



FEED THE FUTURE

The U.S. Government's Global Hunger & Food Security Initiative

Hinga Weze Activity

Increasing the Resilience of Rwandan Agriculture



USAID

FROM THE AMERICAN PEOPLE

Program Overview

Over the past 20 years, Rwanda has made remarkable progress and the country's economy has been growing steadily at roughly eight percent since 2001. The agricultural sector plays a central role in Rwanda's economy, accounting for 39 percent of gross domestic product (GDP), 80 percent of employment, and 90 percent of the country's food needs.

Despite this impressive growth, significant challenges to agricultural productivity and market participation remain, including constraints on land availability for cultivation, degradation of the country's soil and natural resource base, lack of access to agricultural inputs and mechanization, and recurring extreme climatic events. The performance of the agricultural sector is closely linked to Rwanda's overall nutritional profile and undernutrition remains a pervasive problem, further impacting Rwanda's economy. About 33% of children under five are malnourished. Stunting in children is attributed to food insecurity and poverty, inadequate feeding (poor complementary feeding practices) and inadequate environments.


The Feed the Future Rwanda Hinga Weze Activity is a five-year, \$32.6 million USAID-funded activity that aims to sustainably increase smallholder farmers' income, improve the nutritional status of women of reproductive age (15-49) and children under two, and increase the resilience of Rwanda's agricultural and food systems to a changing climate.





Table of Contents

04	Climate-Sensitive Agriculture Small-scale Irrigation Technology New Terraces Increase Crop Yields
09	Private Sector Engagement Maize-Cob Model Reaping Benefits Digital Solutions
14	Nutrition Poultry Farming through Care Group Model USAID Promotes Nutrition-Sensitive Ag
19	Gender and Youth GALS Approach Builds Stable Homes Youth Engagement in Agriculture Improves Access to Digital Technology and Extension



Climate-Sensitive Agriculture



Small-scale Irrigation Technology Transforms Farmers' Lives in Rwanda


Smallholder farmers like Beata Mukanyirigira, a farmer from Kayonza, depend on reliable access to water and irrigation to increase land productivity and agricultural yields. With a focus on improving access to water infrastructure necessary for sustainable agricultural livelihoods, the Feed the Future Rwanda Hinga Weze activity, a five-year activity funded by USAID and implemented by Cultivating New Frontiers in Agriculture (CNFA), is providing small-scale irrigation technologies (SSIT) to hundreds of Rwandan farmers in Bugesera, Ngoma, Kayonza and Gatsibo districts.

Since 2017, Hinga Weze has partnered with farmers, the Rwanda Agricultural Board (RAB) and local authorities to support over 1,200 households in accessing small-scale irrigation infrastructure that is affordable, appropriate and adaptable for smallholder farmers. The system is also powered by solar energy, allowing farmers to eliminate their reliance on diesel and reduce their environmental footprints.

So far, nine sites have been completed covering 100 ha, while two sites covering an additional 100 ha are currently under development.

In total, 300 ha of land are targeted to be covered with SSIT through the life of the project, benefitting thousands of farmers by significantly increasing productivity, improving incomes and livelihoods and ensuring food security and nutrition.

The targeted value chains for the irrigation activity are maize, beans, French Beans and horticultural crops. After identifying the sites, farmers are mobilized to consolidate land and form savings groups and cooperatives. To date, Hinga Weze has helped establish 10 savings groups and cooperatives, which serve as key entry

The background of the page features a photograph of several people in a rural agricultural setting. In the foreground, there are solar panels. In the middle ground, a person in a white shirt is operating a surveying instrument on a tripod. Other people are visible in the background, some wearing face masks. The scene is outdoors with green vegetation.

points for partnering with private sector actors, lending institutions, buyers, traders and agrodealers to access agricultural inputs and markets. They also reinforce existing community cohesion and offer employment opportunities and enhanced capacity strengthening interventions for farmers who work on consolidated farms.

Through the SSIT intervention, farmers have gained the knowledge and capacity to manage irrigation infrastructure and ensure the sustainability of their farms and livelihoods. All interventions are farmer-led and have resulted in the additional rollout of good agriculture practices (GAPs), which have greatly improved crop productivity and incomes.

Before partnering with Hinga Weze to receive irrigation support, crops grown on these sites had low yields and were affected by land fragmentation and low productivity. The lack of water during the dry season contributed to these challenges, despite farmers owning their own small manual or diesel pumps. Today, the land is fertile, and the additional crops grown on the sites have contributed to increasing incomes and food security. In the last two seasons, the nine sites that have been developed produced over 400 metric tons (MT) of produce, with over 1,000 MT to be harvested by the end of 2020.



New Terraces Increase Crop Yields and Incomes for Farmers

Nyabihu district in Rwanda is known for its scenic hills and steep terrain, which, despite the views, can make life difficult for farmers in the region. Crops and fertile topsoil are frequently washed downhill by rain, reducing soil fertility and crop yield. Residents like Serephine Nyirarubanza, a farmer of the Rurembo sector, are often daunted by attempts to cultivate on the steep slopes.

To support smallholder farmers growing crops across this region, the Feed the Future Rwanda Hinga Weze activity, funded by USAID and implemented by Cultivating New Frontiers in Agriculture (CNFA), constructed and rehabilitated approximately 818.85 ha of radical and progressive terraces. These benefitted over 5,620 farmers, including Nyirarubanza and the other members of her cooperative. Together, Nyirarubanza and the 164 other cooperative members offered their paid labor to construct the terraces, a task that involved setting up a drainage system around the plots by establishing cut-off drains, waterways and dams. The cooperative also planted grasses, such as French Cameroun, to protect the drainage systems and embankments.

As part of Hinga Weze's integration model, the planted grass is also used as livestock feed, with the residue turned into manure and added to artificial fertilizers to improve soil fertility. Additionally, producers were encouraged to re-use topsoil removed during the terrace development phase, to add in three tons of lime per ha every three years to cultivate healthy soil and to add 10 to 30 tons of organic manure per ha per season to reduce soil acidity and improve fertility.

Many farmers quickly reaped the fruits of their labor. For example, at the Muhanda



site in the Ngororero district, farmers planted Irish potatoes on 40 ha and increased their yield four-fold from five tons to 21 tons per ha, worth approximately \$167,000 (173,677,500 RWF).

Nyirarubanza's hard work also proved beneficial. "I used to harvest only 200 kgs on my 20-acre plot," she said. "But after learning to terrace and apply fertilizers and manure, I am now able to harvest 400 kg."

With the completion of progressive and radical terraces, farmers like Nyirarubanza are assured of improved yields and higher quality crops of maize, high-iron beans, orange-fleshed sweet potatoes, Irish potatoes and various other horticultural produce, some of the key commodities in the region. These yields also translate to higher income generation and improved food security.



Private Sector Engagement



USAID-Supported Maize-Cob Model Reaping Benefits for Farmers

The post-harvest handling of maize in Rwanda is typically lengthy and done without the support of adequate infrastructure. These inefficient post-harvest practices can result in increased damage and post-harvest losses, particularly because of the presence of aflatoxins—a naturally occurring, soil-borne fungus that contaminates many staple foods, especially maize and other cereals, and impacts hundreds of millions of farmers across Sub-Saharan Africa.*

In Ngoma district, Rwanda, the Duteze Imbere Igihingwa cy'ibigori (KODUIBI) cooperative is working to transform the lives and livelihoods of its 102 members, the majority of whom are women, by introducing post-harvest innovations that increase maize quality and improve production efficiency. Through their partnership with the Feed the Future Rwanda Hinga Weze activity, KODUIBI learned about the Kumwe maize-cob model, a model developed by Kumwe Harvest Ltd. through support from Hinga Weze that reduces the time needed to aggregate, thresh and dry grains for market. Since 2020, Kumwe has supported smallholder maize farmers in ten Rwandan districts by providing access to more consistent, efficient and better-quality harvests.

The maize-cob model itself could not have been successful without the post-harvest practices initially implemented by KODUIBI farmers such as gusharika (drying in the sun). During gusharika, harvested maize is tied up and placed face-down in a row with the dry leaves shielding the cob away from water. Maize is then placed in shelters which reduces contamination to manageable levels, usually reaching required the moisture content required by buyers of 13.5-16%, a process that traditionally takes about 10 weeks. Borrowing inspiration from this tradition, the cob



model reduces drying time to 3-8 days, greatly benefitting farmers and enabling them to supply high-quality maize to local markets and agribusinesses.

With the activity's support, KODUIBI also signed a contract with AIF, a premium buyer that requires high-quality, Grade I maize, meaning it has a low presence of aflatoxins. By linking farmers to markets and premium buyers, KODUIBI was able to sell 300 MT of their maize compared to the 14 MT they sold in the previous matching season, increasing their revenue and incomes.

This increase in yield impacted producers in more ways than just higher incomes and healthier crops.

“For the first time our cooperative members were able to save and buy small animals to improve family nutrition, diversify foods at the household level and gain other sources of income,” stated Epiphanie Murerwa, KODUIBI president.

Hinga Weze also works with financial institutions to develop client-friendly products that strengthen post-harvest handling in Rwanda. For example, after developing the cob model, Kumwe Harvest Ltd. secured a financing service loan of \$100,000 (1 billion RWF) from KCB bank to purchase professional-grade drying and processing machinery and to increase the amount of maize purchased from farmers. In response, farmers have been able to improve their post-harvest handling, productivity and nutrition outcomes.

Hinga Weze is a USAID-funded activity implemented by Cultivating New Frontiers in Agriculture (CNFA) that aims to sustainably increase incomes, improve the nutritional status of Rwandan women and children and increase the resilience of agriculture and food systems to the changing climate.



Digital Solution Supports Smallholder Farmers and Savings Groups

Access to finance is one of the major barriers to increasing agricultural productivity for smallholder farmers in Rwanda. Bank branches are often located far from farmers' homes, making it difficult for them to access the financial services needed to support and scale up their businesses.

Mobile financial services and microfinance institutions (MFIs) like Duterimbere MFI and Umurimo Finance Ltd. are well-placed to combat this by offering solutions that improve access to finance and address issues like the high cost of transactions, high cost of reaching farmers in rural areas and low rate of farmer transactions, which also impacts the availability of financial data for proper loan distribution and decision-making. Since 82 percent of Duterimbere and Umurimo's clients are farmers, they partnered with the USAID-funded Feed the Future Rwanda Hinga Weze activity to improve farmers access to finance in the districts of Kayonza, Gatsibo and Nyamasheke.

Hinga Weze teamed up with ADFinance, a Rwandan company specializing in the design and implementation of digital solutions for the financial sector, and local mobile network operators to develop a SMS-based software that enables farmers to conveniently draw funds from their bank accounts and complete mobile money transactions with ease.

ADFinance provided training to MFI staff on the service's usage and MFI staff, in turn, educated their farmer clients on how to use the new mobile tool. The new push-pull service works by integrating the MFIs' core banking systems with mobile money services from network operators Mobile Telephone Network and Airtel. Through

this mobile service, individuals and savings groups can access their mobile money wallets and make payments online, without needing to travel to a physical bank branch. The new mobile financial service therefore makes it easier for farmers to save income since they no longer need to spend time and resources traveling back and forth to the bank.

The service's simplified withdrawal and deposit transaction processes also facilitate loan repayments quicker and more efficiently than before. Participating MFIs have seen an increase in the volume of client transactions, supporting them to collect enough data to make improved lending decisions.

The technology has even allowed farmers and savings groups to continue using financial services during COVID-19 lockdown periods when physical movement in the country was restricted.

To date, over 5,000 smallholder farmers have adopted this mobile money technology and more than 1,300 smallholder farmers have accessed over \$328,000 in loans through the digital system. Beyond its support to individual farmers, 674 savings groups have used the digital financial service to connect with MFIs and access new sources of funding.



Nutrition





Poultry Farming Through Care Group Model Transforms Beneficiaries' Lives

Nutrition continues to be a major public health concern in Rwanda, with 38% of children under five classified as stunted and 9% of children under five classified as underweight (RDHS, 2014-2015). One contributor to stunting is a lack of dietary diversity among Rwandan children, particularly of animal-sourced protein, which can provide a variety of micronutrients that are difficult to obtain in adequate quantities from plant-source foods alone.

Dietary diversity is also a significant challenge in the 10 targeted districts where the Feed the Future Rwanda Hinga Weze activity operates, including in Nyamagabe and Kayonza. To overcome this challenge, Hinga Weze mobilized households using the care group model and engaged participants in nutrition-sensitive agriculture education and peer learning, leading to increased incomes and consumption of nutritious foods for women and children.

Since 2018, Hinga Weze has worked with communities to strengthen the capacity of local care groups through training and coaching in good agricultural practices, nutrition, food safety, finance, gender and poultry farming.

In Kayonza and Nyamagabe districts, Hinga Weze also introduced the Small Livestock Program to improve the intake of animal-sourced foods by increasing the local availability of small livestock, mainly chickens. This, in turn, helped families generate household income to purchase nutritious foods, while increasing access to meat and eggs for consumption.

So far, 9,200 chickens were distributed to 46 care groups through Hinga Weze's

Small Livestock Program. After receiving and rearing their chickens, care group members received enough income to pay back \$400 (400,000 RWF) through a pay-back model, and were also able to fund a second chicken production cycle. Care groups have also been able to generate income from egg sales, distribute 15 eggs for consumption to each member per month and add organic chicken manure to crop production and home gardens.

“Due to a lack of information related to nutrition-sensitive agriculture and nutrition, we did not understand what contributed to malnutrition in our area,” said Masengesho, leader of the Imbereheza group in the Kayonza district of Rwanda. “Now our lives are transformed. We are eating sufficient and balanced diets and we invested in poultry as a care group to provide services to our neighbors.”

The trainings equipped care groups with important skills in poultry farming, rearing and feed formulation. It also supplied members with the resources needed to care for their chickens, including vaccines and specialized technical trainings on chicken maintenance, poultry house standards, feeds, transportation, marketing, business development and general health standards for poultry.

These services meant the Program acted as a business provider for farmers and a nutritional conduit for households. As a result of this support, some care groups have even advanced from producing one-day-old chicks to supplying chicks for other groups to raise as agents for Uzima Chicken, a local chicken supplier.

In addition to the chickens distributed as part of the Small Livestock Program, Hinga Weze distributed 86,400 chickens to 14,400 households (six chickens per household) across eight districts, which has greatly increased accessibility and contributed to improved nutrition and dietary diversity in the area. Through their weekly savings and joint household budgeting programs, farmers have been able to increase their incomes and improve their livelihoods at the household and business levels.

Hinga Weze is a five-year USAID-funded activity that aims to sustainably improve agricultural productivity, increase smallholder farmers' incomes and improve nutritional status of women and children. The care group model has made this goal accessible and the Activity's efforts successful.



USAID Support to Farmers in Bugesera Promotes Nutrition-Sensitive Agriculture

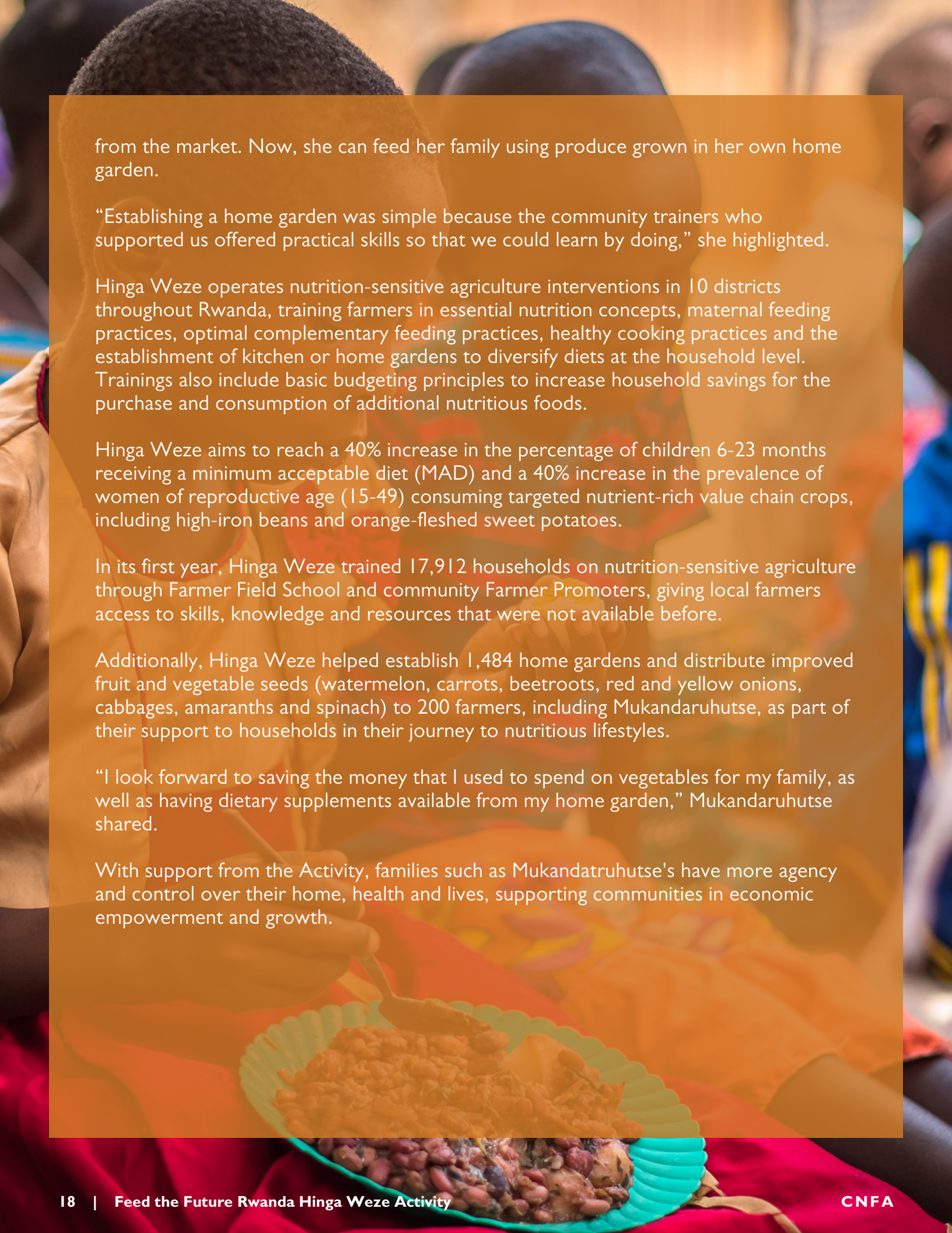
Across the eastern province of Rwanda, farmers like Didacienne Mukandaruhutse often face difficulties due to the area's drought-prone conditions. As a result, putting enough healthy, balanced and diversified foods on the table for her family was a challenge.

To help improve her family's nutrition intake, Mukandaruhutse joined together with other farmers in Bugesera District, Rukumberi Sector, to attend trainings on good agriculture practices organized by the Feed the Future Rwanda Hinga Weze activity, a USAID-funded activity implemented by Cultivating New Frontiers in Agriculture (CNFA) that aims to sustainably improve agricultural productivity, increase smallholder farmers' income and improve the nutritional status of Rwandan women and children.

The Hinga Weze trainings focused on improving nutrition for women and children by introducing nutrition-sensitive agriculture practices that built resilience to the impacts of climate change. The trainings were also hands-on and practical, such as helping farmers establish home gardens to grow nutrient-rich fruits and vegetables, establishing the importance and practicality of these skills to locals.

"Acquiring knowledge by practice about maternal, infant and young child nutrition was an eye-opening experience for me, my community and even my children. We now know that it is possible to ensure proper nutrition for a smallholder farmer with a limited means of production," Mukandaruhutse said with a smile.

In the past when Mukandaruhutse needed nutritious vegetables, she would buy them



from the market. Now, she can feed her family using produce grown in her own home garden.

“Establishing a home garden was simple because the community trainers who supported us offered practical skills so that we could learn by doing,” she highlighted.

Hinga Weze operates nutrition-sensitive agriculture interventions in 10 districts throughout Rwanda, training farmers in essential nutrition concepts, maternal feeding practices, optimal complementary feeding practices, healthy cooking practices and the establishment of kitchen or home gardens to diversify diets at the household level. Trainings also include basic budgeting principles to increase household savings for the purchase and consumption of additional nutritious foods.

Hinga Weze aims to reach a 40% increase in the percentage of children 6-23 months receiving a minimum acceptable diet (MAD) and a 40% increase in the prevalence of women of reproductive age (15-49) consuming targeted nutrient-rich value chain crops, including high-iron beans and orange-fleshed sweet potatoes.

In its first year, Hinga Weze trained 17,912 households on nutrition-sensitive agriculture through Farmer Field School and community Farmer Promoters, giving local farmers access to skills, knowledge and resources that were not available before.

Additionally, Hinga Weze helped establish 1,484 home gardens and distribute improved fruit and vegetable seeds (watermelon, carrots, beetroots, red and yellow onions, cabbages, amaranths and spinach) to 200 farmers, including Mukandarhutse, as part of their support to households in their journey to nutritious lifestyles.

“I look forward to saving the money that I used to spend on vegetables for my family, as well as having dietary supplements available from my home garden,” Mukandarhutse shared.

With support from the Activity, families such as Mukandatruhutse's have more agency and control over their home, health and lives, supporting communities in economic empowerment and growth.



Gender and Youth




New GALS Approach Builds Stable Homes in Farming Communities

Although Rwanda has made tremendous progress in gender equality, low male engagement in domestic chores remains a challenge in many areas. Most affected by this phenomenon are rural communities across the country, including where Illumine Gakuru lives in Nyagisozi cell, Kageyo sector, Gatisbo district.

Gakuru and her husband Donatien Munyandinda had been married for five years, but Gakuru struggled to raise their two young children and care for their home garden and household alone, without sharing responsibilities with her spouse. Gakuru, like many other women in her area, especially in farming communities, face gender inequities that limit their equal access to income and economic resources.

In 2018, Gakuru and Munyandinda enrolled in a program managed by the Feed the Future Rwanda Hinga Weze activity, which is funded by USAID and implemented by Cultivating New Frontiers in Agriculture (CNFA), aims to sustainably increase farmers' incomes, improve the nutritional status of women and children and increase the resilience of agriculture to the changing climate, while supporting women and promoting equality.

In 2018, Gakuru and Munyandinda enrolled in a program managed by the Feed the Future Rwanda Hinga Weze activity, a USAID-funded activity implemented by Cultivating New Frontiers in Agriculture (CNFA) that aims to sustainably increase farmers' incomes, improve the nutritional status of women and children and increase the resilience of agriculture to the changing climate, while supporting women and promoting equality.



The program, known as the Gender Action Learning System (GALS), uses a community-led gender methodology to address gender dynamics and ensure equitable decision-making within households. GALS also enables couples to share financial control over household assets, reshaping income dynamics.

Gakuru and Munyandinda are among the 5,955 couples supported through GALS to understand and prepare detailed household development plans that achieve a shared vision. As one of the first to attend the GALS program, Gakuru and her husband were introduced to concepts such as participatory visioning and planning, which helped the couple identify and resolve the issues that were preventing their household's development. Through this approach, they were able to work through issues that were negatively affecting their communication and ability to jointly manage household finances.

“Unlike before, we now have a joint bank account,” highlighted Munyandinda. “I always had misunderstandings with my husband because he would sell all our produce and use the money without consulting me,” observed Gakuru. “But now, we have learned a lot from this new approach and we have a happy home.”

The couple also shares child-rearing and household chores and jointly manages their finances and goals. Since Munyandinda's participation in GALS, he has also become a “male champion,” responsible for promoting the initiative by mobilizing and supporting other farmers and their spouses to share household responsibilities and decision-making, encouraging a shift of from the status quo.

Through GALS, Hinga Weze has partnered with 1,863 community-based volunteers and trained nearly 6,000 couples to develop household activity plans and goals, keeping the activity immersed in the community and its values. GALS has also helped Hinga Weze establish 83 male champion networks in 10 districts across Rwanda, reaching 185,125 women and enabling more men to view their spouses as partners with equitable decision-making power and establishing dual commitment to household and familial success.




Youth Engagement in Agriculture Increases Access to Digital & Extension in Rwanda

In Rwanda, only 3.18 million out of 7.75 million individuals of working age are employed, and the number has declined by more than 13 percent since August 2020. The agriculture sector also lost upwards of 47,000 jobs while the unemployment rate stayed relatively high at 25.5 percent among the youth population (National Institute of Statistics of Rwanda).

Linking youth to agriculture can significantly contribute to innovation, job creation and agriculture sector development. The USAID-funded Feed the Future Rwanda Hinga Weze activity works to attract youth in agriculture by increasing agricultural productivity, employing youth through internships, improving access to finance and strengthening youth capacity in digital and private sector extension. Since 2017, the Activity has reached 733,000 individuals, of whom over 24 percent were youth.

To support the development of youth entrepreneurs, the Hinga Weze Activity provided internships to over 200 youth and awarded \$92,647 in youth-specific grants for companies including Mahwi Tech, Carl Group, Zima Enterprise and KOTIB. Using the grant funds, Mahwi Tech was able to transform its M-LIMA platform, a youth-owned agricultural market information platform, into an online marketplace that can serve the dual purposes of providing market information and facilitating market linkages.

Similarly, technology company BK TechHouse was able to expand its online Smart Nkunganire System to support over 200,000 new farmers, including 51,324 youth, by improving their agricultural input and information distribution and digitalizing their agrodealer operations through a Mobile Order Processing Application.



Hinga Weze’s activities also strengthened youth capacity in extension by including youth in digital extension programming, integrating youth in public and private extension services and providing youth-friendly approaches to extension and farming through the New Extensionist Learning Kit (NELK). Hinga Weze trained 133 youth on the use of digital extension, 15 youth on digital extension content creation and 21 youth on extension video dissemination. To date, these youth-produced six videos on improved maize cultivation and helped train 4,000 farmers on maize production techniques using the Center for Agriculture and Bioscience International’s (CABI) App — a mobile learning application focused on the production, harvest and post-harvest management of maize.

“Youth in Rwanda have quickly adopted information communication technology (ICT) tools and platforms. By using youth to customize and promote digital technologies, the Activity is supporting the advancement of ICT and transforming the way agricultural technologies are transferred to smallholder farmers,” highlighted Laurence Mukamana, Hinga Weze Chief of Party.

While Hinga Weze continued to utilize traditional extension methodologies to help farmers adopt climate-smart and other good agriculture practices, such as on-site coaching and Farmer Field Schools, the Activity also partnered with master trainers from the Rwanda Agriculture Board and the Ministry of Agriculture and Animal Resources to help youth expand engagement, training and digital tools to extension agents and farmers through the Government of Rwanda’s Twigire Muhinzi national extension program. By leveraging existing government and private sector structures, Hinga Weze was able to create ownership and ensure the sustainability of promoted practices and methodologies beyond the life of the activity.



FEED THE FUTURE

The U.S. Government's Global Hunger & Food Security Initiative



@CNFAGlobal

@USAIDHingaWezeRwanda



@CNFA

@USAIDHingaWeze



**Cultivating New Frontiers in
Agriculture**



**Cultivating New Frontiers in
Agriculture**



USAID
FROM THE AMERICAN PEOPLE