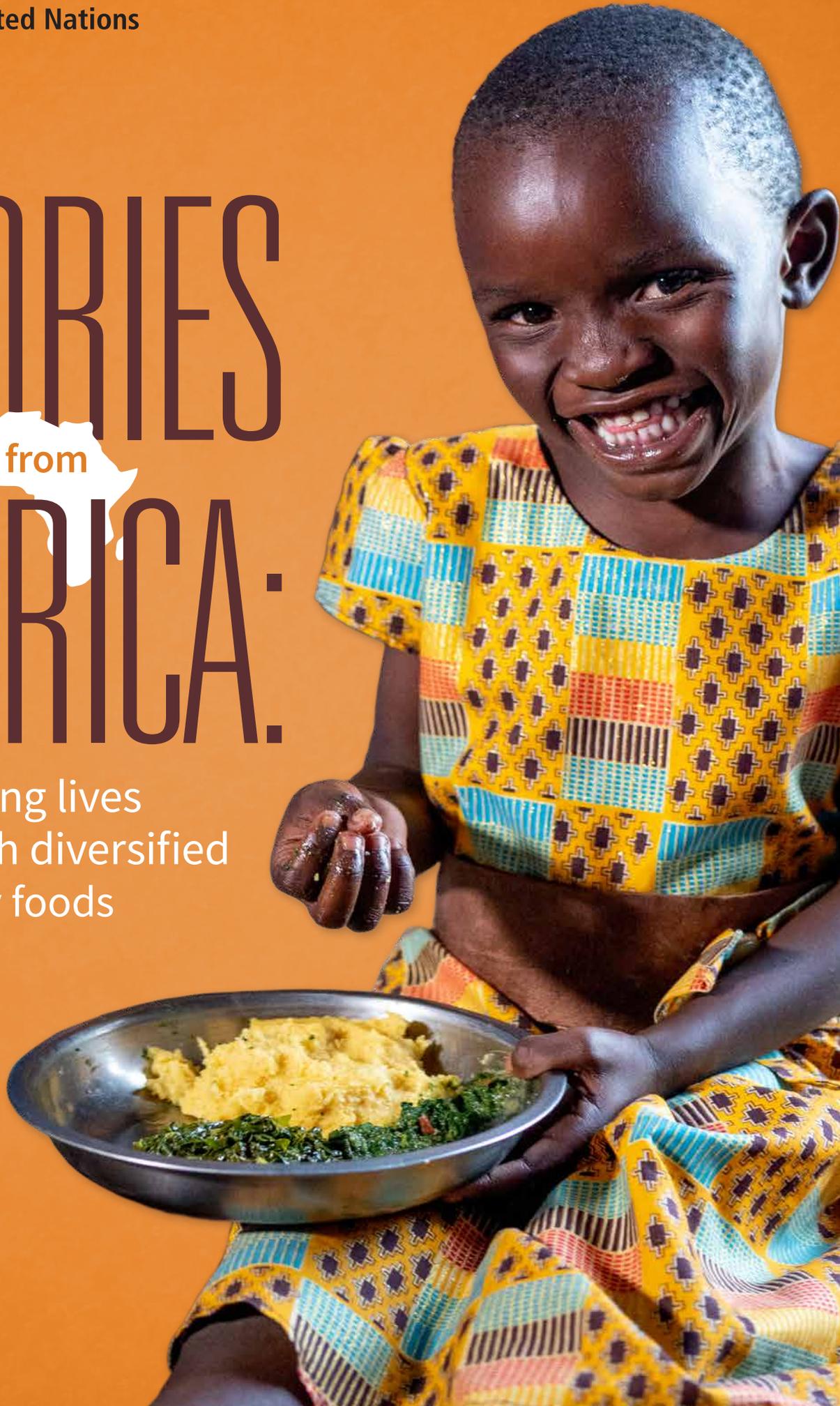




Food and Agriculture  
Organization of the  
United Nations

# STORIES from AFRICA:

Changing lives  
through diversified  
healthy foods





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# Foreword

- By Abebe Haile-Gabriel,  
Assistant Director-General and Regional Representative for Africa  
Food and Agriculture Organization of the United Nations (FAO)

**A HEALTHY DIET** of fresh vegetables, proteins and fruit is a key ingredient for eliminating hunger and all forms of malnutrition and achieving Sustainable Development Goal 2 Zero Hunger by 2030.

Unfortunately, a healthy diet has become an unaffordable luxury for close to 1 billion Africans, according to *The State of Food Security and Nutrition in the World 2020* report.

Globally, the cost of a healthy diet is above the international poverty line, meaning that people earning less than USD 1.90 per day cannot afford to eat adequate calories and nutrients from diverse food groups. Compared to other regions, this affordability crisis poses the greatest challenge in Africa.

COVID-19 has compounded the problem by disrupting food supply chains and livelihoods, to different extents across the continent. Ultimately, it has meant some households are facing increased difficulties in accessing nutritious foods.

That's not all. At the height of the pandemic, movement restrictions meant fewer customers at fruit and vegetable markets in some urban centres, causing fresh produce to go to waste. Fishmongers faced similar problems.

Even before the COVID-19 pandemic, Africa had the highest prevalence of undernourishment - more than twice

the global average - and the fastest growth in the number of hungry people compared to other regions. If recent trends persist, Africa will overtake Asia to become the region with the highest number of undernourished people, accounting for half of the total in 2030.

Bold actions – in communities, parliaments and internationally – are needed to transform food systems, make healthy diets affordable and drive progress towards the realization of SDG 2.

The Food and Agriculture Organization (FAO)'s work in Africa is driven by these aims, and there are a lot of winning interventions that are bringing hope and better nutrition to many communities.

This edition of *Stories from Africa* highlights FAO's cross-cutting work on nutrition: from micro-gardens in Senegal to innovative farming techniques in Eritrea, and from raising chickens in Cameroon to promoting nutrition-sensitive agriculture in Rwanda.

These hope-filled stories show that through hard work, innovation and partnerships, ending hunger and all forms of malnutrition is still possible despite the global challenges. 🍴





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- **Zoie Jones**  
Editor



# CHICKEN REARING GIVES TURKANA WOMEN in KENYA



## a sense of OWNERSHIP

• TURKANA is mainly a pastoral community, and the main source of livelihood is rearing goats and cattle. The bigger the herd, the richer the man is perceived to be, with wealth not trickling down to women.

### **TOPE TOKON, THE “MEN ONLY” AFFAIR**

Before a goat is slaughtered, a ritual is performed by the male elders to thank the gods for the food. A leg is put aside for the wife of the goat owner, as a token of appreciation for her work in taking care of the goat. The animal is then roasted with its skin on, known in Turkana language as *tope tokon*, loosely translated as “roast it until it cooks.”

*Tope tokon* is a “men only” affair. They sit in their traditional rest stools in a circle, from the eldest to the youngest. At the centre is the fire made from firewood collected in the nearby forest, on top of which the goat is

directly placed. In front of the men is a heap of leaves that act as a table. Most of the men have a curved traditional steel knife to cut off a piece of meat before passing the roast along to the next man.

### **A WIND OF CHANGE THROUGH CHICKEN-REARING**

Things have changed since FAO’s intervention. Arukudi Erupe was introduced to chicken-rearing in 2016 by FAO’s local team. Normally, to the people of Turkana, chicken is not traditionally eaten nor reared. FAO, therefore, had to do an extensive training on the nutritional value of chicken and eggs, as well as how to keep them.



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STORIES FROM AFRICA: NUTRITION

Arukudi is an early adopter of chicken-rearing, having witnessed the fast pace at which they multiply compared to goats. The improved breed that was introduced by FAO also fetches a good price – 1 000 to 1 200 Kenya shillings per mature chicken, and the eggs are a good source of nutrition.

“I was convinced to start keeping chicken because it was finally something I could fully take ownership of. Traditionally, we take care of goats but we do not own them. If I have a visitor, I cannot decide to slaughter them a goat. But now with chicken, I have full autonomy of decision-making,” Arukudi says.

Arukudi’s daughter has also started keeping chickens. To keep the snakes and mongoose at bay, Arukudi uses raised oil barrels introduced by the Norwegian Refugee Council, in partnership with FAO. She diligently vaccinates her chickens as trained by FAO, and sometimes incorporates indigenous knowledge like the use of neem, aloe vera and chilli to protect against Newcastle disease.

Arukudi, who is 31 years old and has six children, now has a flock of 23 birds, from the initial seven she received from FAO to start her off. She also now uses the chicken droppings to grow kale and amaranth in her kitchen garden.

The Livestock Farmer Field Schools project was funded by the European Union to teach the pastoralist community better livestock management, including the introduction of chicken-rearing.

“Since I started keeping chickens, I can earn money from the sales, my children eat eggs and we now also have access to vegetables that we use to supplement our diet of traditional meat and milk,” Arukudi adds. 🍴

“I was convinced to start keeping chicken because it was finally something I could fully take ownership of...”

- Arukudi Erupe, Kenya

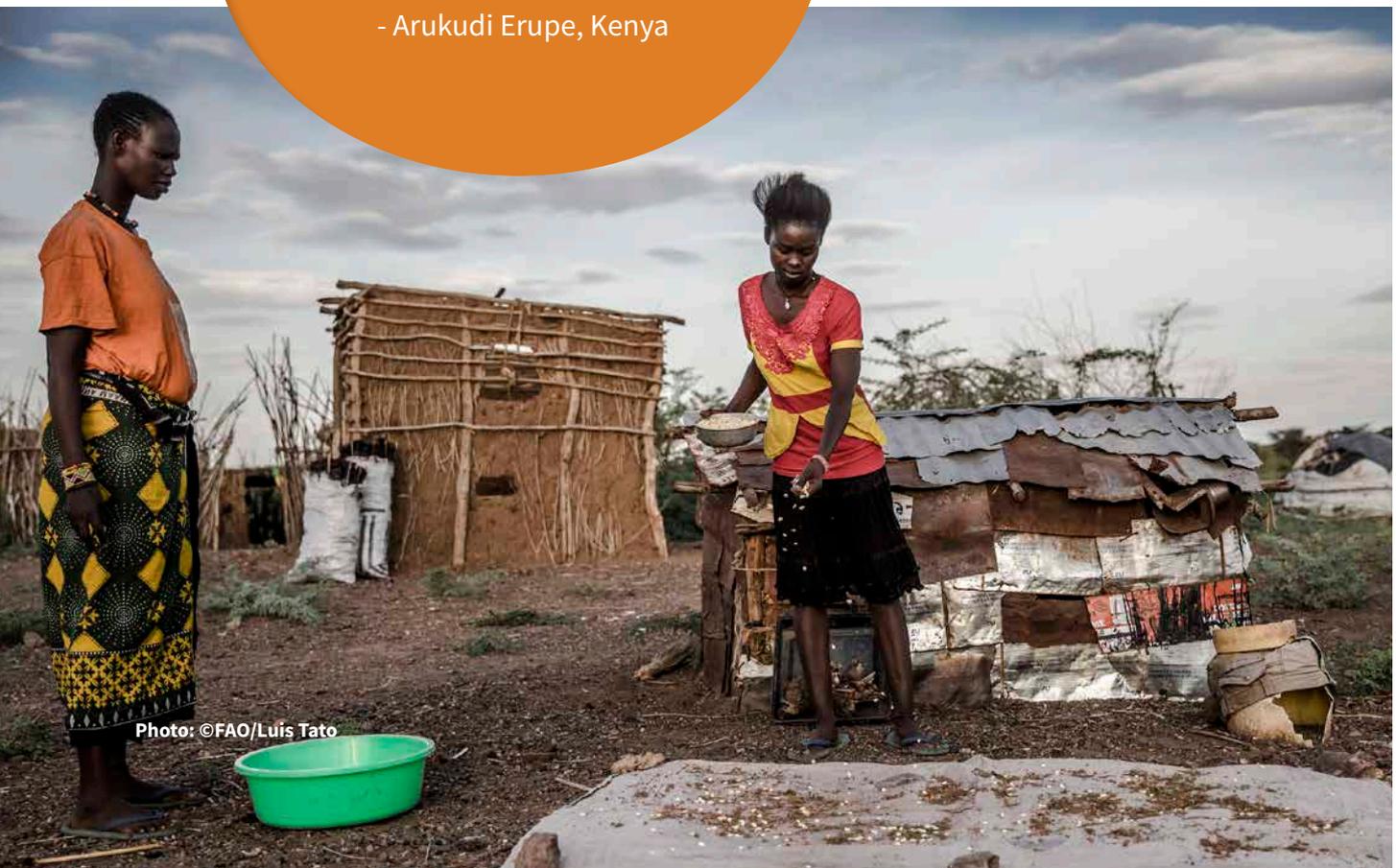


Photo: ©FAO/Luis Tato



...“Since I started keeping chickens, I can earn money from the sales, my children eat eggs and we now also have access to vegetables that we use to supplement our diet.”

- Arukudi Erupe, Kenya



The Livelihoods and Food Security Programme in Zimbabwe is promoting the uptake of vitamin A maize and iron beans through demonstration plots, distribution of seed trial packs and community taste-testing fairs.



# FIGHTING HIDDEN HUNGER with BIOFORTIFIED MAIZE in ZIMBABWE



**VIRGINIA** and **JEALOUS** Machimbirike are subsistence farmers, relying mostly on the food they produce for their household consumption. Like many other farming families in Zimbabwe, climate change and recent poor rainfall have affected their agricultural production, which has made it difficult to provide adequate food for themselves and their children.

“My children had developed unhealthy skin. This worried me very much,” Virginia says at their home in a village in Zvimba District, Mashonaland West Province. Zvimba district is one of 20 in Zimbabwe that were identified as having a high prevalence of malnutrition (30.7% according to the Zimbabwe National Nutrition Survey, 2018).

A glimmer of hope emerged when the couple took part in training on growing and consuming biofortified crops, together with other farmers in the district. The training included adopting

good agricultural practices aimed at helping to improve the nutritional status of families, particularly children.

In 2013, the Government of the United Kingdom through the now Foreign, Commonwealth & Development Office (FCDO, formerly DFID), began funding the Zimbabwe Livelihoods and Food Security Programme (LFSP) managed by FAO and Palladium, with strategic technical support on biofortification from HarvestPlus. The Programme introduced conventionally-bred biofortified crops, such as vitamin A orange

maize varieties, iron beans, and orange-fleshed sweet potatoes, as a complementary strategy to help address micronutrient deficiencies, or “hidden hunger.”

Biofortification is the process by which the nutrient density of food crops is increased through conventional plant breeding, improved agronomic practices or modern biotechnology. The LFSP promotes biofortified crops together with indigenous wild plants, other crops, and livestock as a way of increasing smallholder farmers’ access to foods needed to diversify diets.

Across Zimbabwe, nearly one in five children are vitamin A deficient which can lead to eye damage, reduced growth, and increased risk for common illnesses such as diarrhea, measles and pneumonia.



“Having learned of the health benefits of consuming vitamin A orange maize during trainings, I decided to try growing it. I understand that this maize is important for my family and me because it gives us vitamin A. It also gives us good health. I buy my own seed from a local agro-dealer shop. I am growing it for my family so that we have improved health,” Jealous says.

The Machimbirike family has been growing vitamin A orange maize since 2015 and never looked back. When they started, the family grew it on 0.1 hectare of land and increased the hectareage every season since then. “Despite the frequent droughts and unreliable rainfall patterns, we always get a good harvest because vitamin A orange maize has proved to be drought tolerant compared to other maize varieties,” Jealous says. During the 2019/2020 agricultural season, the family planted at least one hectare of vitamin A orange maize and expects to harvest two tonnes.

“After some time consuming vitamin A orange maize, I noticed a great improvement in my children’s



“It’s amazing to meet these farming households growing delicious, biofortified crops.”...  
- Melanie Robinson, the British Ambassador to Zimbabwe

health, and now they have healthy looking skin. They now prefer orange maize sadza (a stiff porridge and Zimbabwe’s staple) to white maize sadza. I am happy about the introduction of vitamin A orange maize because of its health benefits, especially for my children,” Virginia added.

Vitamin A orange maize production has now spread to all the country’s eight rural provinces including 30 districts. As a result of this LFSP intervention, more than 350,000 farmers are growing biofortified crops in Zimbabwe, and close to 1 million are estimated to have knowledge of these crops to date. This number is expected to grow with the recent introduction of orange-fleshed sweet potatoes

in the biofortified food basket. A 2020 national crop and livestock assessment estimated that the total area under orange maize production in the 2019/20 season was 8,500 hectares, with the vast majority in LFSP districts.

The Government of Zimbabwe has included biofortification in the National Agriculture Policy Framework (NAPF) 2019–2030, which guides the sector and encourages investment in agriculture to ensure wealth creation and food security.

Donor organizations have also been supportive of biofortification in Zimbabwe, with the UK’s FCDO channelling an estimated USD 72.4 million to the LFSP, with nearly USD 4.6 million of this allocated specifically towards the collaborative work with HarvestPlus to promote biofortified crops.

“It’s amazing to meet these farming households growing delicious, biofortified crops. The crops are more nutritious for their children and grow well in drought years. It would be great to see every farmer in Zimbabwe growing and consuming these biofortified crops,” says Melanie Robinson,



Biofortification is the process by which the nutrient density of food crops is increased through conventional plant breeding, improved agronomic practices or modern biotechnology.

the British Ambassador to Zimbabwe, on a visit to an LFSP project site in Mazowe District.

Today, Zimbabwe has five biofortified vitamin A maize varieties and two iron bean varieties officially released for production and consumption. The national Crop Breeding Institute (CBI) in the Ministry of Lands, Agriculture, Water and Rural Resettlement (MLAWRR) locally bred these varieties, with technical and financial support from the International Maize and Wheat Improvement Center (CIMMYT), the International Center for Tropical Agriculture (CIAT), and HarvestPlus. All five varieties have been licensed for commercial certified seed production and nationwide distribution and marketing with several local seed houses in the country. The LFSP supported this to ensure sustainable access to seed by all farmers even after the programme.

The price for vitamin A maize seed and iron bean seed in Zimbabwe is the same as that of other similar crop varieties. Seed houses have seen no justification for varying the price, as there is no additional production costs associated with producing these varieties.

The LFSP is working closely with several government ministries and departments to promote vitamin A maize and iron beans, including through demonstration plots, distribution of seed trial packs, and community taste-testing fairs.

“We tasted orange maize and beans during a cooking demonstration. We enjoyed the flavour, so we are eager to produce these,”

says one woman participating in a focus group discussion conducted to assess progress of promoting biofortified crops.

The LFSP has also started promoting biofortified crops in schools. Selected primary and secondary schools have received packs of vitamin A maize and iron bean seeds to grow these crops for consumption as part of school meals programmes. The students also learn about the nutritional benefits of biofortified crops as part of their agriculture and science curriculum. 

Jealous and Virginia Machimbirike started growing maize biofortified with increased amounts of Vitamin A in 2015 as part of the Zimbabwe Livelihoods and Food Security Programme. 



Photo: ©FAO



Guilé Mané learned new soilless cultivation techniques that are more economical. She will share her skills with the 80 members of her women's association who grow vegetables for sale.



Photo: ©FAO

# MICRO-GARDENS

## in SENEGAL: From LITTLE THINGS, BIG THINGS GROW

### HOW URBAN MICRO-GARDENING IS CONTRIBUTING TO THE FIGHT FOR FOOD AND NUTRITION SECURITY

“I wanted to practice micro-gardening at home, in order to give my parents a job and also train the women of my village in Fouta so that they too can make it an income-generating activity,” says Aboubakry Wade, one of the participants in an FAO micro-gardening training programme for young people and women. “I learned a lot, especially hydroponics and composting that I didn't know before,” he explains.

His first achievement after a week of training is a micro-garden table built for his mother, “so that she can practice and grow mint for her daily ataya [tea],” he says. In the future, Aboubakry wants to train other young people in micro-gardening throughout Senegal.



Micro-gardens are small soilless gardens suitable for urban areas and in particular for neighbourhoods with a high population density and without much green space. According to one of the trainers, Coumba Diop, all crops



grown on the ground can be grown on tables or in salvageable objects such as bottles, containers or used tires. They allow low-income families to produce vegetables and herbs at home to enrich their meals with vitamins and minerals essential for health.

Simple and inexpensive, micro-garden technology also contributes to the recycling of household waste, allowing a process of sustainable maintenance of soil fertility and helping to make cities greener. These two assets reinforce resilience in the face of climate change.

So far, more than 9 000 people (80 percent of whom are women) have completed the training in Dakar, 12 training and demonstration centres have been created, and training sessions have been held in 34 community production centres and 24 public schools.

Like Aboubakry, Guilé Mané was also keen to learn about micro-gardening. She comes from the village of Keur Bara Tambédou in the Kaolack Region which has benefited from FAO's "One million cisterns for the Sahel" project. The project is providing safe drinking water and surplus water for family agricultural production through rainwater harvesting and storage.

Guilé is the president of a women's association that grows lettuce, onion, chili, eggplant, mint and okra. Because of the training, she learned new cultivation techniques "without soil, without pesticides and more economical" that she can take back to the 80 members of her association. "Now I know how to build a table and cultivate market garden produce with micro-garden technology. I will do the same training for members of our association so that they know this technique and practise it," she says.

At the end of the three-week theoretical and practical training, participants were able to make soilless micro-gardens, including preparing solid and liquid substrates and compost, and cultivating vegetables and herbs. They will return to their communities to share their new skills.

"Those who have participated in this training can create a platform for the exchange of experiences in their communities. Going forward, FAO, municipalities and technical and financial partners can support micro-gardeners so that they can have access to markets for a much more sustainable production system," says the FAO Sub-Regional Coordinator for West Africa and Representative in Senegal, Gouantoueu Robert Guei.

In line with its strategic objectives and the Sustainable Development Goals (SDGs), FAO has set up the "Food for Cities" programme with a development strategy for green cities. This strategy promotes urban and peri-urban agriculture and integrates technologies such as micro-gardens.

In Senegal, the micro-gardens approach was developed in partnership between FAO and the city of Dakar, with funding from the Italian Development Cooperation and the Municipality of Milan. 



Photos: ©FAO

Simple and inexpensive, micro-gardens can be grown in small urban areas to provide nutritious fresh food.





# NUTRITIONAL EDUCATION for VULNERABLE HOUSEHOLDS in SENEGAL

“I didn’t know that  
malnutrition could affect  
breastfeeding, pregnant and  
elderly women...”

- Maty Diop, Senegal



Photo: ©FAO/Mbeugué Thiam



A stepped kitchen garden supports the production of a wide variety of vegetables, herbs and fruits for household consumption.

## BEST PRACTICES FOR A HEALTHY AND DIVERSIFIED DIET

“I didn’t know that malnutrition could affect breastfeeding, pregnant and elderly women,” says Maty Diop. “Back home, I will organize awareness sessions to share with my community what I learned during this training course,” she adds.

In her community of Keur Ngalgou, Maty raises awareness of good food and hygiene practices to prevent malnutrition as part of a social protection project called “Strengthening the food security, nutrition and resilience of households benefiting from Jal-Jeg family security grants”. FAO and the General Delegation for National Protection and Solidarity (DGPSN) are implementing this project.

For six days, Maty learned about nutrition, good hygiene, food preparation and cooking, feeding practices for infants, young children, and pregnant and breastfeeding women, causes and prevention of malnutrition, and agricultural diversification and growth.

Through a package of nutrition-sensitive integrated services such as market gardening, poultry farming and capacity-building, FAO has supported 300 vulnerable households in the communes of Dinguiraye, Keur Ngalgou and Missirah in the Diourbel region of Senegal. Thanks to the capacity-building component of this project, Maty was able to attend the nutrition training.



Photo: ©FAO

A ‘tip tap’ device encourages handwashing for improved hygiene.

## VEGETABLE GARDENS: AN EASY ACCESS TO NUTRITIOUS FOOD

The training was delivered by FAO’s nutrition experts and a master trainer from the National Network of Facilitators of Senegal (RNFS). Maty participated along with 21 others. They learned how to install a stepped kitchen garden which facilitates the production of a wide variety of vegetables, herbs and fruits for household consumption.

Awa Alassane Sow, a member of the Agropastoral Field School (APFS) in Barkedji municipality, appreciates the easy maintenance of this garden. “I don’t have a lot of space, but I was able to set up a kitchen garden and some of the neighbours decided to set it up in their homes as well,” she says cheerfully. “I no longer have to buy certain vegetables like turnip and onion and herbs like mint.”

Abdoulaye Diene, an agricultural technical agent, also found the kitchen garden activity very interesting: “It’s simple, efficient

and suitable for all types of households. Back home, I will educate everyone, starting with my father who is the head of the household, to try to have a healthier and more balanced diet,” he says.

## TIP TAP, THE HANDWASHING DEVICE TO PREVENT ILLNESSES

Participants also attended a workshop on the installation of a tip tap device which encourages handwashing in households and fields and helps prevent diseases and sickness. This device is made of two forked and two straight sticks, a rope, a 5-litre bottle, a string, gravel and soap. Once set up, the user can wash their hands by pressing a pedal and by using the soap hanging next to the tip tap and the water from the bottle.

This training was organized as part of the project “Integrating climate resilience into agricultural and pastoral production for food security in vulnerable rural areas through the Farmer Field School approach,” implemented by FAO in Diourbel, Kaffrine, Kaolack, Louga, Matam, and Tambacounda regions.

The objective was to teach participants the basics of nutrition and best agricultural practices to have a healthy and balanced diet.

“We are introducing this module into the Farmer Field School training curriculum to encourage people to use local products, understand different food groups and their nutritional values and use this knowledge in order to improve their health status,” master trainer Modou Fatma Mbow says.



Botswana's dietary guidelines are the first step in ensuring that citizens are provided with the information and direction they need to ensure their own good nutrition.

# TAKING a GIANT STEP towards healthy eating in BOTSWANA



UNHEALTHY DIETS persist in Botswana communities, with takeout meals and eating out perceived as signs of wealth and prestige among urban dwellers.

People are increasingly eating processed foods rich in fat and sugar, and the popularization of these unhealthy eating patterns has led to obesity, hypertension, diabetes, cancer and cardiovascular diseases. A national survey shows that 18.8 percent of adults in the country are overweight with 11.8 percent obese, and 15.2 percent of children aged under five are obese or underweight.

As a way to address the poor food consumption patterns and achieve Sustainable Development Goal 2 Zero Hunger (SDG 2), FAO is working with the Government of Botswana to develop the country's first Food-Based Dietary Guidelines. The guidelines will provide information and advice on foods, food groups and balanced diets for a healthy lifestyle. Botswana will be among the early cohort to put in place dietary guidelines, with only seven other African countries having done so.

Speaking at the launch of the guidelines, the Minister of Health and Wellness, Lemogang Kwape, lamented the rising obesity levels, particularly among women and children. He said Botswana is committed to achieving the World Health Organization's Global Nutrition Targets 2025 related to non-communicable diseases. "We aim for a 30 percent increase in the population consuming diets rich in fruits and vegetables, a 10 percent reduction in the prevalence of physical inactivity, a halt in the rise of diabetes and obesity, and a 10 percent reduction in the harmful use of alcohol," he said.

"Excellent national dietary guidelines will help the government to improve diets and nutrition standards of all Botswana for the benefit of the people and the economy of the country," FAO Representative in Botswana, Dr Rene Czudek says. "Botswana's dietary guidelines are the first step in ensuring that citizens are

provided with the information and direction they need to ensure their own good nutrition."

National food-based dietary guidelines provide context-specific advice and principles on healthy diets and lifestyles. They are based on sound evidence, and incorporate a country's food production and consumption patterns, sociocultural influences, food composition data, and food accessibility, among other factors.

Guidelines are also valuable because they can serve to guide a wide range of food and nutrition, health, agriculture and nutrition education policies and programmes. This is particularly relevant as the recent UN report on *The State of Food Security and Nutrition in the World*, co-produced by FAO, found that a healthy diet is not affordable for more than 70 percent of African countries.

FAO's commitment to nutrition dates back to its establishment 75 years ago, and nutrition is part of FAO's constitution and corporate strategic objectives. Good nutrition is also key in achieving at least 12 of the 17 SDGs. 



Abdallah at work in a date palm tree. “For me, planting one date palm is the same as having a child, it needs my utmost care and input,” he says.

Dates are a nutritious and sweet treat that also have cultural importance in many communities.

## BEARING FRUIT:

# INNOVATIVE NEW TECHNIQUES for DATE PALM CULTIVATION

## in ERITREA

**ABDALLAH** Suweilih Huweinmill takes growing date palms very seriously. “For me, planting one date palm is the same as having a child, it needs my utmost care and input,” he says.

The farmer first became interested in growing the nutritious sweet fruit when he left Eritrea as a teenager to find work in Saudi Arabia. When he returned to Eritrea, he became one of the first date palm producers in the country, having to build his knowledge from scratch.

“In the beginning, I did not know male or female plants, good or bad dates. I had to wait for ten years until they were fully-grown trees and started to bear fruit. Then I kept the good ones and cut off the bad ones,” he says. When the diesel water pump failed one day, he recalls, he had to fetch water with his car for two weeks to keep the trees alive to yield fruit.

Now in his home town of Shieb, about 140 km northwest of Asmara, he runs a farm with about 50 members of his extended family.

He has benefited from an innovative FAO project that introduced new ways to propagate date palms, implemented with the Ministry of Agriculture. Under the project, the National Agricultural Research Institute began using *in vitro* techniques, using small tissue culture from plants, to propagate and

quickly multiply the number of plantlets that can then be distributed to farmers to grow into productive fruit-bearing trees.

Abdallah received more than 150 young plantlets, increasing his total to 500 trees. Those new date palms are now three years old and starting to bear fruit – between 50 and 100 kg per tree. “In line with FAO’s mandate, this project is a good demonstration of the best use of FAO’s funds and technical knowledge to prove a concept for the government and other development partners to scale up,” says FAO Representative in Eritrea, Saeed Abubakar Bancie.

“**In the beginning, I did not know male or female plants, good or bad dates. I had to wait for ten years until they were fully-grown trees and started to bear fruit.**”...

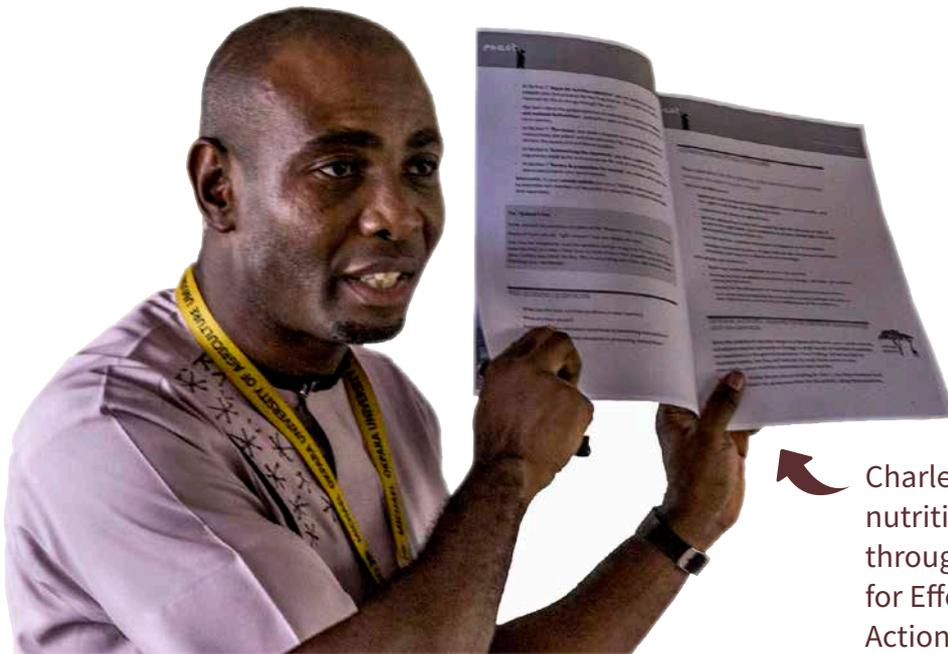
Although Abdallah faces challenges to access resources and finance to grow his business, he is confident of local and even international demand for the dates. He is expecting a bountiful harvest this year and plans to pay off his debts and further invest in his date palms, providing a secure livelihood for his family. 





# INSPIRING

## EFFECTIVE NUTRITION EDUCATION **in NIGERIA and BEYOND**



Charles Nkwoala sharing nutrition knowledge through the Education for Effective Nutrition in Action (ENACT) course.



“I benefited immensely from FAO’s nutrition course, ENACT,” lecturer Charles Nkwoala says.

CHARLES NKWOALA is a lecturer in the Department of Human Nutrition and Dietetics at Michael Okpara University in Umudike.

“I benefited immensely from FAO’s nutrition course, ENACT,” he says.

Charles was a PhD candidate in Nigeria when he joined a group of tutors from universities in seven African countries to test an innovative course designed to help nutrition experts to effectively influence people’s eating habits. At the time, an essential ingredient for effective food and nutrition education was missing from the training of nutrition students in sub-Saharan African universities. Specifically, they did not have the tools needed to encourage people to adopt healthier diets. Also, knowing about proper nutrition did not necessarily help experts to bring about changes in behaviour.

In Charles’ words, “the distinction between nutrition science and nutrition education was lost on many students.”

The Education for Effective Nutrition in Action (ENACT) course was developed by FAO and its partners through a pilot programme between 2012 and 2015. The course emphasizes the importance of knowledge, attitude, perception and practice (KAPP) in guiding people on how to change their poor food habits.

As part of his PhD project exploring the impact of nutrition education on the food selection behaviour of adolescents, Charles used the skills he acquired from ENACT to teach secondary school students about the importance of nutrition.

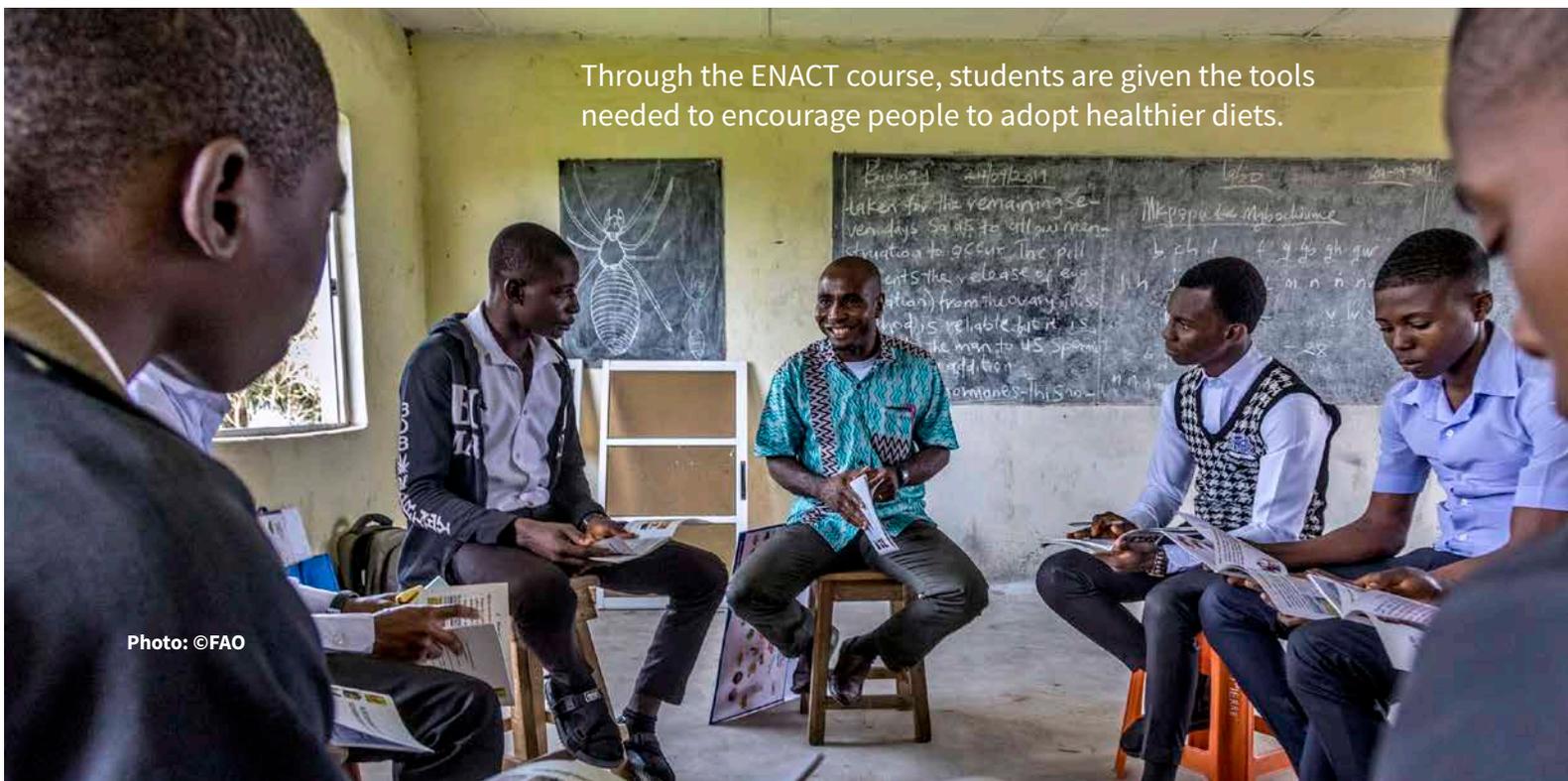
Charles says he has benefited from the ENACT course and has seen the difference it has made. So much so that Charles delivered a five-day cascade training-of-trainers session introducing the course to 18 tutors from several Nigerian universities

and polytechnics, including the Federal University of Agriculture, the University of Nigeria in Nsukka, Imo State University and the University of Ibadan, as well as others from Rwanda, Tanzania, Malawi, Zambia and Zimbabwe.

To date, over 2 500 nutrition scholars have received ENACT training in 25 African countries. Professional nutritionists in Nigeria have also been briefed on the course by the Nutrition Society of Nigeria and are encouraged to seek training in this approach.

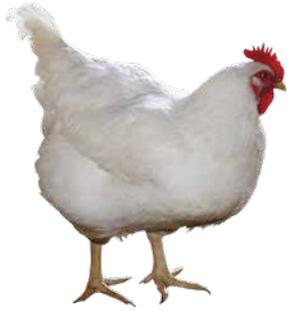
“With the level of commitment of all those who have completed the ENACT course and the enthusiasm of many to know the course, I believe that in no distant time, the benefit of ENACT will be felt by all individuals, households and communities in Abia State and Nigeria in general,” Charles says.

Through the ENACT course, students are given the tools needed to encourage people to adopt healthier diets.





# FROM WORRY to WELL BEING:



HOW CHICKENS are  
PROVIDING HOPE  
and BETTER NUTRITION  
in **CAMEROON**



WITH A SPRING IN HER STEP,  
Jasinta starts the day by going to her farm in Bokwango,  
southwest Cameroon. Every morning she gets up, checks on  
her chickens, feeds them and fills their trough. A mother of four,  
Jasinta is a role model for many in her neighbourhood, admired  
for the chickens that she proudly raises and sells.



Photos: ©FAO/Daniel Mvondo

With CERF funding and technical support from FAO, project participants produce eggs and sell them in local markets.



Communities who have weathered the socio-political crisis in Cameroon are smiling again thanks to an unlikely source of hope: chickens.

Her new business is the product of an FAO initiative that is helping vulnerable people in the English-speaking regions of Cameroon, which are currently facing a socio-political crisis. Insecurity and growing violence in these regions are forcing people to leave their homes for other parts of the country. In areas where the population depends heavily on agriculture for their livelihoods, the upsurge of violence has also resulted in a significant decline in agricultural production and rising prices for staple foods.

### OFFERING HELP TO THOSE IN NEED

Jasinta, who has lived in this part of Cameroon for 10 years, offers the warmth of her home to 12 internally displaced persons (IDPs) who fled the conflict.

“It all started in late 2016. Things were really bad for our brothers in the country. As the wife of the chief of my locality, I decided to get involved to alleviate their suffering. I received two people, then four, and currently, there are 12 people in the house,” she says.

“As the wife of the chief of my locality, I decided to get involved to alleviate their suffering.”...

FAO’s initiative in the region, the Food Security Improvement Project for the Affected Population, is working to boost livelihoods and agricultural activities, such as chicken farming, to help reinforce food security and fight malnutrition. The project helps IDPs, hosts, refugees and returnees impacted by the crisis in the southwest and northwest regions of Cameroon. This project allows families to generate income to cover their basic needs and helps prevent malnutrition.

The initiative offered 1 000 households support in chicken farming and egg selling. Funded by the United Nations Central Emergency Response Fund (CERF), in 2019 alone the FAO project distributed 10 000 laying hens, 20 000 broilers, 100 tonnes of poultry feed and equipment for the construction of 1 000 poultry production units. Thanks to FAO’s guidance, in a very short time the displaced people and those in their host communities have gone from novices to chicken-raising professionals.

“I started with 40 broilers that FAO gave me and today I have 600. I expanded my farm, and my business is flourishing. This activity allows me to pay for school fees and vocational training for the internally displaced persons in my care,” Jasinta says.

### BOOSTING LIVELIHOODS AND FOOD SECURITY

In times of conflict, it is natural for people to move from their homes in search of security. Joyce, an internally displaced person, relocated from Kake in southwest Cameroon to Bokwango with her four children.

“It had become impossible to live in Kake,” she explains. “There was shooting all the time. Life had become very hard for us there, especially for my children who are still very young. So I decided to leave everything to come and settle here in Bokwango.”

“There are indications that people really appreciate this project. We teach them how to fish, rather than giving them fish. With more funding, FAO will be able to increase its activities in these north-west and south-west regions,” says Emmanuel Penn, FAO Chief of Office in Buea.

Internal displacement is a major cause of hunger, malnutrition and food insecurity for many across the world. To achieve the Sustainable Development Goals, we must work to reduce conflict and support rural communities affected by crises to be resilient and self-reliant, even in the toughest of circumstances.

Jasinta tending to her chickens as part of the FAO project in Cameroon.



Photo: ©FAO/Daniel Mvondo



Riziki Sinzobakwira waters her vegetable crops next to the water pan. The water pan collects water from a seasonal stream and it is used to water the surrounding crops.



# IRRIGATION HELPS PRODUCE NUTRITIOUS FOOD in KENYA'S dryland



AT EXACTLY 6 O'CLOCK in the morning, the sun begins to peak from the east, with its yellow rays reflecting over the large water pan roughly 30 000 cubic metres in size. Riziki Sinzobakwira walks with a determined gait, holding two watering cans. She has several plots of land to water before it gets uncomfortably hot.

Riziki, a child of Burundian and Congolese parents, fled from war-torn Congo and arrived in Kalobeyei, a settlement just outside the Kakuma refugee camp in Turkana County, in 2016. In 2017, she became one of 150 people in the refugee community who started farming in small plots of land near the water pan.

This was thanks to a trial project executed by FAO, in partnership with the World Food Programme (WFP), with the financial support from the European Union. FAO provided training on good agricultural practices to the refugee community in Turkana, using water pans that were specially designed by WFP engineers.

Alongside the trainings, each participant was given four plots of land to farm different types of crops that they could eat to supplement the traditional foods of milk and eggs as well as the provided food rations.

Initially, the 300 members planted onion, tomato, cowpea and pumpkin. Traditionally, Turkana community are not farmers. But when they were trained, and with everyday interaction with the refugee community from different countries, more crops were introduced. Now they also grow okra, sorghum, collard greens, sweet potato, watermelon, amaranth, eggplant, spinach and capsicum.





Riziki has become a proficient farmer, making 3 500 Kenya shillings per week, equivalent to USD 33, from selling her vegetable surplus. Three quarters of the total 300 plot owners are women, and Riziki shares her knowledge and experience with the other farmers.

“Before, I was uprooted by the unfortunate turn of events in my country. Now I feel very comfortable here. My five children and husband have access to good organic food and I make decent money to live by. I like it here,” she says.

Every day, the gates to the water pan and the vegetable plots are opened from 6 to 10 a.m. and 4 to 6 p.m. The community has learned how to manage themselves, and handle emerging disputes amicably.

This joint farming initiative has also fostered understanding and peaceful co-existence between the refugees and host community. The vegetables grown are fully organic and they use organic pesticides like neem leaves and ash as well as intercropping to keep pests at bay.

Before this trial, it was believed that Turkana could not produce any food due to inadequate rainfall. The success has triggered action towards activating the second phase: setting up greenhouses. This will not only ensure food security and nutrition for the host and refugee community, but it will also provide a source of income for them to improve their livelihoods. 

“Before, I was uprooted by the unfortunate turn of events in my country. Now I feel very comfortable here.”...



Riziki Sinzobakwira collects water from the water pan.

Photo: ©FAO/Luis Tato





Photo: ©FAO/Luis Tato



Miza's farming group that was trained through the Farmer Field School.

## MADAGASCAR:

# MIZA DISCOVERS the BENEFITS OF PRODUCING and EATING DIVERSE FOODS

MIZA, 30, is a mother of three and lives in the Great South of Madagascar, in the village of Tanambao, Bekily District, in the Androy Region. FAO and its partners are aiming to improve the resilience of vulnerable households in Androy as part of the Pro-Acting project funded by the European Union. The initiative has a focus on strengthening food and nutrition security through the diversification of agricultural food production and sources of income by promoting climate-smart agriculture practices, nutrition-sensitive agriculture and social protection.

Miza is an active member of a group of small-scale agriculture producers at the project's Farmer Field School. At the school, farmers discuss new production techniques adapted to the semi-arid climate of the region, and put them into practice. Through demonstration sessions, group members have also begun to replicate the techniques at their own home gardens or plots.

"I am relieved to see that farming allows us to have regular meals and extra money to buy other things we need at home. Rebala, my eldest son, and his sister now have time to go to school, instead of trying to find ways of helping us find something to eat. I have less fear for their future," Miza says.

### AGRICULTURAL PRODUCTION, A SOURCE OF INCOME FOR VULNERABLE HOUSEHOLDS

The crops harvested from the off-season cropping period were very good, and producer groups benefiting from the project were supported to organize a group sale outside their own villages in the neighboring region. The sale was a great success and brought in profit to the group members.

Rebala, one of the young men in the group, says it was the first time he has made so much money from growing vegetables and rearing chicken, and that he is thinking of making it his main activity from now on.



Photo: ©FAO

↪ A new way of cooking locally-produced food in Madagascar's Androy Region.



Photos: ©FAO

Harvesting vegetables in Androy Region.



Miza (holding her baby) with her son Rebala, mother-in-law Pelakidy and daughter Nantenaina.

“I am really grateful for the small equipment that was given to allow us to cultivate and harvest crops,” Miza says. “This is the first time to take the Farmer Field School training and it allowed me to learn very quickly. With my group, everyone put into practice what we learned on our land and the harvest was really good. When Pelakidy, my mother-in-law, saw this, she became interested in this activity and joined our group as well,” says Miza.

“Rebala, my eldest son, and his sister now have time to go to school, instead of trying to find ways of helping us find something to eat.”...

### PROMOTING DIVERSITY OF FOOD FROM FARM TO BOWL

FAO’s nutrition-sensitive agriculture is an innovative approach, enabling communities to diversify their agricultural production to prioritize a balanced diet.

Products with high nutritional value such as orange-fleshed sweet potato, moringa, millet, yam, and red beans have been introduced.

“With my daughter Nantenaina, we attended the cooking demonstrations carried out by FAO. We have received several posters which show the recipes, necessary ingredients, and even health benefits of the dish. Since then, we have taken the time to wash our food and prepare it differently. Before, we boiled cassava in water and that was it. Now, we have discovered that we can combine several types of food, use aromatic herbs, grilled vegetables and so on. My husband is delighted with each meal and has decided to help me with vegetable-gardening and poultry-farming,” Miza says with a smile on her face. “Many families like us in our village have experienced these positive changes, and it seems everyone is convinced to produce their own food.”



Photo: ©FAO

Locally-produced food ready for a cooking demonstration.



Not traditionally part of the Somali food culture, fish is currently underutilized. However, it has huge potential to improve nutrition in the Bossaso IDP camps and the larger region where acute food insecurity and malnutrition are common.





# FISH

## GIVE WOMEN in SOMALIA

# a TASTE of HOPE



### A SURPRISING SPECIALTY IS IMPROVING LIVELIHOODS AND NUTRITION IN SOMALIA

A warm breeze wafts across the desert plains outside Bossaso, Somalia, where many internally displaced people (IDP) live in perennial temporary camps. Job opportunities are scarce for the residents here. They are people who fled war, constant insecurity or hunger, but it's not easy to create a good life for themselves in this new region either.

Fartun arrived in Bossaso from southern Somalia a “long time ago”, but she doesn't remember when. A mother of four, she used to stay at home to look after her children, while her husband, earning little,

worked as a porter in the market. She and her husband struggled to provide for themselves and their children.

But a few months ago, Fartun learned about a new opportunity in her community. She enrolled in an innovative FAO project, funded by the Government of Kuwait, to learn how to make a specialty food more synonymous with Italy than Eastern Africa: pasta. Not just any kind of pasta, however, fish pasta.

Perhaps not widely known, pasta is actually a common meal in Somalia, part of the legacy from its time as an Italian colony. What isn't a common meal in Somalia, at least not yet, is fish, particularly in the country's inland communities.



Photos: ©FAO/Alberto Trillo Barca



...PERHAPS NOT WIDELY KNOWN, pasta is actually a common meal in Somalia...

“I wanted to somehow earn some income for my family,” says Fartun.

Highly nutritious, fish is amply available along Somalia’s coastline. At 3 333 km, it is the longest in continental Africa. Currently underutilized, fish has huge potential to tackle micronutrient deficiencies and improve nutrition in a region where acute food insecurity and malnutrition are common, including these IDP camps in Bossaso.

This new kind of pasta contains 7.5 percent fish flour, which, according to a survey conducted at the pilot stage, was found to be the preferred amount for consumers, who will get the nutrients they need from the fish without drastically changing the taste of the pasta. The project has successfully introduced fish into the consumer’s diet, increasing the nutritional value of diets in the area, without excessively disrupting Somali food culture, which is generally meat-based. Not only that, it has also provided new opportunities to the IDP communities, in particular women, to generate incomes.

Fartun is supporting her family and improving her community’s nutrition through a Kuwait-funded FAO project making pasta from fish flour. ↘

Thanks to her new job, Fartun has added a new dimension to her life outside her home. She enjoys working with other women from the IDP camp, where they collaborate together in a facility stocked with the necessary equipment and tools. “It is great to interact with them [the women]. We have a good time making pasta together,” she comments.

The women produce high-quality fish pasta in a contained environment, following food safety standards. The pasta is then sold to wholesalers and owners of local shops, and the women follow up with these sellers in order to find out how well the product is selling and restock the supply. 🍝

“I wanted to somehow earn some income for my family...”

- Fartun, Somalia





Mamanding Konteh holding an orange-fleshed sweet potato vine.

# LEAVING NO ONE BEHIND:

FAO SUPPORTS SCHOOLS  
and FARMERS COMMITTED  
to ERADICATING  
MALNUTRITION **in THE GAMBIA**



## **NUTRITIOUS ORANGE-FLESHED SWEET POTATO NOW PART OF SCHOOL MEALS**

Pa Kemo Kinteh has been a teacher for 17 years. He is currently the headmaster of a school in the Kuntaur Local Government Area, in the Central River Region North, with 611 children enrolled. The area has the country's highest stunting rate at 30.9 percent, wasting at 9.8 percent, iron deficiency anaemia at 70 percent, and vitamin A deficiency at 27.2 percent.

Proper nutrition helps children develop physically and mentally. It improves their ability to learn and increases their prospects

for growing into healthy and productive adults. Recognizing the vital contribution schools make to improve the diets and food security of schoolchildren and their families, FAO, in collaboration with the National Agriculture Research Institute (NARI), selected 30 schools, including Pa Kemo Kinteh's, to promote the

production and consumption of micronutrient-rich crops such as orange-fleshed sweet potato which is high in beta-carotene.

NARI provided 4 186 orange-fleshed sweet potato cuttings to the 30 schools for production in their gardens. In each school, the Mothers' Club and the school management committee jointly

School children eating a nutritious snack made from orange-fleshed sweet potato





manage the garden. The schools use the garden plots as learning sites to promote high-nutrient crop varieties and for their school feeding programme. They receive technical advice from both research and agriculture extension officers from FAO through the European Union-funded project “Improving food security and nutrition in The Gambia through food fortification”. Through this four-year project, FAO is working with government, partners and communities to fight the scourge of malnutrition in The Gambia.

“FAO is stepping up support to ensure the sustainable production and consumption of biofortified crops and accelerating nutrition education to raise public awareness and consumer demand for fortified and micronutrient-rich foods,” says Solange Heise, Nutrition and Food Systems Officer and Coordinator of the project at FAO Gambia.

## IMPROVING COMMUNITY NUTRITION THROUGH SCHOOL MEALS

“The availability of the orange-fleshed sweet potatoes in our school garden has improved our school meals and reduced our vegetable expenses,” says Pa Kemo, praising the benefits they are already reaping from the project.

Every Tuesday, Pa Kemo’s school serves *plasas*, a local dish made with chopped leaves from the sweet potato plants, dried fish, palm oil, raw peanut powder and iodized salt, boiled in a soup and served with rice. “We used to spend a lot of money buying the green leaves and quite often, the leaves were not fresh. However, thanks to the FAO project, we no longer need to spend money on the leaves. In fact, today we consume more leaves than ever before, and they are fresher because they have grown in our own garden

with the help of the mothers,” the headmaster says. The school now saves about 200 dalasis (about USD 4) a week.

The community is now aware that orange-fleshed sweet potato is naturally high in vitamin A and nutritious for pregnant women, children and adults alike, according to Mamanding Konteh who is the president of the Konteh Kunda Niji Village Women’s Group. She is also the chief cook at the village Lower Basic School.

The health benefits have motivated many farmers in the community and the neighbouring villages to buy vines from the school for transplanting.

The project is also supporting the introduction and adoption of climate-smart, high-yield vitamin A maize and cassava, and iron-rich cowpea to help reduce malnutrition.

Ansumana Touray produces and promotes the consumption of biofortified crops in his village. “I am optimistic that the harvest will improve my household food security, nutrition and income,” he says. 



Photos: ©FAO/Amadou Bah





Proper nutrition helps children develop physically and mentally.

### LOCAL CHAMPIONS OF BIOFORTIFIED CROPS

Mamanding and her husband, Ansumana Touray, are committed to fighting malnutrition and hidden hunger in The Gambia. They produce and promote the consumption of biofortified crops in the village. Touray volunteered and was one of 33 farmers selected across the country in 2019 to receive vitamin A maize seeds from NARI. He received 30kg of seeds and eight bags of fertilizer from FAO. He expects about 2.5 tonnes per hectare, which is more than double the national average maize yield.

“If someone is trying to help improve your nutrition, health and wellbeing, it is important to be proactive,” says Touray, standing in his one-hectare vitamin A maize field.

“Experts from NARI explained that this maize variety is climate-smart (drought-resistant), nutritious and high yielding. Even though we experienced delayed planting due to a dry spell, I am confident that I will double my harvests,” he says. “My family and neighbours have already started roasting and eating maize. I am optimistic that the harvest will improve my household food security, nutrition and income”.

Mamanding is as motivated as her husband to champion the production and consumption of the orange-fleshed sweet potato. “I have challenged myself to serve as a role model. This is why this field is looking so lush,” she says. 🍷

“I have challenged myself to serve as a role model. This is why this field is looking so lush...”

- Mamanding, The Gambia



Photos: ©FAO/Amadou Bah





Sarah Manual, one of FAO's project participants, shows her harvest of okra in the resettlement area in Ndeja.

# FOOD SECURITY and NUTRITION

at the HEART of FAO  
RESPONSE to CYCLONES  
in MOZAMBIQUE



**AFTER TWO** unprecedented cyclones hit Mozambique, families are still grappling to recover their homes and livelihoods. After losing her house, harvest and food, the uncertainty still scares Domingas, 23, a young farmer who had to move with her husband and two children to a resettlement centre in Ndeja, Sofala Province.

“We suffered a lot. When my two children and I were trapped in the water, a man came by with a canoe and rescued us. I lost my house and my farm in the floods,” she says.

Cyclones Idai and Kenneth, and related floods, caused more than 600 deaths, affected over 2.2 million people and left 1.65 million people severely food-insecure, nearly double the food-insecure population of 2018. Approximately 800 000 hectares of crops were lost. Thousands of farmers were left without any means to restart their agricultural activities.

“When my two children and I were trapped in the water, a man came by with a canoe and rescued us.”

- Domingas, Mozambique

As part of FAO’s livelihoods recovery interventions, just a few weeks after Cyclone Idai’s landfall, FAO distributed agricultural kits consisting of early-maturing vegetable seeds that could be harvested 90 days after planting, such as tomato, onion, cabbage, okra and kale. Hand tools consisting of two hoes, a machete and a watering can were also provided. This timely intervention enabled the affected populations to have access to nutritious food while the recovery of normal food production was addressed in the most affected districts.

FAO was able to support about 10 000 people, such as Domingas, in nearly 50 of the 68 resettlement sites established after Cyclone Idai.



Sarah Manual, one of FAO's project participants, shows her harvest of okra in the resettlement area in Ndeja.



Photo: ©Karel Prinsloo/Arete/UN-Mozambique

“...we can produce our own food again”...

“I used to grow maize and lettuce to sell in the local market. We are still in need, but now with these seeds and tools I will plant, grow my own food, and sell the surplus to support my family,” Domingas says.

In addition to the loss of staple crops, the cyclones also caused widespread destruction of assets and infrastructure, including livestock, fishing supplies and food reserves that families depended on to survive. As a result, livelihoods were lost and food availability compromised.

Zalbina Amade, 50, is a mother of six and lives in the coastal community of Mahava in the Mecufi district, Cabo Delgado Province.

Cyclone Kenneth caused substantial damage to her farm and she lost an entire field of rice and maize. “The wind was so strong that many crops were destroyed. I also lost my harvest, which was stored at home, and as the cyclone wind carried away the entire roof, I lost almost everything inside, including animals. Goats and pigs died from the floodwaters,” Zalbina says.

As a result of these losses, the family's food supply was heavily restricted. “When the cyclone passed, we didn't have much to eat,” she says. “But now we have enough food. Some products like maize and beans are already coming out of the farms.



We are no longer depending on food aid, and we are also grateful to FAO, who gave us seeds and tools, because that way, we can produce our own food again.”

Zalbina was part of the nutrition education and communication-for-social-behaviour-change programme, funded by the United Kingdom’s Department for International Development (DFID, now called the Foreign, Commonwealth & Development Office or FCDO). The programme targets groups with a vulnerable nutritional status, including pregnant and lactating women, mothers caring for children under five, and women with malnourished children, in the most affected districts in Cabo Delgado.



FAO integrated nutrition education activities with the distribution of vegetable seeds, watering cans and the creation of group demonstration plots for the promotion of home gardens, with the aim of benefitting up to 6 000 women’s groups.

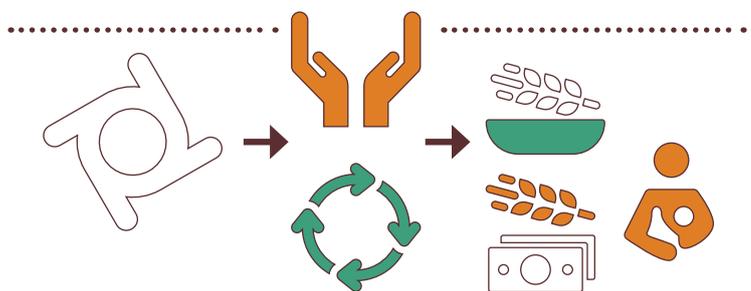
“In the nutritional education sessions we learned that we have to produce a variety of crops such as sweet potatoes, cowpeas, rice and peanuts,” says Zalbina. She believes that her diet has been improving lately because she is no longer eating the same things. Now she has options.

Access to quality seeds was another challenge for her. In the past, she depended on her neighbours for the seeds she needed to plant, because she rarely saved seeds for another season. “We received 10 kilos of maize seeds and we have been

advised that after harvesting we need to keep seeds to sow at another time. The seed has germinated well and the maize is growing well. I am confident that I will have a good harvest this year,” she says. “That makes me happy because I will finally stop depending on my neighbours and family when the sowing time comes.”

The FAO Cyclone Response Programme for Mozambique has contributed to increasing the resilience of affected communities by improving their food security and nutrition through concerted and timely actions that were able to reach more than 270 000 farmers in the provinces of Sofala, Manica, Tete, Zambézia and Cabo Delgado.

The FAO emergency response programme is funded by the World Bank, through the Government of Mozambique (the National Sustainable Development Fund [FNDS]), the Office of United States Foreign Disaster Assistance (OFDA), the Austrian Development Agency (ADA), the European Union, the FCDO, the Belgian Development Agency (Enabel), and the United Nations Central Emergency Response Fund (CERF). 



In the aftermath of disasters, FAO’s role is to protect, restore and enhance food security, nutrition and livelihoods.



# EFFECTIVELY FIGHTING CHRONIC MALNUTRITION THROUGH AGRICULTURE in RWANDA

CHRONIC MALNUTRITION or stunting remains a national challenge for Rwanda. On average, 35.6 percent of children under the age of five were chronically undernourished over the three years from 2017 to 2019.

Determinants of nutritional status are multifaceted, and global evidence underscored that both nutrition-specific and nutrition-sensitive interventions are necessary to eliminate all forms of malnutrition. This, therefore, requires a comprehensive understanding of multisectoral causes, but in many contexts, constraints remain due to limited technical capacities to design, implement, coordinate, monitor, and evaluate nutrition-related interventions across sectors and disciplines.

The coherence between agriculture, social protection, and nutrition programmes was recognized as cornerstone to the successful fight against malnutrition in Rwanda, and this increased ownership and accountability of multisectoral teams and development partners involved in the planning, implementation, coordination, monitoring and evaluation of nutrition related interventions at community level.

## PROMOTING NUTRITION-SENSITIVE AGRICULTURE

Nutrition-sensitive agriculture is an approach that seeks to ensure the production of a variety of affordable, nutritious, culturally appropriate and safe foods in adequate quantity and quality to meet the dietary requirements of populations in a sustainable manner. This requires maximizing nutritional outcomes across all stages of the food chain – from production, handling and storage, processing and distribution to preparation and consumption.

With financial support from the Swiss Agency for Development and Cooperation (SDC), FAO trained 40 national specialists on maximizing the contribution from the agricultural sector and food systems to address nutrition-related challenges in Rwanda.



Photos: ©FAO/Teopista Mutesi



Households in rural Rwanda use kitchen gardens to produce and increase consumption of vegetables.

Ufitinema Adeline, Rwanda’s Food and Nutrition Specialist, says: “Sometimes, farmers intend to grow crops and sell them. They also have to eat what they grow. More efforts and knowledge are needed to sensitize them to maximize the nutritional value in the food they grow to improve nutrition at household level.”

“Agriculture is the starting point and an important sector for good nutrition. It can play a significant role in addressing the causes of malnutrition while also tackling underlying issues, such as social and economic underdevelopment and inequality,” says Gualbert Gbehounou, FAO Representative in Rwanda.

The Government of Rwanda has developed initiatives to improve household nutrition, including the kitchen garden programme through which every household grows vegetables, fruits and other healthy foods to help them have access to nutritious foods, thus improving household food and economic security. Other key programmes include one cow per poor family, one cup of milk per child and national fortified blended food.

### IMPROVING MULTISECTORAL NUTRITION PROGRAMMING

The Government designed and implemented a District Plan to Eliminate Malnutrition (DPEM), with the view to reduce all forms of malnutrition by focusing on the nutrition of young children and pregnant and lactating women through an

Agriculture and nutrition education programmes among farmers can significantly improve children’s diets.

early childhood development programme that was established in 2017. However, the early childhood development pillars were not sufficiently captured in the DPEM.

FAO empowered multisectoral technical teams from agriculture, nutrition, health, social protection and gender in all 30 districts of Rwanda as well as civil society partners to revise and integrate the DPEM through the early childhood development package. The participants affirmed that the plans developed will go a long way to help the country integrate interventions that will eradicate malnutrition.

### DEVELOPING GUIDELINES TO ACHIEVE NUTRIENT INTAKE GOALS

FAO is supporting the Government to develop Food-Based Dietary Guidelines (FBDGs) to establish a basis for public food and nutrition, health and agricultural policies and nutrition education programmes to foster healthy eating habits and lifestyles.

The process entails producing manual to be used by health, nutrition, education and agriculture professionals and policy-makers, summary guidelines intended for use by food and nutrition professionals at health centres and hospitals, as well as a handbook for community-based educators.

“Agriculture is the starting point and an important sector for good nutrition.”

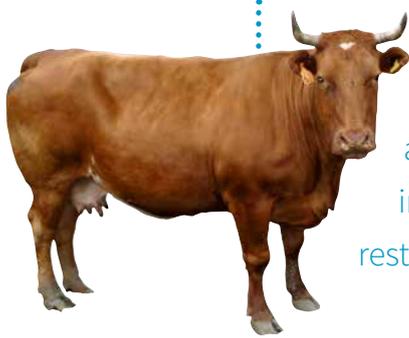
- Gualbert Gbehounou, FAO Representative in Rwanda



# MILK BARS

in SOUTH SUDAN

## BOOST NUTRITION and INCOMES



**MALNUTRITION** is common in many communities in South Sudan - especially among young children, pregnant women and lactating mothers - driven by years of conflict which have restricted access to food.

An innovative ‘milk bar’ initiative in several towns in South Sudan is tapping into the rich supply of milk from the country’s huge herd of cattle to help address malnutrition.

The milk bars are also a step towards valuing cattle not just for their cultural significance but for their nutritional produce as well.

Jonglei State Deputy Governor Diing Akol Diing stressed this point at the inauguration of one of the first milk bars: “We need to realize the actual financial value of our cattle away from their traditional use for marriage, pride and cultural activities, by properly marketing milk produce”.

Milk bars in South Sudan purchase milk from cattle owners and process it to sell to customers. “This is the only place I know that sells good milk because the milk is stored in a fridge,” one customer says.



Photos: ©FAO



“...but since my children drink this milk, they are more resistant to diseases and don't get sick as frequently...”

The milk bars are milk collection and processing centres that support local milk processing enterprise groups to enhance their sales, maximize profit margins, and provide hygienic dairy products to consumers. The milk bar ensures a fair income to cattle owners who bring their milk to the facility, and also provides good-quality safe milk to the local population.

“This is the only place I know that sells good milk because the milk is stored in a fridge. Even if I don't buy a lot of milk, it will benefit my child who won't get sick drinking it,” says customer Martha Achol.

So far milk bars have been established in Rumbek, Bor, Aweil and Awerial and are run by women's collectives.

In the town of Bor, in Jonglei state, the Jobwong Nhialic Women's Group runs the facility, led by group chair Deborah Yuang Jongkuch and facility manager Mary Yom Garang.

“Our group received adequate training to handle and manage the milk business. We are careful to encourage people not to buy milk sold at the roadside as they are often poorly handled and can be unsafe,” Deborah says.

The milk bar is well equipped with milk collection containers, pasteurization and preservation equipment, testing tools, safe handling equipment, seating space for customers, wash rooms, a storage facility, a kitchen and a solar-powered water pump.

The group supplies around 220 litres of milk a day, which earns them around USD 400 a day.

“Before I started working here I was making alcohol. Now I have been taught how to handle milk. I was taught that before you milk a cow you have to trim your fingernails short so that you yourself are clean and that you should also wear clean clothes,” says Mary Amou, one of the participants in Rumbek.



Mary gives milk to her seven children and quickly noticed a positive impact on their health. “Before there were a lot of diseases in the milk but since my children drink this milk, they are more resistant to diseases and don't get sick as frequently. I use the extra money I earn to buy things like clothes for my kids and pay their school fees,” she says.

Over a dozen women work at the Rumbek facility and over sixty women livestock farmers sell their milk regularly to the milk bar.

Several years after their launch, the milk bars are now sustainable and financially autonomous. The only cloud on the horizon, but also an indicator of their success, is ensuring a continuous supply of milk for the growing demand.

The milk bar initiative was funded by the United States Agency for International Development (USAID) and implemented in partnership with FAO and the Norwegian Refugee Council (NRC). 

Several years after their launch, the milk bars are now sustainable and financially autonomous. The only cloud on the horizon, but also an indicator of their success, is ensuring a continuous supply of milk for the growing demand. 



Photos: ©FAO





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A FAMILIA YAKO

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Zena Mshana runs a small business that sells nutritional orange-fleshed sweet potato snacks and flour. She believes her business contributes positively to the lives of smallholder farmers by raising their incomes and “most importantly” their nutritional wellness.



# YOUNG TANZANIAN AGRIPRENEUR THRIVES in the NUTRITIONAL FOOD BUSINESS



with the support of FAO

..... ZENA MSHANA is a young agripreneur based in Arusha, Tanzania. She runs a successful business that sells nutritional orange-fleshed sweet potato snacks and flour. The orange sweet potato is rich in beta-carotene which the body can convert into Vitamin A.



Photo: ©FAO

Zena's small business, named Better Markets for Crops (BMC), employs 15 young people and markets over 50 tonnes of crisps, 15 tonnes of nutritious flour, and six tonnes of spices in a year. The company is also involved in vine multiplication and roots production, supplying vines to farmers and buying roots from them.

Zena is committed to contributing to improved nutrition through her products. They became an instant success in Arusha because they provided a nutritious and healthier alternative to imported, high-cholesterol snacks.



“Raising awareness of orange-fleshed sweet potato and its nutritional value remains my challenge. We cater to key customers including pregnant and lactating women and parents of children under the age of five,” she says. Other clients include supermarkets, hospital clinics, schools and exhibitions.

Zena started cultivating sweet potatoes in 2015 on her small farm and sought different means to develop a business in selling her produce. As a promising young agripreneur, Zena was selected as a beneficiary of a youth programme that promotes decent and productive work in agriculture through supporting small agribusinesses.

Through support from FAO, Zena completed a one-month training programme focusing on agricultural entrepreneurship and value chain development in integrated ecosystems at the Songhai Regional Center in Benin. She also received a grant from FAO of USD 5,000 to scale-up her agribusiness, to improve profits, and create employment opportunities for other young people.

“Participation in the training in Benin has helped me to overcome some challenges facing our company and gain insights into new business ideas,” she says.

She also appreciates the technical support she received from the International Potato Center (CIP) on good agricultural practices which helped her to improve her knowledge of the different species of potatoes, their nutritional value, and processing techniques. It was this support coupled with the Songhai training that made her passionate about processing sweet potato roots and leaves and inspired her to grow her company.

## ON TO BIGGER THINGS

Zena believes that her business contributes positively to the lives of smallholder farmers by raising their incomes and most importantly their nutritional wellness.

Now, she aspires to continue expanding her business.

“The grant I received has helped me to plan for the expansion of my company by adding new machines such as slicing machines for potatoes, deep fryers, and a generator pump. Moving forward, we will be processing products such as flour and spices mixed with other products such as yellow maize, soybeans, coriander and fenugreek. Expanding value addition in my business will also create more employment opportunities for other youth,” she added.



Zena’s small business, named Better Markets for Crops (BMC), employs 15 young people and markets over 50 tonnes of crisps, 15 tonnes of nutritious flour, and six tonnes of spices in a year.

Now, she aspires to continue  
**EXPANDING HER BUSINESS.**

Zena was one of the participants in FAO's joint youth programme with the East African Community (EAC) titled: Promoting Youth Employment in the Agricultural Sector in East Africa. The programme promoted inventive business models and appropriate technologies to engage young people in agriculture. It contributed to accelerating innovative ideas around youth-led and youth-focused entrepreneurship and employment.

Sixteen 'youth champions in agriculture' from the six EAC partner states participated in an intensive training course on agricultural entrepreneurship and value chain development in integrated ecosystems. They also developed business plans for expanding their businesses and received grants, ranging from USD 2000 to USD 5000,

which they used towards growing their businesses and sharing their knowledge with other fellow youth in their respective communities.



Photo: ©BMC

FAO works with its member countries in Africa and elsewhere to develop youth-in-agribusiness strategies, provide capacity development and promote value chain development to address distress migration and promote food security and nutrition.

Investing in young people living in rural areas is key to enhancing agricultural productivity, boosting rural economies and ensuring food security. 🍌



Photo: ©FAO

Young agripreneurs such as Zena (centre) can be a driving force for food security and rural development.



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# PROCESSING to PREVENT FOOD LOSS and BOOST NUTRITION in ZAMBIA



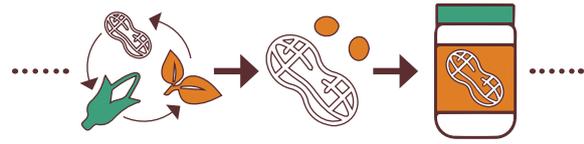
Photo: ©FAO



Women play an important part in household food and nutrition security.



Photo: ©Sebastian Liste/NOOR for FAO



...nutrition-sensitive agriculture via crop diversification and value addition is being encouraged...

Processing nutritious peanuts into peanut butter is a way to avoid post-harvest losses and encourage household food and nutrition security.

**POSTHARVEST LOSSES** are a major obstacle for smallholder farmers who are striving to realise high yields to boost food security and nutrition. FAO estimates that about 1.3 billion tonnes of food are wasted or lost globally each year. Some of the leading causes are inadequate storage facilities and insufficient agro-processing skills among smallholder farming communities.

In Zambia, FAO is working with the government, farmers and other stakeholders to encourage farmers to process, or 'add value', to part of their harvest instead of selling it all and risking later food and nutrition insecurity.

Through the Agricultural Transformation Centres in Africa, FAO is linking farmers to agro-processing hubs which have been strategically located in high-production areas to boost and integrate the production, processing and marketing of selected agricultural produce. To smallholder farmers, this can

translate into higher incomes and improved household food and nutrition security.

According to Zambia's 7<sup>th</sup> National Development Plan, under-nutrition is endemic in many parts of the country and poses a serious threat to the cognitive development and wellbeing of many. Statistics show that 48 percent of children under the age of five are stunted while 13.3 percent are underweight.

In response to this, nutrition-sensitive agriculture via crop diversification and value addition is being encouraged.

Women in particular are being supported because of their key dual role in food production and food preparation in Zambian homes. Around two-thirds of the participants in the FAO-led project *Promotion of Agro-Food Processing amongst Small Scale Farmers in Zambia* are women, and the project is helping to equip women's groups to start food processing.

"Some of the success stories from this intervention are on the Copperbelt where they are doing peanut butter production," Chief Food and Nutrition Officer under the Ministry of Agriculture, Karen Mukuka says. She says the groups are always looking for ways to improve production and reach new markets, including procuring aflatoxin detectors on their own.

She added that the project's impact remains visible because groups that were established as part of the work plan are still thriving. 🥄



## CABO VERDE:

# A conversation with a NUTRITIONIST

### HOW RICARDO MENDES HELPS SHAPE FOOD AND NUTRITION EDUCATION IN CABO VERDE

Ricardo Mendes is a Cabo Verdean nutritionist who, at the age of 29, helped create the first higher education course in nutrition and food quality in Cabo Verde, contributing to improving national nutrition and health. For the love of teaching, he has not only stayed in the classroom but has also traveled all over the country to raise awareness among the population about the importance of eating properly and avoiding food-related diseases. He has also been working for FAO on a project that aims to create a legislative environment that promotes local, fresh and nutritious foods.

**Q.** What is the nutritional situation of the Cabo Verdean population?

**A.** Cabo Verde faces the triple burden of malnutrition, characterized by the coexistence of undernourishment where 11 percent of children aged 0 to 5 years do not find needed dietary energy to meet nutritional demands; iron-deficiency anemia, which affects 43 percent of children in the same age group; and an increase in obesity and overweight, which affects almost 30 percent of the population. This is due, in large part, to the fact that Cabo Verde is an island and arid country that imports more than 80 percent of food for consumption, the majority of which are processed and potentially unhealthy.

**Q.** How did the idea to create the nutrition and food quality course in Cabo Verde come about?

**A.** The idea arose from the need that I found when I did my training in public health nutrition in Brazil. I realized the non-existence of the course in Cabo Verde and the increased prevalence of chronic non-communicable diseases. I felt challenged to help form a generation that is more sensitive to the issue of food and nutritional security by providing dietary care to the population.



Nutritionist Ricardo Mendes talking about healthy eating to students in Santiago, Cabo Verde.

Ricardo Mendes speaking with mothers about the challenges of infant feeding.

**Q.** Can you explain how the course is structured?

**A.** It is a pioneering course in the country that covers all fields of food and nutrition, as true tools in the promotion, conservation and rehabilitation of health, thus contributing to the improvement of the quality of life for the population. It is structured in five thematic areas: food and nutritional security, dietary attention, food safety and quality, scientific investigation, and scientific and societal interaction.

**Q.** Can you assess the impact of the course on people's lives?

**A.** The course has several community outreach projects that have passed through almost all of the islands of Cabo Verde. These outreaches give nutritional guidelines to different groups of people, provide health security training for food handlers in hotels, restaurants, schools and so on, and organize conferences to draw the attention of civil society and government authorities to the role of nutrition in the country's development.

**Q.** As a Small Island Developing State, what actions and strategy should the country adopt to improve the nutritional situation?

**A.** The strategy is to reduce ultra-processed and unhealthy foods that have excess sodium, sugar and fat. These objectives are included in FAO and WHO projects that are being successfully implemented in partnership with all sectors of government.

**Q.** What is the role of each Cabo Verdean in the nutrition issue?

**A.** Each citizen must make smart and healthy food choices, considering the availability and types of local food in the markets and what is imported. The intelligent consumer will be able to determine the new food environment, hence, quality training for food and nutrition education is the priority and the focus. ✓

Each citizen must make smart and healthy food choices, considering the availability and types of local food in the markets and what is imported."

- Ricardo Mendes, Cabo Verde



Photos: ©University of Santiago

Locally grown foods in Cabo Verde.





Oida Mwapighu in her field. “Being part of a project can greatly improve the quality of life. Indeed, a project can change the course of your life, just like what the Afikepo project has done with mine,” she says.

CHANGING KNOWLEDGE,  
ATTITUDES and PRACTICES for

# IMPROVED HOUSEHOLD NUTRITION

in MALAWI



“SINCE I JOINED the Towwirane nutrition learning centre in 2018, my knowledge, attitudes and practices have greatly changed,” says Oida Mwapighu. “My approach to nutrition is completely different. At first, I used to think that projects are there simply for handouts. Now I realize that being part of a project can greatly improve the quality of life. Indeed, a project can change the course of your life, just like what the Afikepo project has done with mine.”

Oida is a 64 year old widow who is raising her family, including a 4 year old grandson, in a village in Chitipa District, the most northern district in Malawi. She used to struggle to provide enough nutritious food for her family, but now new knowledge and practice have brought positive change to her life.

Such changes in knowledge and attitudes on nutrition are at the core of the European Union-funded Afikepo nutrition-sensitive agriculture project which is being implemented by the Ministry of Agriculture, Irrigation and Water Development, in partnership with FAO and the United Nations Children’s Fund (UNICEF).

“My approach to nutrition is completely different.”

- Oida Mwapighu, Malawi



The project is reaching out to communities in ten districts in Malawi, targeting households with children under the age of five, adolescent girls and pregnant and lactating women. Among its objectives is the increased utilization of Malawi's six food groups and improved availability of and accessibility to nutritious food for households such as Oida's.

"Before joining the nutrition-sensitive agriculture training activities, I used to think that consuming all six food groups (staple foods, animal foods, vegetables, fruits, legumes and nuts, fats and oils) a day was not possible unless one had a lot of money. I also did not know how to prepare nutritious meals.

Thanks to the District Agriculture Office and Care Promoters supported by Afikepo, it has guided me to prepare nutritious meals using locally available foods through cooking demonstrations," Oida says.

Oida is part of a group of 30 members receiving guidance at the Afikepo Towwirane Nutrition Learning Centre. This is one of 1 739 sites which have been established in the ten targeted districts. It is where Oida learned how to practice diversified agricultural production and was introduced to improved agricultural technologies that are supporting increased productivity for both food and nutrition security.

"My agricultural production this year has greatly improved and is more diversified. As we speak, I have cultivated maize, groundnuts, soya beans, sweet potatoes and other crops. In addition, I have fruits around my house to complete the food groups that the Afikepo project is advocating. We are now able to consume three meals a day, meeting almost all the six food groups required for good health and nutrition," she says.

Oida acknowledges that income security is equally important and a determinant for whether or not she can continue to sustain good nutrition for her family. She is confident that she will not struggle to source farm inputs for the next growing season thanks to the improved production and profit made from the surplus produce. 🌱

**"My agricultural production this year has greatly improved and is more diversified."**

**- Oida Mwapighu, Malawi**



Photos: FAO/Edwin Siyame









Photo: ©FAO/Luis Tato

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