovation FN-1: Food trees for diversified diets

Project title Food Trees for Diversified Diets, Improved Nutrition and Better Livelihoods for Smallholders in East Africa under the Programme: Putting Research into Use for Nutrition, Sustainable Agriculture and Resilience (PRUNSAR)

Implementing institution World Agroforestry (ICRAF)

Overview

Malnutrition in all its forms, including under-nutrition, micronutrient deficiency and over-nutrition, affects one in three people worldwide and is a major risk factor in non-communicable disease. While the causes of malnutrition are complex, a

More than 90 nutritionally rich, underutilized indigenous tree and crop species identified across Ethiopia, Kenya and Uganda have boosted household dietary diversity for children and helped to combat micronutrient deficiencies.

common denominator of all types of malnutrition is often a nutritionally inappropriate diet, characterized by low diversity of nutritious foods, derived from food and agriculture systems that deliver sufficient calories rather than a broad range of nutrients.² Integration of food trees that provide nutrient-dense foods (fruits and nuts, seeds for protein and oils, leaves as vegetables) into the existing crop

² Hawkes, 2007; Burchi et al., 2011; Global Panel on Agriculture and Food Systems for Nutrition, 2016

farming systems supports diet diversification and achievement of improved nutritional outcomes.

Description of the innovation

Lack of seasonal availability of micronutrient-rich (fruits and vegetables) is among the main reasons for low intake among the smallholder farmers in rural sub-Saharan Africa. To overcome seasonal food and nutrient gaps and diversify predominantly staple-based diets, World Agroforestry, with support from the European Union and IFAD, has developed an innovative approach for selecting ecologically suitable and nutritionally valuable food tree and crop species for production on farms known as “Food Tree and Crop Portfolios”. In addition to filling harvest gaps, the portfolios address certain micronutrient gaps in a site by matching the identified tree foods and crops with food composition data. The approach involves a variety of tools that allow triangulation of data sets. It also provides an example of how agriculture can be used to promote nutritionally rich foods, particularly for rural smallholders who rely predominantly on foods from their own farms.

Benefits to rural communities

- More than 90 food tree and crop species have been identified across nine sites in Kenya, Uganda and Ethiopia, with an average of 30 species recommended per portfolio.
- The portfolios not only support direct food production–consumption pathways but also support diversified income-generating pathways through engagement in nursery enterprises for the supply of tree seeds and seedlings, with the potential to sell surplus produce from the prioritized food trees once they fruit.
- Increased household nutrition and incomes of smallholders through food production diversity are the important benefits from this project. Many households can meet their seasonal dietary needs through a combination of their own production on farm or from the market.

Lessons learned

Using data for evidence-based, nutrition-sensitive agricultural approaches. The portfolio approach makes use of location-specific data not only to capture the socio-ecological dynamics of smallholder food production diversity but uniquely to include individual food consumption data to inform knowledge on local dietary gaps and decision-making at the country, regional and global levels.

Selecting location-specific species diversity to address seasonal availability. The tools applied need to be flexible enough to develop portfolios for unique sites due to variations in species suitability, phenology and farmers’ preferences. It is important to note that the portfolio is a recommendation. It may

not be ideal for a farmer to produce all species included due to land, water and other restrictions.

Nutrient composition data for linking agriculture and nutrition. Information on the nutrient content of indigenous and underutilized crops is often hard to come by. As a result, less-researched indigenous and underutilized crops plants rich in micronutrients may be overlooked in agriculture and nutrition development planning and policies.

Beyond food production–consumption pathways. The portfolio approach provides a suitable entry point for promoting a direct production–consumption pathway to address more food consumption and dietary needs, but should be combined with awareness campaigns on healthier diets.

Production diversity, particularly of perishable foods, such as fruits, plays a crucial role. This is especially the case where infrastructure market connectivity is limited, as it supplies local markets and provides nutritious and accessible foods to local communities.

Scaling up and sustainability

- The location-specific portfolios have been developed and communicated to the beneficiary communities and supporting national partners. The project itself has supported the development of locally relevant communication materials to effectively transfer this information, undertaken training with individual farmers and farmers groups, and also held open days to reach wider numbers in the communities with which the project operates.
- To ensure sustainability, lead farmers, farmers groups, nursery businesses and schools have been engaged in establishing demonstration plots for the portfolios, received technical training and information on the establishment, managed portfolios and subsequent information on the value of production diversity to meet seasonal food, nutrition and income needs.
- To ensure knowledge-sharing and scaling up, the project has engaged in a number of county open days to promote and explain the project's purpose, activities and impact.
- Through the various communication tools and training modules delivered by the project, the portfolio approach has been disseminated to target project beneficiaries, wider community members and local partners.
- The portfolio approach can be adapted to different locations with diverse agro-ecological conditions, as illustrated by the varying environments of project sites in Kenya, Uganda and Ethiopia.
- Other donors and implementing partners have shown interest in replicating this innovation across other countries. A user guide and several papers have been published for interested partners.

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Resources

- All outputs produced by project are available on the project website, Food trees for diversified diets, improved nutrition, and better livelihoods for smallholders in East Africa: <http://www.worldagroforestry.org/project/food-trees-diversified-diets-improved-nutrition-and-better-livelihoods-smallholders-east>



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Innovation FN-2: Fostering sustainability and resilience for food security in sub-Saharan Africa

Project title Resilient Food Systems Programme (Hub Project)

Implementing institution World Agroforestry (ICRAF)

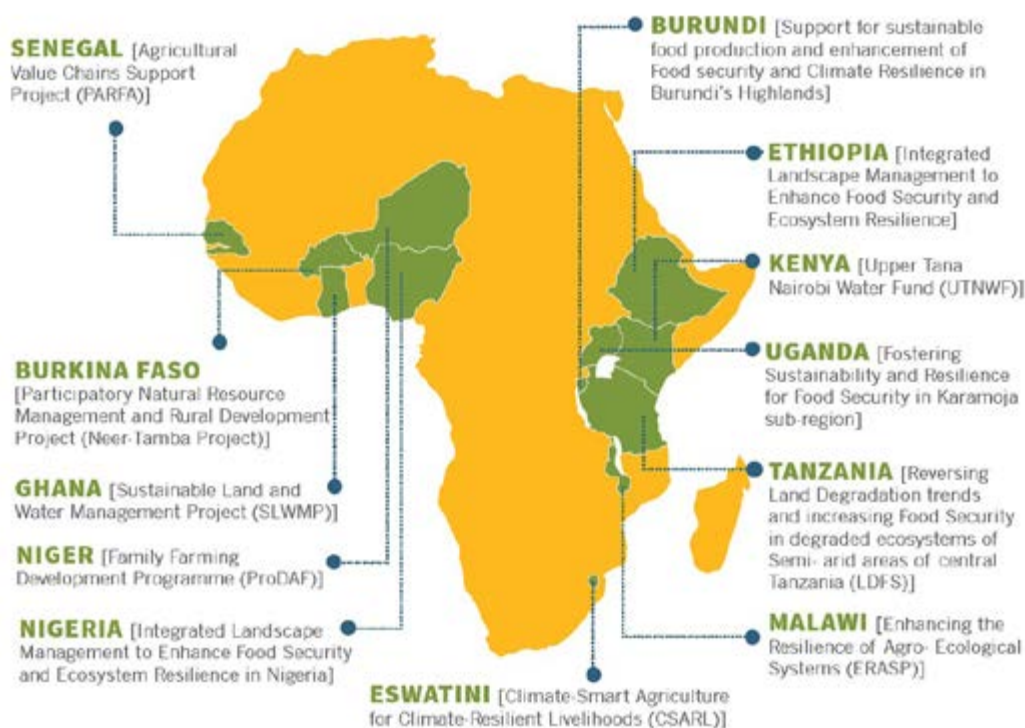
Overview

This multi-country programme (see figure 8) is committed to fostering sustainability and resilience for food security in sub-Saharan Africa. It contributes to a paradigm shift in the continent's agriculture to an emphasis on the importance of natural capital and ecosystem services to enhance agricultural productivity. The project promotes integrated management of land, water, soils, trees and genetic resources. The smallholders are supported to strengthen soil health, improve access to drought-tolerant seeds, adjust planting periods and cropping portfolios, and enhance on-farm agro-biodiversity.

Description of the innovation

The multi-country projects are connected by the regional hub project, which in itself is a key innovation of this programme. Having a primary function of linking the country projects to each other and to the outside world, the hub has been designed to help ensure that the programme will comprise more than a set of disconnected country projects, which has been a risk with programmatic

Figure 8: The geographical spread of multi-country programmes in sub-Saharan Africa



modalities in the past. An innovation in this project has therefore been the provision of additional funding for a cross-cutting project.

The hub has four key components led by institutional partners with technical expertise to support science-policy linkages, implementation and monitoring within the country projects. The hub project aims to ensure overall coordination by facilitating the exchange of knowledge and scaling up of best practices, as well as joint tracking of impact at the national and regional levels.

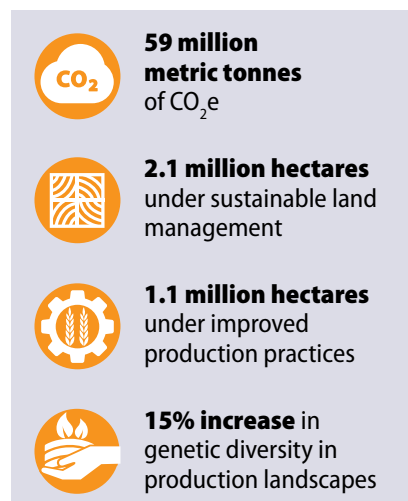
Benefits to rural communities

The programme contributes to removing the barriers to sustainable intensification of agriculture in sub-Saharan Africa and to promoting the scaling up of integrated natural resources management (INRM) through a tiered approach, involving:

- Strengthening of the enabling environment through coherent institutional frameworks and policies, and monitoring and assessment of INRM.
- Behavioural change of institutions, individuals, groups and business, through capacity development, KM, effective communication, and South-South exchange of experiences, leading to an increase in investments in INRM.
- Achievement of impact and attainment of Integrated Approach Programme goals for sustainability and resilience for food security in sub-Saharan Africa through the adoption and scaling up of gender-sensitive, multi-benefit practices for food value chains and food production systems.

- Reinforced commitments made by participating countries within the framework of the United Nations Convention to Combat Desertification (UNCCD), the Convention on Biological Diversity (CBD) and the United Nations Framework Convention on Climate Change (UNFCCC) by generating multiple global environmental benefits (figure 9).

Figure 9: Different commitments by participating countries to achieve UNCCD, CBD and UNFCCC conventions



Lessons learned

The involvement of scientific institutions in impact monitoring allows for: (i) quality and scientifically recognized monitoring/evaluation of ecological impacts and (ii) effective communication of ecological benefits.

Locally appropriate standards, land security (land status) and the functionality of management structures (water user associations and management committees) of recovered sites are essential to the success of land restoration processes.

Scaling up and sustainability

To leverage existing work and experience in inclusive and diverse food value chains for smallholders on the continent, strong partnerships need to be built with the private sector. The scaling up of best practices can then be promoted through a value chain approach to making food production systems more sustainable and resilient (known as “greening the value chain”).

Regional training of selected national actors is essential for integrating sustainability and resilience into value chain development. The grant mechanism is key in addressing issues related to the sustainability and resilience of value chains of regional significance.

It is essential to tap into existing agricultural advisory services platforms in order to leverage sub-regional level support. Capacity development (knowledge exchange, study tours) and technical support to countries are important for strengthening agricultural advisory services.

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Resources

- Programme website: <http://www.resilientfoodsystems.co/>
- Programme repository: http://knowledgecentre.resilientfoodsystems.co/kc/resource_library



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Innovation FN-3: Systems innovative methodologies to mainstream nutrition-sensitive programming in the rural markets

Project title	The Rural Markets Promotion Programme (PROMER)
Implementing institution	Ministry of Land, Environment and Rural Development, Government of Mozambique

Overview

Guidelines for nutrition mainstreaming are well developed but not enough to ensure systematic mainstreaming of nutrition within IFAD-supported programmes and investments. Lessons learned during the implementation of the first two years of the stand-alone nutrition education activities under Millennium Development Goal 1c indicated that nutrition education is necessary but not sufficient to intensify the contribution of the markets programme to nutritious diets. The overall goal of the programme is to enhance the development of farmers' organizations and the capacity of their members to produce according to market demands and assist rural traders in expanding their agricultural commodity supply and extending their businesses to create competitive agro-dealer networks. The aim is to develop more efficient and equitable trade relations for small-scale farmers and traders.

Description of the innovation

The innovation has many elements, including engagement in: (i) a series of tailor-made capacity-building initiatives for both the programme team and service providers to mainstream nutrition sensitivity into the programme; (ii) training on nutrition-sensitive value chain development, including what changes were needed and what opportunities existed within the current activities to enhance nutrition outcomes; (iii) workshops to learn about important concepts and components of monitoring, evaluation and impact assessment, especially with regard to nutrition-sensitive agriculture, which led to a discussion on adjusting the current indicators to incorporate nutrition-sensitive outputs and indicators; and (iv) customizing the nutrition-sensitive strategy guidelines and recommendations for the markets programme and, based on this, global and national nutrition-sensitive evidence drafting and validating by the team to start off mainstreaming nutrition in the annual work plan and budget processes.

Benefits to rural communities

- Local networks of technical staff and service providers have been established, which is likely to ensure that the project-supported farmers continue to have access to services and inputs that contribute to nutrition outcomes, and small-scale farmers are targeted not only as producers but also as consumers.
- Building of sustainable community capacity through the peer mothers' groups and the capacity and structures for extension services. These two structures enhance continuity in nutrition promotion interventions.
- Nutrition knowledge and methods have improved in programme targeted families: 72 per cent of women of reproductive age and 78 per cent of adolescent girls have acquired knowledge of the benefits of dietary diversity. Sixty-three per cent of women of reproductive age process and conserve vegetables. Now, 98 per cent of women of reproductive age and 94 per cent of adolescents have knowledge of critical handwashing and food preparation practices. Sixty-three per cent of women of reproductive age and 49 per cent of adolescent girls listen to nutrition-related messages via community radio.
- Forty per cent of women of reproductive age, 68 per cent of adolescent girls aged 11–18 years and 45 per cent of children aged 6–23 months achieved minimum dietary diversity. This meant that these target groups were more likely to have higher and more adequate micronutrient intakes.

Lessons learned

- Promote an enabling environment by investing in the understanding of how key project decision-makers perceive nutrition, how it benefits their investments and what it takes to incorporate nutrition interventions for greatest impact and greatest net-benefit.

- Expose project management teams to the evidence on nutrition impacts from their investments, but do not rely only on evidence alone to change minds and motivate them to integrate nutrition. Include capacity-building activities tailor made for the specific investment to transform participants into nutrition advocates.

Scaling up and sustainability

- Strengthen countries' functional competencies in nutrition action through communities of practice for nutrition focal points and exposure to joint monitoring for nutrition outcomes.
- Focus on integrated pathways for nutrition outcomes by considering nutrition-sensitive actions within programme components with explicit nutrition objectives and indicators.
- Look for realistic and pragmatic entry points, i.e. adaptations that can be made to existing programmes to increase their nutrition sensitivity.

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Resources

- <https://www.ifad.org/documents/38714170/39150184/Mapping+nutrition-sensitive+interventions+in+Eastern+and+Southern+Africa.pdf/8708488f-6ed0-48f7-93a2-899dffeafdbc>



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Innovation YG-1: Virtual one-stop agribusinesses market place in Kenya, Uganda, Burundi and Rwanda

Project title Scaling Up Rural Youth Access to Inclusive Financial Services for Entrepreneurship and Employment

Implementing institution Eastern African Farmers Federation (EAFF)

Overview

Lack of clear information on how to access financial services, such as deposits, credit, payments, money transfers, leasing or insurance, for both individual youths and their enterprises is one of the key challenges identified by the IFAD-supported project Scaling Up Rural Youth Access to Inclusive Financial Services for Entrepreneurship and Employment being implemented by the East African Farmers Federation (EAFF). To address this challenge, the project set-up and facilitated a regional network/market place that enables service delivery, marketing and access to finance through digital space. The overall goal of the project is to support youth to set-up and run profitable agri-enterprises to generate income and employment.

In East Africa, more than 8,500 young people in 567 enterprises attended training to develop bankable agribusiness plans with a complete financial backup amounting to US\$1,000–20,000.

Description of the innovation

The innovation is a one-stop digital marketplace based on a webpage virtual network where youth can find key materials, including:

- Training modules on business planning, financial book-keeping, how to access markets, do's and don'ts in agribusiness, informed by a needs assessment survey of youth agri-enterprises.
- Youth business pitches through short PowerPoint presentations or short videos of the youth businesses.
- Youth-to-youth mentorship based on youth agriculture enterprises.
- Agricultural incubation programmes where agribusiness incubators are identified and clustered based on the value chain of focus.
- Financial service products matched with the needs/requirements of youth agri-enterprises in order to boost youth access to funding for their businesses.
- Youth products linked to markets through the display of commodities of different youth enterprises.
- Technology options within different value chains through collaboration with research institutions or knowledge networks in the region.

The innovation is geared towards solving supply and demand problems for various agricultural commodities and financing youth enterprises. By offering a digital space for advertising different input providers, FSPs, machinery and technology providers, the marketplace is expected to sustain itself in the long run when partnerships are more established.

Benefits to rural communities

The following results have been achieved so far:

- **Development of bankable business plans** – 567 youth enterprises, representing a total of 8,505 youths in Kenya, Uganda and Rwanda, have been trained in developing bankable agribusiness plans with a complete financial back-up.
- **Access to finance and market linkages** – so far, at least 10 youth enterprises in Kenya, Uganda and Rwanda have either accessed financing through linkages on grants or accessed loans for scaling up their enterprise. Examples of financial resources leveraged so far include US\$20,000 awarded to Harrison agriconsult (a poultry farm in Uganda), US\$1000 awarded to Yatta Beekeepers by YGAP accelerator funds, US\$1000 awarded to Soin Orchard and Bee Farms by YGAP and US\$1000 awarded to Henrock by YGAP.
- **Networking among businesses** – through peer-to-peer learning and networking, youths are able to learn about each other's enterprises, benefit from learning visits and start trading among themselves.

- **Skills development** – youth enterprises benefit from interaction with and membership of EAFF member organizations. They benefit from diverse skills development, such as contract farming and value addition.
- **Partnership development** – webpage information has helped different partners learn about youth enterprises, and so far, at least five memorandums of understanding have been officially signed between youth enterprises and various partners.

Lessons learned

- Indications are that the innovation has potential for scale-up. One key lesson on scaling up is that to develop a marketplace, a lot of coordination and start activities are required, in addition to good negotiation skills, to put the interests of youth enterprises at the forefront. Apex organizations can be used as entry points for high impact and growth of agribusinesses.
- Most youth who are doing very well in the production area are engaged in contract farming and supplying bigger companies. This is one way to encourage youth to participate in profitable agricultural value chains by linking them to market off-takers, one of the greatest challenges for youth.
- Youth can be impatient to see growth. Inasmuch as they know that it will take time, their resilience in entrepreneurship is still low. This is attributed to lack of sufficient start-up or expansion capital to take their enterprises to the next level.

Scaling up and sustainability

To scale up and sustain the innovation, revenue generation is required. The project could offer paid-for online services, such as webinar training for youth on business planning, and provide a marketplace where the trained youth can interact with financial providers. There are also opportunities for improved content creation and moderation.

The innovation can also be scaled up by taking advantage of the opportunity offered by the fact that in many countries the youth agenda is growing and thus the concept can be built into all youth projects, creating space for youth to innovate and engage effectively in agriculture as a business. Improving internet connectivity and access for rural youth is also critical for the scaling up of the innovation.

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Resources

- [https://www.facebook.com/EasternAfricaFarmersFederation/publishing_tools/?section=PUBLISHED_POSTS&sort\[0\]=published_time_descending](https://www.facebook.com/EasternAfricaFarmersFederation/publishing_tools/?section=PUBLISHED_POSTS&sort[0]=published_time_descending)



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Innovation YG-2: Youth mentorship in dairy production and marketing

Project title	Smallholder Dairy Commercialization Programme (SDCP)
Implementing institution	Ministry of Agriculture, Livestock and Fisheries, Government of Kenya

Overview

Youth participation in dairy production and dairy products related businesses in Kenya has been negligible to date. Yet fostering dairy production and related businesses requires energetic and technology savvy groups of people. To respond to this challenge, the Smallholder Dairy Commercialization Programme (SDCP) is trying out a youth mentorship innovation. The overall goal of the project is to increase the income of poor rural households dependent on the production and trade of dairy and dairy-related products for their livelihoods.

Description of the innovation

To enhance its youth focus, the SDCP programme initiated a youth mentorship model. The SDCP identified dairy farms that are commercially managed by youth and attached young programme beneficiaries (men and women aged 18–35 years old) for practical and peer learning purposes. The programme held a one-week youth mentorship programme with the objective of enhancing participation of young people in the dairy industry. Two successful dairy enterprises, Matende Holstein Farm in Kakamega County and Willens Farm in Uasin Gishu County,

were used as training venues to facilitate peer learning. The mentorship programme is aimed at honing participants' skills in producing quality fodder at a lower cost, improving breeding practices, maximizing production through better land utilization and boosting dairy-related income.

The youth mentorship is phased and rotatory, starting with Matende Holstein Farm. Matende Holstein Farm is a commercialized dairy farm managed by Elly (aged 34 years) and John Matende (38 years), with support from their parents, who own the farm. The first youth mentorship programme was held at Matende, with 30 participants (20 male, 10 female) from dairy groups and apex organizations supported by the SDCP. The second youth mentorship programme was held at Willens Farm, with a total of 30 young people (18 male, 12 female), followed by a third group of 43 (20 male, 23 female). In all cases, the young people were attached to a commercial farm for a five-day internship. Mentorship has continued, with each youth mentor mentoring at least five peers. Mentoring is facilitated through a WhatsApp platform.

Benefits to rural communities

To date, a total of 103 young farmers (58 male, 45 female) have participated in the youth mentorship programme, with the following benefits:

- **Employment creation and income generation** – several unemployed young people, including a business graduate from Nakuru, have become full-time dairy farmers. The mentees adopted technologies from the mentorship, especially the use of silage to feed their cows, which resulted in increased milk production from an average of 5 litres per cow per day to 10 litres per cow per day. Young people included in the mentorship have also taken on full-time dairy businesses, with a monthly income improvement of 80 per cent.
- **Inclusion of youth in the dairy value chain** – the proportion of youth directly benefiting from SDCP has jumped from 5 to 22 per cent, with more youths taking up dairying and appreciating it as a source of income and livelihood.
- **Capacity-building** – youth mentors have reached up to 27 mentees over a period of one and half years. The mentees continue to train others and to replicate best practices in dairying in their respective dairy commercialization areas and counties.
- **Inspiring other organizations** – other organizations (Kenya Commercial Bank, Equity Bank, GIZ and Ustadi) have followed the practice of SDCP beneficiaries and supported their young farmers to be trained at the Matende Holstein Farm.

Lessons learned

When designing development projects, leave room for flexibility in order to adapt contextual innovations. The youth mentorship programme was not initially

included in the programme design, but this worked well as the youths were included in the dairy value chain.

For wider adoption of the innovation, promotion of the existing WhatsApp group is recommended. Its membership comprises other aspiring youths as well as existing farmers and is connected to extension services to support further development of their model farm as centres for learning.

Scaling up and sustainability

Young people are best modelled by their peers for they can easily identify with each other. The youth reference point for the innovation has been the Matende brothers. This can be scaled up by supporting youth-managed learning centres in each county or in programme focus areas to integrate the youth. This can generate additional sources of income for the youth mentors from the fee levied by the centres.

Scaling up of innovations can also take place through other IFAD-supported projects by organizing farmer educational/exchange tours to the farms and incorporating the intervention in their consecutive annual work plan budgets to replicate the good practices. This can change the narrative of lack of interest among young people in agriculture in development projects in Kenya and beyond.

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Resources

- <https://matendeholsteinfarm.wordpress.com>
- <https://www.facebook.com/dairyfarmingkenya/>



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Innovation YG-3: Rural youth employment

Project title Value Chain Development Programme Phase II (PRODEFI)

Implementing institution Ministry of Agriculture and Livestock, Republic of Burundi

Overview

The project is cofinanced by IFAD, the International Labour Organization (ILO) and the Government of Burundi to fight poverty and promote decent and sustainable employment for rural youth in the context of the transformation and modernization of agriculture in 10 communes of two provinces, Bubanza and Ngozi. The project supports youth initiatives to promote micro- and small enterprises for income generation. The project focuses on training, advisory support activities, promoting the adoption of innovation for income-generating activities and pilot schemes established in partnership with local micro-finance institutions to enhance access to financial services adapted to youth activities.

Description of the innovation

The innovation consists of channelling, guiding and supporting individual and collective initiatives of rural youth through training, coaching and mentoring to stimulate the creation of both microenterprises for self-employment and decent jobs for young people.

The beneficiaries of this project are rural youths aged 15–30 years, in or out of school, with ideas for self-development initiatives, either at the stage of

formulated ideas or at the beginning of implementation. The innovation has been phased as follows:

- **Promotion phase** – information and public awareness-raising on the existence of support services for youths for the creation of microenterprises.
- **Pre-incubation phase** – identifying and categorizing young people along specific economic opportunity/investment options.
- **Incubation phase** – the young people selected benefit from technical support, equipment subsidies, training, including in the GERME entrepreneurial module, coaching and mentoring, depending on the type of activity.
- **Post-incubation phase** – microenterprise created go through a “weaning” phase.

The project facilitates the linking of young entrepreneurs with various private sector actors, depending on the areas of intervention. For example:

- In obtaining credit, the project supports the young people in improving their business plans and putting them in touch with microfinance institutions
- In commercializing their products, the project supports the young entrepreneurs in the certification and promotion of their products.

The secret to the success of this innovation is training, coaching and mentoring.

Benefits to rural communities

- The innovation has improved the young beneficiaries’ welfare (continuing education, payment of university studies, transport, means of communication, restoration of weddings, household equipment, housing and living costs).
- At least 275 microenterprises and 2,300 income-generating activities have been created, of which 31 per cent are in the agriculture and livestock sector.
- Eleven per cent of enterprises have been created in production processing, 38 per cent in agricultural products trade, 15 per cent in service trade and 4 per cent in other trades.
- Each of the income-generating activities and microenterprises created has recruited an average of two additional employees.
- A total of 17,762 jobs were created, including 6,766 for women, with an average net monthly income of a young entrepreneur estimated at US\$150 for an income-generating activity and US\$600 for a microenterprise. The rate of creation is estimated at 84.7 per cent in the case of Burundi, which is well above the overall average for other countries currently estimated by the ILO at 43 per cent.

- The pilot initiative has contributed to development of the entrepreneurial spirit in rural areas; 8360 young people have been sensitized and trained, 84.7 per cent of whom have initiated an income-generating activity, 10 per cent have tax identification numbers and others pay only communal taxes.
- Self-employment has emerged among young graduates who formerly relied solely on civil service jobs. Now they are determined to create their own jobs and do all the jobs.
- Diffusion of new technologies has generated positive externalities for the entire local economy (new products, by-products, etc.) and other benefits, such as slowing down the phenomenon of rural exodus, improving the communes' income through payment of communal taxes, building of self-esteem and reducing the use of narcotics.

Lessons learned

In the course of implementing this innovation, some lessons and recommendations have emerged:

- Rural youth, when supported, are a formidable force in the fight against hunger and unemployment while building their future.
- Rural microenterprise is an effective tool for the economic integration of rural youth, but its success depends on a good system of regular coaching and support of microentrepreneurs by the project teams.
- The creation of microenterprises stabilizes young people and creates a ripple effect for the creation of other microenterprises.
- Young people start to become aware of opportunities for self-employment.
- A good screening of business ideas is the best way to success in supporting quality microenterprise.
- The partnership with the private sector is one of the key strategies to sustaining the project gains.

Scaling up and sustainability

For the sustainability and scaling up of the microenterprise, the young entrepreneurs are asked to identify and supervise at least five unemployed young people from their neighbourhood who are capable of running a satellite microenterprise that produces or supplies raw materials for their microenterprise. On the other hand, the young entrepreneurs continue to benefit from the supervision and coaching from the project once every quarter. The following considerations should be considered when replicating this innovation in another context:

- Establish an effective system of local trainers, mentoring and coaching.
- Start with young people who have already initiated an income-generating activity, however small, and who will serve as a model.

- Define realistic ambitions (for the promoter and the support organization).
- Monitor periods of high mortality (start up and growing phase) of the microenterprise.
- Develop strong 4Ps.
- Develop a system of exchange of experiences and learning between experience bearers.

To guarantee the sustainability of the project, the following steps still need to be put in place:

- Set-up networks of young microentrepreneurs for market research.
- Initiate youth incubators to replicate the approach on a large scale.
- Promote the creation of satellite microenterprises by young entrepreneurs who are already supported.
- Reinforce communication and visibility actions around young people's products.

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Resources

- <https://www.facebook.com/programmefidaburundi/videos/389935544908974/>
- <https://www.facebook.com/programmefidaburundi/photos/pcb.2151329461555264/2151318411556369/?type=3&theater>
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- Supervision Report November 2018: <https://www.ifad.org/en/document-detail/asset/41063295>



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Innovation YG-4: Tailor-made cultural household approach tool for gender mainstreaming

Project title	Sustainable Agricultural Production Programme (SAPP)
Implementing institution	Ministry of Agriculture, Irrigation and Water Development, Government of Malawi

Overview

Most current extension approaches assume that if the head of the household has participated in programmes, they will relay the information to the other members of the household, which usually is not the case. This has resulted in some members of the household being left out of crucial planning and implementation of household and community activities. The Sustainable Agricultural Production Programme (SAPP) is piloting the household approach innovation, which promotes the involvement of all household members in developing a common vision through participatory household decision-making processes, thereby promoting household equality.

Description of the innovation

The innovation involved institutionalizing gender mainstreaming tools in the Ministry of Agriculture in Malawi, aligning them to the specific cultural contexts (patrilineal and matriarchal), and using community-based facilitators to increase the effectiveness of the methodology. The implementation process involved the following key steps:

- Training of extension workers and subject-matter specialists in the household methodology approach.
- Awareness meetings with communities.
- Identification of an approach entry point.
- Identification and mobilization of local facilitators and peer households.
- Training of local facilitators in the household approach.
- Orientation of the selected peer households in the approach.
- Collection of household baseline data using a checklist.
- Vision setting, identification of issues and development of household work plans, which are followed by all members of the household.

Young graduates (both men and women) were recruited as local facilitators and peer households and trained in the household approach, thereby helping them to develop a more participatory and inclusive interpretation and decision-making process.

Benefits to rural communities

- A total of 4,486 households were reached in the 2018/19 season and are now using the tailor-made cultural household approach. Cumulatively, 16,082 households have been reached as active, direct beneficiaries.
- A number of beneficiary households experienced transformative change in their livelihoods due to the implementation of their common household visions. The approach has also resulted in improved household relations in the sense that there is more transparency and accountability at the household level. Previously, other household members, especially women and youths, were excluded from decisions related to the flow and utilization of household income. Decisions on income utilization were in most cases handled and known only by men, hence it was difficult for other members to provide checks and balances or influence household investments and wellbeing.
- Beneficiaries also recorded improved reinvestment in agriculture, equitable use of benefits among household members, construction of improved dwelling units, improved household nutrition and participation in joint decision-making processes.
- The workload among women and female youths has been reduced, and there is now equity in division of labour within households. Households implementing the approach observed that initially there was unequal division of labour and the gender balance tree favoured men and male youths. Women and female youths now have ample time to rest and to engage in off-farm businesses that are beneficial to the household.

Lessons learned

- There is overwhelming interest and enthusiasm among frontline extension workers, local facilitators and peer households to sustain the tailor-made household approach processes even without support from government or NGOs.
- Resourcing the household approach process – the household approach process demands adequate resource allocation and their timely flow to ensure continuity of processes. Any discontinuity can be disruptive and undermine the achievement of intended results.
- Follow-up and supervision – to help frontline extension staff, local facilitators and peer households to manage the process properly, there is need for continuous mentoring and coaching.
- Learning and sharing is key – there is need to adopt and adapt global and national tools to respond to context-specific issues for better outcomes in mainstreaming gender.

Scaling up and sustainability

- Involvement of frontline extension workers, local facilitators and peer households is key for the effectiveness of the innovation.
- Sustainability of the approach hinges on the active involvement of the community and local leadership, assisting farmers in drawing more benefits from their main livelihood strategies and involving household dependants in developing a shared household vision.

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Resources

- <https://www.facebook.com/sappmalawi/>

5. Conclusion

To ensure wider access by different categories of users, a soft version of the catalogue is available online (www.ifad.org). We hope that the innovations presented in this catalogue and the associated lessons learned will inform both IFAD-supported operations and initiatives by other development partners. It will also support policy engagement and other non-lending activities in the region and beyond, with the ultimate goal of improving the resilience of smallholder agriculture and food systems for delivery of food and nutrition security at the regional level and achievement of the SDGs at the global level.



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