



Conserving biodiversity for sustainable agriculture



Dear reader,

As we come to the end of the year, FAO-Rwanda reports back amazing success stories from its interventions be in the field or supporting the government with policy formulation.

In the newsletter we take you through major activities and success stories from the people supported by FAO working with partners, such as providing solutions to water challenges, empowering the farmers with mobile application to fight fall armyworm, and accessing digital advisory services. This year FAO emphasized conservation of biodiversity to be able to sustain agriculture for future generations. World Food Day was another event to raise awareness of healthy eating habits while encouraging countries to produce healthy and nutritious foods.

Through the years with FAO, I've learnt that it is not necessarily about the amount of funds the project has that determines its impact in the field, it's about empowering farmers with means of production and enabling them access premium markets.

That's why at FAO we train farmers to be empowered so that they are able to sustain the activities done for them even when the intervention or project phases out. Yet again, we say thank you to our partners, and staff and most grateful to the government of Rwanda, for joining hands with FAO to achieve its mandate of ensuring that people around the world have access to the right quantity and quality of food thus eradicating hunger in our lifetime.

Enjoy reading,
Gualbert Gbehounou, FAO Representative

HIGHLIGHTS

- Transforming agriculture through digital technologies
- A mobile application that is fighting the fall armyworm
- Innovative solutions in water management
- Future of human wellbeing and livability of planet rely on sustainable agriculture
- FAO to sharpen focus on the most vulnerable countries to help them produce food sustainably
- Mainstreaming gender in FAO's work to close gender gaps
- Rwanda: World Food Day 2019

Transforming agriculture through digital technologies

The United Nations estimates that the global population will grow from 7.6 billion in 2018 to over 9.6 billion in 2050 and there will be a significant increase in the demand for food. Agriculture and food production accounts for 28 percent of the entire global workforce. Achieving the UN Sustainable Development Goal of a 'world with zero hunger' by 2030 will require more productive, efficient, sustainable, inclusive, transparent and resilient food systems.

This will require an urgent transformation of the current agrifood system. Digital innovations and technologies may be part of the solution. In the agriculture and food sector, the spread of mobile technologies, are already improving smallholders' access to information, inputs, market, finance and training. FAO under the project "Agricultural Services and Digital Inclusion in Africa", developed "digital services" recently launched in Rwanda. This is part of FAO's digital inclusion initiatives and the scaling up of innovative digital services with the aim of bringing solutions closer to the needs of poor households in Africa and other regions is a direct contribution to poverty reduction and food security.

The apps were developed for smallholders and family farmers in Rwanda and Senegal, with a focus on increasing digital literacy among local farmers and local content. It makes useful data, information and statistics available and accessible as digital services to the rural farmers. The four mobile services are; "Weather and crop calendar", "Cure and Feed your livestock", "Agri-Market place", and E-Nutrifood" and now accessible for use via smart Phones and feature phones.



Young people being sensitized about the four mobile apps.

Piloted in both Rwanda and Senegal, the project is now being scaled up in other African countries; Tanzania, Niger, and Egypt. Through the regular adoption and use of these mobile/digital services, it is expected that the farmers having access to near real-time information that was not accessible before, will take better decision on how to manage their activities and improve diets. Download the apps here.

A mobile app that is fighting the fall armyworm

How does an application fight fall armyworm? With the increasing use of technology in agriculture, farmers in Rwanda are now using the Fall Armyworm Monitoring and Early Warning System (FAMEWS) which allows them to submit information on fall armyworm (FAW) (*Spodoptera frugiperda*) sightings as they are scouting their fields and checking the pheromone traps for FAW.

Many farmers in Rwanda, particularly those in maize producing districts were the most hit losing as much as a third of the season's harvest to the pest. The invasion of the pest was first detected in Rwanda in 2017. "I used to harvest 5 tons of maize on a hectare but when the FAW invaded I was harvesting 3.5 tons" says Athanase Nyirimbibi, a maize farmer from Nyanza.

In addition to giving them pheromone traps, FAO has distributed mobile phones installed with the FAMEWS. About 60 farmers have been trained in using the application. The content has been translated to the local dialect –Kinyarwanda.



Farmers displaying the application during one of the training.

"This new app is easy to use in entering data and sending the information. I've understood how to use the phone. Twice a month I visit the farm to collect and transmit data using this application. I report about the number of FAW and natural enemies found in the traps," said Uwamariya from Nyanza district.

The apps can be downloaded online. The trained farmers will transfer the knowledge to others and install the apps for them. "I didn't know how to use a smartphone, but during the training, we worked in groups so my fellow farmers who knew how to use it helped me," added Esperance Nyirahabiyambere, a first time user of a smartphone.

Today, farmers are getting back on their feet, in some case production increasing two folds. Athanase said he now harvests 6.2 tons from a hectare twice as much compared to the previous yields, thanks to the use of the traps and the mobile app.

Innovative solutions addressing water-sharing problem in Rwanda

Nyagatare district is Rwanda's bread basket. Currently, there are about 12.3 million people in Rwanda, according to the national statistics (NISR, 2019). The population of the district of over 700 000 is comprised of predominantly farmers, cultivating and producing mainly beans, maize, rice and banana. The farmers also keep livestock. However, the area is also prone to severe drought with long dry season stretching from June to mid-September.

Agriculture practiced in Nyagatare requires a lot of water in addition to other competing activities carried out in the district such as processing. The district uses about 16 million cubic meters of water for all its activities.

"The population has increased dramatically after the government turned the national park into an area for agriculture and settlement. We have four marshlands. There is a problem of water," says the mayor of the district David Claudien Mushabe.

Better water management through dialogue

In 2016, the government handed over the 925 hectare Rwangingo catchment to farmers installed with a dam and water distribution channels. The catchment is utilized by farmers from two districts – Gatsibo and Nyagatare. They are grouped in five cooperatives (three for maize farmers and rice and two for livestock folks). The catchment collects rain water from the surrounding hills.

"The marshland facilitated farmers to adopt modern farming methods. They used seeds which require much water. There were also farmers on the hillside who used this water. The amount of water allocated by the government for each activity was not just enough," says Nkurizabo Ally Yussuf, a maize farmer.

Before long, water related conflicts began to arise between farmers and livestock keepers. The situation would get worse during the dry season, and since the sources of the water are not protected, farmers cultivating the hillside would cut off at least eighth of the rain water that flows into the catchment. With limited or poor management skills the farmers would constantly take the issues to local authorities.

In 2015, with the financial support from the European Union (EU), Food and Agriculture Organization of the United Nations (FAO) in partnership with Agrinatura implemented the project "Capacity Development for Agricultural Innovation Systems (CDAIS)".

The farmers in the Rwangingo catchment participated in the project. Using the participatory approach, a forum was established bringing together all key actors – the farmers, other water users, local leaders, NGOs, and others. They would meet and discuss the existing problems and find a common solution.

"The CDAIS training was unique. It pursued a dialogue path which actually encouraged ownership of the solutions. We have been empowered to approach farmers, and to solve our own problems, today I can say we're able to solve 90 percent of the challenges we encounter. The platform helped us to overcome conflict. We also had a challenge of farmers who didn't want to pay the water fee now more are paying," says Athanase Mahoni, another farmer.

The better sharing of the water resource and improved farming practices have led to increase in productivity. The harvest of rice increased from 1 ton per hectare to 5.8 tons/hectare per season. The farmers also gained skills in business management, linking to markets, advocacy and farming techniques.



A farmer turns the wheel to release the water in Rwangingo catchment.

"Today we harvest more to sell beyond our two districts. We have signed contracts with buyers in the capital, Kigali and we fostered a memorandum of understanding with cooperatives to receive their produce.

Embracing sustainability practises

Just like in other countries of the world, the rising population and income, and related changes in food habits are resulting in an ever-growing demand for food in Rwanda. This leaves the district with no choice but to increase productivity and change the way agriculture is being done.

While visiting the farmers, the FAO Representative, Gualbert Gbehounou encouraged the farmers to think of adopting innovative agriculture practices such as drip irrigation and planting hybrid seeds varieties that have low water consumption, and mechanization among others.

Future of human wellbeing and livability of planet rely on sustainable agriculture



Vegetation and tea plantations in Rwanda.

Recent findings on the threats of biodiversity loss and ecosystem degradation from FAO's State of the World's Biodiversity for Food and Agriculture and the global assessment report of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, have put agriculture at the crosshairs as the prime target in sustaining the future of the people and the planet.

Stakeholders from across all sectors from crops to livestock production, forestry, fisheries and aquaculture recently met in Rwanda and vibrantly discussed the role of biodiversity, exchange on good practices and current challenges to mainstreaming its conservation, sustainable use and restoration. Organized by FAO, the Convention on Biological Diversity and Rwanda's Ministry of Agriculture and Animal Resources, the conference highlighted the role of biodiversity as a critical ally in safeguarding global food security, promoting healthy and nutritious diets, improving rural livelihoods, and enhancing the resilience of people and communities.

In addition, the meeting was an example of FAO's acting as a **Biodiversity Mainstreaming Platform**, facilitating dialogue and exchange of information between governments and other stakeholders on the sustainable use, management and restoration of biodiversity across agricultural sectors at different levels. The event was also an opportunity for FAO to share its strategy on mainstreaming biodiversity across agriculture sectors.

Challenges ahead

Despite several positive developments that support biodiversity conservation and sustainable use in Africa, there are still great challenges faced because of lack of understanding and recognition of biodiversity contributions to human well-being, particularly in decision-making processes and investments.

The fast-paced economic development, rapid urbanization and population growth are major threats to the extraordinary rich biodiversity of Africa. Therefore, the economic growth model can no longer be sustained since the earth's carrying capacity can no longer meet the demands of the growing population and urbanization in the region.

Looking at this paradigm, stakeholders agreed that there is a need for "country champions" or the flag bearers to increase action on biodiversity across agriculture sectors. This requires a change of thinking and connecting biodiversity conservation and sustainable use with food security and nutrition, neglected crops species, human health, climate resilience, etc. FAO Representative to Rwanda, Gualbert Gbehounou, said, "Biodiversity mainstreaming calls for the preservation of natural enemies of pests which can only be achieved by a reasonable and limited use of pesticides which, as a matter of fact, are more detrimental to natural enemies than the pests."

Data-driven solutions

In addition, to overcome challenges, stakeholders honed in on the development of new tools for biodiversity-friendly agriculture business case models citing the lack of evidence-based information hampering collective efforts. There is a need to bring together science and traditional knowledge, and some African countries already started to capture the value of biodiversity-friendly practices through natural capital accounting, which paves the way for new policies and incentive schemes.



Loss of pollinators is a pressing problems that agriculture faces today.

Other solutions identified to further mainstream biodiversity include knowledge and information sharing to create synergies towards the redesign of sustainable agriculture and food systems. Stakeholders noted that knowledge should be coordinated coherently across Africa, be shared at the national level and trickled down to community levels. At government level, policy makers need to strengthen integrated ecosystem approaches as well as enabling laws, regulations and policy frameworks. On the other hand, the private sector also has a critical role to play especially in creating jobs in rural and urban areas and other investments in biodiversity conservation and sustainable use focusing on farmers, fisher folk, forest producers, pastoralists, as well as processors of food products.

FAO to sharpen focus on most vulnerable countries to help them produce food sustainably

The 55th Session of the Africa Caribbean Pacific (ACP) Parliamentary Assembly and 38th Session of the ACP-EU Joint Parliamentary Assembly (ACP-EU JPA) took place in Kigali, Rwanda. The Assembly among other issues discussed the “*State of food security and nutrition in the context of sustainable agricultural production*”.

Addressing the assembly, FAO Director of Liaison Officer in Belgium, Rodrigo De Lapuerta said: “FAO strongly believes that Parliamentarians have a fundamental role to play in our fight for a Zero Hunger world”.



FAO's Rodrigo De Lapuerta addressing the ACP-EU JPA in Kigali, Rwanda.

To date, 25 Parliamentarians have joined the European Parliamentary Alliance against Hunger and Malnutrition, established in 2016, and the Alliance is gaining momentum.

Rodrigo also said revealed that FAO is sharpening its focus on the most vulnerable members of the international community – the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States to support their family farmers to produce healthy, diversified and culturally appropriate foods. The Parliamentarians asked questions primarily on how the world can sustainably feed the growing population while preserving our natural resources.

The assembly conceded that the world was moving slow as regards to achieving sustainable goals (SDGs), and called for increased support and effort to countries towards proper nutrition, and sustainable agricultural practices that put into account ecology, biodiversity as well as promoting traditional knowledge.

With the EU, FAO has supported projects implemented in ACP member states aimed to stabilize livelihoods and improve food security, develop the fisheries and aquaculture sector, promote the marketability of roots and tubers, and sustainable wildlife management.

Mainstreaming gender in FAO's work to close gender gaps in Agriculture

Gender equality is central to the FAO's mandate to achieve food security for all by raising levels of nutrition, improving agricultural productivity and natural resource management, and improving the lives of rural populations.

Current data indicate that about 45 percent of the world's population depends on agriculture, forestry, fishing or hunting for its livelihood. Globally women constitute about 50 percent of the agricultural labour force, producing a large portion of the world's food crops. In its quest to reduce gender inequalities in the agriculture sector, FAO developed the Policy on Gender Equality in 2012.

In order to improve gender mainstreaming in FAO's work, a capacity development workshop was organized for programme and gender focal points officers in FAO country offices in Africa, to provide them with adequate knowledge and tools in gender integration to allow them to effectively adhere to the objectives and minimum standards in all their interventions.

FAO Representative, Gualbert Gbehounou, acknowledged that the training was another step to achieve our goal of “leaving no one behind” and make FAO's interventions contribute to close gender gaps in our countries.

“Gender focal points have been instrumental in this effort to mainstream gender and to make sure that our commitment, our wealth of experience and expertise in this field is used to foster innovation, collect, develop and disseminate new ideas to continuously improve our Gender competence,” he noted.



Participants contributing to the "Regional Gender strategy for Africa".

Participants were drawn from English and French speaking African countries where FAO has operations. The training that took place from 20 – 28 November 2019.

FAO is also enhancing the capacity of rural women to engage in and benefit more from profitable value chains, and to engage with policy makers and other relevant actors to foster gender equality and women's empowerment in areas associated with land, labor saving technologies, advisory services, financial resources and rural employment.



FAO staff at the World Food Day celebrations.

Rwanda on 31 October celebrated the annual World Food Day (WFD). This year, the day particularly aimed at calling on everyone to start thinking about what they eat.

The national theme “Ibikorwa Byacu Nibyo Shingiro ry’Ejo Hazaza. Indyo Yuzuye mu Isi Izira Inzara” was drawn from the global theme “Our actions are our future.

Healthy diets for a Zero Hunger World” which seeks to raise awareness and call for action across sectors to make healthy and sustainable diets accessible and affordable to everyone.

While delivering his keynote address at the national event held in Nyabirasi Sector, Rutsiro District in the Western Province, the UN Resident Coordinator, Fodé Ndiaye, reminded that food is a basic and fundamental human right.



UN Resident Coordinator and FAO Representative planting a fruit tree.

During the activities to observe the day, the Minister of Agriculture and Animal Resources, Gerardine Mukeshimana launched a national fruit tree planting campaign to mobilize Rwandan families to grow nutritious foods. She said: “Progress made been made in improving malnutrition.

This has been possible through various programmes such as the National Early Childhood Development initiative for children from their conception to six (6) years of age, to reduce malnutrition and stunted growth among young the children.”



The Minister of Agriculture and Animal Resources delivering keynote address.

In Rwanda stunting among children aged under 5 dropped to 36.7 percent in 2015. However, the rates are still highest among the poorest households and those living in rural areas.

Other event’s activities included, feeding children on nutritious diets, and giving away cows to poor families.



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