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Climate Resilient Value Chains for Improved Livelihoods

Agriculture for Young People

Empowering Youth Engagement in Climate-Smart Agriculture (CSA) Practices and Technologies

In recent years, Uganda has faced erratic weather patterns, prolonged droughts, and unpredictable rainfall, all of which have harmed the country's agricultural productivity. In response to these challenges, young farmers and entrepreneurs have turned to Climate-Smart Agriculture (CSA) as a means of adapting and mitigating the effects of climate change. Given the ongoing impact of climate change on agriculture, it has become increasingly important for smallholder farmers to adopt innovative and sustainable farming methods.

Young people are at the forefront of using technology and smart agricultural practices to combat the challenges posed by climate change. One notable example is Hassan Ilakut, a young farmer and member of the P'KWI FFC. The Popular Knowledge Women's Initiative Farmer to Farmer Cooperative (P'KWI FFC) encourages youth participation in agriculture by training farmers in Climate-Smart Agriculture practices and technologies like using improved seed variates, trench digging, water harvesting, post-harvest handling, and fertilizer use to improve food quality, maximize crop yields, and reduce resource use.

Leveraging Climate-Smart Agriculture (CSA) Practices and Technologies

Tucked within the vibrant rural landscape of Kachabule Village, Bukedea District lives a young farmer whose dedication and resilience have made him a symbol of hope for his community. Twenty-five-year-old Hassan Ilakut, a husband and father of five, has transformed his small plot of land into a flourishing farm, becoming one of the most successful and innovative farmers in the region. Upon acquiring climate smart knowledge, Hassan was inspired to start his farming as a family business and use these practices to increase his household income while also creating a sustainable agribusiness. Implementing these innovative practices has allowed Hassan to make more informed decisions about irrigation, fertilization, and pest management, resulting in both improved quality and quantity of sunflower gain during harvest. In addition to leveraging Climate-Smart Agriculture technology and sustainable practices, Hassan is now able to produce liquid fertilizers from farm waste and organic pesticides for use on his farm.

Hassan began with sunflower farming and has since expanded to include beekeeping, rabbit rearing, and citrus growing, creating an interdependent farming ecosystem. This initial seed funding from the Climate Resilient Agribusiness for Tomorrow (CRAFT) project through P'KWI FFC enabled him to secure additional funding from Action Aid, which assisted him with the construction of a solar dyer for fruits and vegetables. He has been able to add value to his citrus farming by packaging sun-dried fruits for sale, resulting in lower postharvest losses.

Renewed Hope

Previously sunflower production was a low-priced grain with little return on investment. Hassan has witnessed a surge in demand for sunflower as a result of CRAFT's intervention, due to its value as a gain or processed for oil used in cooking and seed cake for animal feed. The profits from the grain sale are used to build a structured house at home.

> "Previously, I used to harvest 300kgs of sunflower production. After implementing the CSA Practices from CRAFT training, I now harvest 500kgs above from one acre. We have seen the value of sunflower and now my family cultivates sunflower on three acres."
>
> **Hassan Ilakut,**
> **Smallholder Farmer**

The increased access to clean water as a result of water harvesting practices demonstrates a shift in household lifestyle. The additional income allows the children to receive an education, and Hassan takes pride in being a model farmer for especially the youth from whom other farmers can learn based on the farming practices and technologies that have resulted in a bountiful harvest. Farming is now more enjoyable and easier because some practices, such as planting in rows, make it easier for Hassan to weed, control pests, and apply fertilizers, as opposed to the traditional "broadcasting" method, in which farmers simply spread seed across the garden during the planting session without proper spacing, resulting in low yield.

While the challenges posed by climate change are undeniable, Hassan's proactive approach to adopting Climate-Smart Agriculture practices and technologies represents a promising path forward.

Young farmers in Uganda are adapting to climate change and paving the way for a more resilient and environmentally conscious agricultural sector. These initiatives not only promote climate-resilient farming practices but also emphasize the importance of making agriculture "cool" for young people to foster inclusivity and sustainability in Climate-Smart Agriculture.

A Vision for the Future

Looking ahead, Hassan hopes to transform his farm into a learning center where more people can learn about sustainable agriculture in Kachabule Village and work together to address issues such as inadequate infrastructure such as demonstrattion plots and community learning centers. He believes that with the right tools, knowledge, and support, Kachabule's young farmers can break the cycle of poverty and create a better future for themselves and their families.

Hassan's story exemplifies the power of perseverance, innovation, and community. What began as a small farm on the outskirts of Kachabule has grown into a success story that inspires people not only in his village but throughout Bukedea District. Hassan's example demonstrates that with determination, the future of agriculture is in the hands of young people, who are more than capable of transforming their communities.

Hassan is one of 1,093 youths who have benefited from CRAFT interventions in Uganda. "As a young person, various farmer training and learning visits as part of the knowledge-sharing experience shaped my perspective on agriculture." He notes. He encourages young people to abandon their negative beliefs that farming is dirty. He stresses the importance of investing in Climate-Smart Agriculture for sustainability.

500 Kgs
In harvest from one acre of land with CRAFT smart practices

1,093
Youths who have benefited from CRAFT interventions in Uganda

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A Farmer's Vision for Climate-Smart Agriculture (CSA) Transforms Communities in Mbale

Wandida Agri-forestry Farmers Association (WAFA), located about 20 kilometers off the Mbale-Tororo Road, is nestled in the fertile hills of Busiu Village, Mbale District, Uganda, where one farmer's success story is inspiring an entire community to reconsider Climate-Smart Agriculture. William Nambafu is not only a farmer. He is a pioneer, a teacher, and an enthusiast of Climate-Smart Agriculture (CSA), a set of practices designed to make farming more resilient to climate change while sustainably increasing productivity.

Uncertain Times for Smallholder Farmers

William, like many other farmers in Busiu, initially faced challenges common to smallholder farmers, such as unpredictable rainfall, soil degradation, and low yields. Weather patterns had become more erratic, with extended dry spells followed by heavy rains that caused erosion and crop loss. William noticed that smallholder farmers in his community were constantly stressed because their farms produced low yields. He quickly realized that something needed to change to create a more sustainable farming ecosystem that would benefit his community.

A Turning Point: Discovering Climate-Smart Agriculture (CSA)

Willan's turning point came when he attended a community farmers' field day organized by Byeffe, a female-led Agri-SME that promotes soybean production using Climate-Smart Agriculture practices and nutrition through the value addition of soybean and pumpkin flour with support from the Climate Resilient Agribusiness for Tomorrow (CRAFT) There, he learned about sustainable farming methods that could help mitigate the effects of climate change. William was passionate about Agroforestry, and the concept of Climate-Smart Agriculture farming practices that help farmers adapt to changing climates, reduce their environmental impact, and increase productivity struck a deep chord with him. Determined to make a difference, William converted his farm into a demonstration center, dividing it into various plots for planting different food crops. His demonstration farm tests a variety of techniques, including agroforestry, which involves planting multipurpose trees alongside crops to improve soil fertility, reduce erosion, and increase water retention.

> "I never imagined that this farm, small as is, would become a place of learning and hope for so many," he says with a smile. "The future is in our hands, and I'm proud to help my community build a more sustainable and prosperous tomorrow."
> **William Nambafu**

Using green walls to deter stary animals and demarcate boundaries. On this demonstration plot, William uses crop rotation with a variety of crops, including improved soybean varieties, groundnuts, banana plantations, maize, tree planting, coffee trees, and the use of water trenches and soil bunds to trap water between the various plots.

These changes were tailored to the community. There was an initial investment of time and resources, but William remained committed. His farm gradually developed into a model of resilience. Despite a drier-than-usual rainy season, William's yields increased in the first season after implementing CSA practices. The soil was visibly richer, and the crops were healthier than those on the neighboring farms. His neighbors took notice.

Spreading Knowledge and Transforming the Community

William didn't keep his success to himself. He knew that for real change to happen, he needed to share what he had learned. William began hosting field days where fellow farmers could visit his farm and see the results of Climate-Smart Agriculture practices firsthand. He gives practical demonstrations on water management, soil conservation, and crop diversification, all while cheerfully explaining the science behind each technique.

> "Farmers here had never seen anything like this," **says William.** "They were used to planting and praying for rain. But when they saw my farm thriving with less water, they were curious and eager to learn."

His efforts were so successful that other farmers in Busiu affiliated with the Byeffe cooperative began implementing similar practices on their own plots. The village's yields improved in subsequent seasons, and even when the weather was unpredictable, the community remained resilient. WAFA gains influence beyond the districts as visitors from outside Mbale participate in the agroforestry learning process. Furthermore, during the field days, William, the chairperson and group leader for the Smart Climate Agriculture practices working with Byeffe, raised awareness about agri-financing and insurance, and he is pleased to report that some of the smallholder farmers who attended these trainings have also registered their farms for insurance, though he acknowledges that this is a slow process because people are still skeptical of agri-insurance. As a result, additional training and awareness campaigns are required.

Beyond the Farm: Empowering Women and Youth

Recognizing the importance of inclusive development, William made sure that women and youth were actively involved in his training sessions. He encouraged young people, who frequently migrate to urban centers for work, to see the potential of smart farming as a profitable and sustainable livelihood. William also works closely with women, helping them improve their household income through collective marketing for their soybean.

A Promising Future

Today, William's farm is a beacon of hope in Busiu, Mbale. It is not just a farm, but a symbol of resilience, innovation, and community empowerment. William's vision of a Climate-Smart Agriculture future has taken root, and his efforts continue to inspire a new generation of farmers who are better equipped to face the challenges of a changing climate. As William stands on the edge of his farm, watching his crops sway gently in the breeze, he reflects on his journey.

"I never imagined that this farm, small as is, would become a place of learning and hope for so many," he says with a smile. "The future is in our hands, and I'm proud to help my community build a more sustainable and prosperous tomorrow."

This demonstration plot and learning center remains a focal asset to the community for resource mobilization, farmer participation, trainings and lobby for strategic and mutually beneficial partnerships. Through his unwavering commitment to Climate-Smart Agriculture, William Nambafu has not only transformed his own farm but has also created a ripple effect of knowledge and resilience that will benefit generations to come in Busiu and beyond. William is among the 300,000 smallholder farmers whose productivity and income has increase as a result of the CRAFT interventions.

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Empowering Women Farmers in Bukedea District to Become Leaders in Food Security

A remarkable shift is taking place in Bukedea District, located in eastern Uganda. Women, often the backbone of agriculture in rural communities, are leading the charge in promoting food security, economic empowerment, and sustainable farming practices. Through their resilience and dedication, these women have become key players in the sunflower farming sector, improving their livelihoods and contributing significantly to the region's food security. Popular Knowledge Women's Initiative Farmer to Farmer Cooperative (P'KWI FFC) began as a group of twelve women and has grown into a cooperative that supports 2,700 households.

This family approach involves engaging women, their husbands, and children in sustainable farming for improved incomes for improved livelihoods. 60-year-old Norah Ebukalin, a literature teacher turned agronomist, realized the value of agriculture when the opportunity to demonstrate her knowledge presented itself, and she won first place in district, national, and country for legume production. This enabled her to travel to Australia, where she was inspired to do more for the community, particularly to empower women.

The Journey of Empowerment

Women in Kachabule Village, Bukedea District have historically faced numerous challenges, ranging from limited access to land and resources to social barriers that hampered their participation in decision-making. However, with targeted interventions and support from the CRAFT project promoting gender equality and social inclusion, women farmers in the region, such as the Popular Knowledge Women's Initiative Farmer to Farmer Cooperative (P'KWI FFC), are thriving in the sunflower value chain.

Sunflower farming has proven to be an excellent crop for the district, with high yields and numerous benefits. Sunflower is not only a valuable source of oil, which is in high demand both locally and internationally, but it also improves soil fertility and is drought-resistant, making it well-suited to the region's unpredictable climate. It is worth noting that the P'KWI has an inclusive gender policy, which supports and empowers the family structure to ensure the harmony and prosperity of farming communities. This includes empowering youth to participate in agriculture.

> Food is the soul of a family. If you don't have food in your home, it causes a lot of issues especially for me as a woman. So, I felt I should learn farming so I could produce food and support my family"
> **reflects Norah Ebukalin**

Key Interventions

The transformation began with a focus on providing women with the tools and knowledge they needed to succeed. Several key initiatives played a role:

- **Supportive Farmer Cooperative:** P'KWI, a supportive farmer cooperative, currently has 2,700 households, including both young people and men. This collaborative effort has allowed them to pool resources, share knowledge, and advocate for better market access. This cooperative allows women to negotiate better prices for their produce, buy in bulk, and connect with local and regional buyers. The cooperative assists its members in producing and processing sunflower and cassava, ensuring that food-secure crops flourish in this area.

- **Access to Credit and Financing:** To overcome the financial barriers that often prevent smallholder female farmers from expanding their farms, P'KWI encourages its members to save through small village circles. These saving circles are important in reducing gender-based violence because they involve husbands in the savings and awareness process. This harmony promotes accountability and prosperity in farming communities. In addition, the cooperative connects farmers with low-interest loans and grants. These resources have helped women purchase quality seeds and fertilizers, as well as lease more farming land, allowing them to increase productivity and profitability for their families.

- **Access to Training and Resources:** Agricultural training programs were established with the support of the CRAFT project to teach women the best practices for sunflower cultivation, seed multiplication, certification of processed sunflower oil, a learning visit to Sebei SACCO in Kapchorwa, and post-harvest care. Women were also trained in financial literacy, savings, and entrepreneurship, enabling them to run their farms as profitable businesses.

- **Value Addition:** P'KWI, with the support of development partners, established a sunflower oil processing factory where farmers can sell their bulk sunflower grain and get processed sunflower cooking oil and seed cake for their farm animals. This factory continues to provide a guaranteed market for sunflower crops, giving women confidence that their hard work will be rewarded financially. The Cooperative also participates in the cassava value chain by encouraging cassava cultivation and processing of the tubers into flour and other products such as snacks infused with soybeans for extended shelf life.

- **Inclusion in Decision-Making:** A critical aspect of the empowerment journey has been the inclusion of women in agricultural decision-making processes. Women have become active participants in local agricultural committees and cooperatives, where they influence policy and investment decisions related to agriculture in Bukedea District.

Achievements and Impact

The impact of these initiatives has been transformative:

- **Improved Yields and Income:** With the adoption of modern farming practices and the use of improved seeds, women farmers in Bukedea have seen significant increases in sunflower yields. This has led to higher incomes, which in turn has improved their quality of life and that of their families.

- **Enhanced Food Security:** Sunflower farming has not only contributed to the local economy but also to food security. The increased income from sunflower sales allows families to diversify their food sources, while sunflower oil is a nutritious staple that can be used in cooking, further enhancing dietary diversity.

- **Economic Empowerment of Women:** By becoming successful sunflower farmers, women have gained financial independence. They can invest in their children's education, improve their homes, and reinvest in their farms, creating a positive cycle of empowerment and growth. This newfound economic power has also enhanced their social standing within their communities.

- **Environmental Sustainability:** Sunflower farming has contributed to environmental sustainability in Bukedea. The crop's ability to fix nitrogen in the soil has improved soil health, and its drought-resistant nature has made it a more reliable choice in a region affected by erratic rainfall patterns.

- **Increased Community Participation:** Women sunflower farmers are now active leaders in their communities, advocating for better agricultural policies, improved infrastructure, and other essential services. Their involvement in community decision-making has had a ripple effect, inspiring other women to take on leadership roles.

2,700

Households including both young people and men under P'KWI, a supportive farmer cooperative.

Testimonials from Women Farmers

Aarakit Malisa, a Sunflower Farmer in Takaramia Village, Bukedea District

"Before joining the cooperative, I was struggling financially as a single parent. But now, after learning about better farming techniques and having access to credit, I can grow more sunflower and sell the grain at a profit. I have been able to send my children to school and feed them. Most importantly, I am now a respected member of my community. Norah Ebukalin, Farmer and Cooperative Board Member of P'KWI

"We used to farm independently, but now we share resources, knowledge, and experiences. Our cooperative has increased our productivity while also strengthening our voices in local government. We are no longer just farmers, but community leaders. In ten years, we should be a self-sustaining cooperative exporting sunflower oil to other countries."

The success story of women sunflower farmers in Bukedea District exemplifies the importance of empowerment, education, and collaboration. By providing women with the skills, resources, and confidence they need to succeed in agriculture, they have become key drivers of regional food security and economic growth. As these women continue to thrive, they serve as role models for other communities, demonstrating that when women are given the tools they need to succeed, they can transform not only their own lives but also the lives of those around them. With continued support, these women will be able to build on their successes, ensuring that they remain at the forefront of food security and sustainable agriculture in Bukedea District for years to come.

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Multifaceted Partnerships that Work

Connecting the Dots for Climate-Smart Agriculture (CSA)

Climate change is one of the most important concerns of our day, with far-reaching implications for agriculture, food security, and job creation. Because agriculture is both a cause and a victim of climate change, it is vital to employ Climate-Smart Agriculture (CSA) practices that increase production, resilience, and sustainability. However, shifting to Climate-Smart Agriculture necessitates substantial financial investment, technical competence, and strategic collaboration.

A resilient and adaptable agricultural system requires a stable finance ecology. The CRAFT project accomplished this by strengthening multi-stakeholder collaboration among governments, the commercial sector, academic institutions, and local communities. These relationships are crucial for obtaining long-term investments and efficiently allocating resources to improve agricultural climate resilience.

The Need for Climate-Smart Agriculture (CSA)

In the last five years, SNV's Climate Resilient Agribusiness for Tomorrow (CRAFT) program has been at the forefront of advocating for Climate Smart Agriculture in collaboration with Wageningen University and Wageningen Environmental Research (Accelerating Impacts of CGIAR Climate Research for Africa (previously Climate Change, Agriculture, and Food Security (Agriterra) and Rabo Partnerships (RP). This five-year initiative, worth around €36 million and undertaken in Kenya, Tanzania, and Uganda, demonstrates how cultivating collaborative and strategic partners can strengthen agricultural systems while tackling climate change problems. Three pillars have been key in this approach pillars:

1. Increasing adoption of Climate-Smart Agriculture practices and technologies amongst farmers and agro enterprises ensuring agricultural productivity and incomes.

2. Increasing investments and business growth in Climate-Smart Agriculture value chains by building resilience to climate change

3. Creating the enabling environment necessary to ensure the large-scale rollout of market-driven Climate-Smart Agriculture.

Why funding for Climate-Smart Agriculture is critical

Despite the potential of Climate-Smart Agriculture, funding for CSA remains minimal, especially in low and middle income countries. According to the International Monetary Fund (IMF), global investment needed for climate change range from USD 3 trillion to USD 6 trillion until 2050. Uganda's climate finance needs are USD 28.1 billion from 2023/24 to 2029/30. One of the most major hurdles to farmers embracing Climate-Smart Agriculture practices is a lack of financial resources.

Several factors contribute to the funding gap, including the high initial costs of many Climate-Smart Agriculture technologies and practices, which require considerable investments in infrastructure, inputs, and training. Smallholder farmers, particularly women and rural youth, face limited financing availability, making it difficult for them to invest in Climate-Smart Agriculture practices. Furthermore, the policy and regulatory settings lack adequate incentives or support mechanisms for CSA investments. To solve these difficulties, a robust, long-term funding ecosystem with both public and commercial partners was urgently required.

This ecosystem should prioritize CSA investments at all levels, from smallholder farms to big commercial enterprises, as well as promote financial innovations that increase finance availability and build long-term collaboration.

Fostering Strategic Collaborations and Synergies for Impact

To guarantee a resilient Climate-Smart Agriculture ecosystem, the following conditions must be met; private sector players must be willing to make strategic investments to support Climate-Smart Agriculture initiatives. Weather information must be made available to farmers, and favourable policies and multi-stakeholder platforms bringing together key stakeholders in climate smart agriculture should be implemented to support adaptation and expand beyond the CRAFT project.

Based on this, CRAFT established collaborations with several actors. The different stakeholders and their contributions to the development of a sustainable Climate-Smart Agriculture ecosystem are presented below.

Government and Policy Support

- The government continues to play an important role in ensuring a sustainable funding ecosystem for CSA. For example, the Ministry of Finance, Planning and Economic Development (MoFPED) created a Climate Finance Unit to lead on coordination of mobilization, access, expenditure and tracking of climate and green finance.

- The Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) continues to document and share information on best practices through its extension services to farmers. A service which has been key in the adaption of CSA practices and technologies in farming communities.
- The Uganda National Meteorological Authority (UNMA) has played an important role in enhancing farmers' access to weather information in order to mitigate climate shocks and organise farming activities more effectively.

- Public-Private Partnerships (PPPs): The government through is helping farmers and the private sector form partnerships by providing matching funds, co-investment opportunities, or facilitating stakeholder dialogue.

Private Sector Investment

- The private sector actors continue to play an important role in driving investments in Climate-Smart Agriculture by increasing access of agro-inputs such as quality seed, fertilizers and access to market for farmer produce. OKEBA Uganda Ltd in Mubende district is one such example of Agri-business that is bringing services closer to the farming communities setting up one-stop agro-kiosks within the farming communities.

- The private sector is also improving access to finance and encouraging farmers to save more. One such example is the Sebei SACCO in Kapchwora district. This cooperative and SACCO provides farmers with access to low-interest loans while also maintaining their resilience through savings.

- Agricultural value chain financing: Private enterprises in the agricultural value chain, such as input suppliers, agro-processors, and retailers, are promoting CSA by incorporating sustainability into their business models. OKEBA Uganda Ltd, for example, is a seed company that invests in producing and distributing climate-resilient seed varieties while also encouraging sustainable farming methods through farmer contracts.

Local Communities and Farmer Cooperatives

- Farmer cooperatives and local communities are integral to the agricultural sector, and they play a vital role in developing collaboration. Farmers have formed cooperatives, enabling communities to obtain pooled funding. Farmer groups now have access to larger, more favourable financing options than they would have had on their own, allowing them to pool resources and implement Climate-Smart Agriculture practices on a wider scale, reducing risks and enhancing the overall impact of CSA adoption.

- Knowledge exchange and best practices: Local communities continue to function as repository for indigenous knowledge of sustainable farming practices, which, when paired with modern CSA techniques, boosts resilience. Peer-to-peer learning within farmer organisations has hastened the adoption of new technology and techniques.

- Increase social capital: Strong community networks have built trust and collaboration, allowing farmers to seek external finance and technical assistance. Community-led projects have proven more effective at ensuring that funding reach the most needy populations.

Fostering collaboration to develop a sustainable financial ecosystem for Climate-Smart Agriculture in Uganda is a difficult but vital challenge for guaranteeing long-term resilience and food security in the face of climate change. The government, the private sector, and local communities must collaborate to construct a cohesive ecosystem that offers farmers with financial resources, technical expertise, and capacity-building support. Working together, these stakeholders can promote Climate-Smart Agriculture, which will increase productivity, build resilience, and mitigate climate change. This joint strategy will help to ensure a more sustainable and equitable agricultural future for millions of smallholder farmers.

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Climate Resilient Value Chains for Improved Livelihoods

Meet Chelangat Avin, a Leader in Sustainable Farming and Collective Governance

In the heart of Cheptare, in Kween District, nestled in the rugged slopes of Mount Elgon in Eastern Uganda, lives Chelangat Avin, a passionate and resilient woman farmer who has transformed her life through Climate-Smart Agriculture (CSA) practices. What started as a small-scale, subsistence farming venture has grown into a model of success thanks to her perseverance, strategic use of CSA techniques, and leadership in a local farmer cooperative.

Chelangat's journey into farming was not without its challenges. Chelangat was born and raised in a rural farming community, where he grows traditional crops like maize and rice. However, Chelangat, like many other farmers in the region, faced challenges such as unpredictable rainfall and a lack of access to modern farming tools and knowledge. These difficulties were exacerbated by the fact that many farmers in her community, particularly women, did not have access to markets, financing, or training.

Despite the odds, Cheptarre's determination to improve her family's income through farming was unwavering. She was determined to end the cycle of subsistence farming and lift her family out of poverty. Her involvement with the Sebei Farmers SACCO Cooperative, a local agricultural cooperative dedicated to empowering rural communities for sustainable development through the provision of micro-financial services, primarily to farmers, market linkages, and other agri-development services, provided her with an opportunity to learn more about Climate-Smart Agriculture (CSA).

Adopting Climate-Smart Agriculture Practices

Chelangat's farming journey took a turn when the cooperative collaborated with local extension officers and agricultural development organizations to promote Climate-Smart Agriculture (CSA) practices. Chelangat received training in several Climate-Smart Agriculture techniques through the cooperative, which would change the way she farmed. She also participated in several exchange visits, during which she learned about and appreciated Climate-Smart Agriculture practices. Chelangat currently farms 10 acres of rice and 3 acres of maize, both of which are collected by the cooperative for storage, processing, and a better market price. Chelangat learned about best cultivation practices from the cooperative, such as using drought-resistant seed varieties, proper spacing, and planting on time. She also received training in post-harvest handling to ensure she could sell high-quality produce at competitive prices.

Market Access and Financial Empowerment

In addition to implementing Climate-Smart Agriculture practices, one of the most important steps in Chelangat's journey was her ability to access better market opportunities. Chelangat was able to connect with large scale buyers, such as local processors and traders, via the Sebei Farmers SACCO Cooperative, who were looking for high-quality, climate-resilient crops. Chelangat was able to negotiate better prices for her produce when she sold it through the cooperative. The cooperative provided a structured platform for members to pool their produce, reduce post-harvest losses through improved storage, and gain access to markets beyond the local village level. This collective approach enabled farmers to sell in bulk to dependable buyers, resulting in consistent income and financial stability. Furthermore, the cooperative facilitated access to micro-credit facilities, allowing Chelangat to invest in goat breeding with over 64 goats and 15 kids, generating an income of around UGX 300,000 (approximately USD85) to supplement her crop-growing income. The low-interest loans enabled her to increase her farm investment and productivity while remaining debt-free.

> "With smart farming, it has improved my status. Work is much easier. If I plant early, I target and plan for the income to cater for the school fees for the children"
> **Chelangat Avin**

Leadership Role in the Cooperative

Chelangat's success was not overlooked. Her commitment to Climate-Smart Agriculture, success in increasing productivity, and desire to lead earned her respect within the cooperative. Her colleagues admired her tenacity and eagerness to learn and share information. As a result, she was elected to a leadership position within the cooperative. Chelangat was appointed Deputy Board Chairperson of the Sebei Farmers SACCO Cooperative, a position she eagerly accepted and took on with great responsibility. As a leader, she aimed to empower other women in the community by sharing what she had learned about CSA and market access. During farmer field days, she organized training sessions and workshops to teach other farmers, particularly women, about sustainable farming practices, crop diversification, and market access. Her leadership also aided the cooperative's advocacy efforts by ensuring that women's needs were better represented in discussions with local governments and development organizations.

Achievements and Impact

Chelangat's accomplishments have been personal and communal. She has significantly increased her rice production and agricultural income, allowing her to better provide for her family. Her ability to diversify her crops has strengthened her farm's resilience to climate fluctuations, and her use of CSA techniques has improved soil fertility and water conservation, ensuring long-term sustainability.

Aside from her success, Chelangat's leadership in the cooperative has had a significant impact on the entire community. She has mentored several other female farmers, assisting them in implementing Climate-Smart Agriculture and establishing successful farms of their own. The cooperative has become a model for female empowerment, demonstrating how collective action and knowledge sharing can transform rural communities.

Her story demonstrates how, with the proper knowledge, tools, and support, women in rural Uganda can break the cycle of poverty and thrive. Chelangat's success demonstrates not only her hard work but also the power of Climate-Smart Agriculture and cooperative leadership to drive positive change in farming communities.

Looking Ahead

Chelangat is now recognized as a role model in her community. She continues to grow her farm, experiment with new crops, and look for new markets. As Deputy Board Chairperson of the Sebei Farmers SACCO Cooperative, she is looking for ways to add value to the rice and other crops grown by cooperative members, thereby increasing their incomes and creating more jobs in the community.

Chelangat's story is about resilience, innovation, and leadership. It is a powerful example of how, with the right resources and opportunities, women farmers in Eastern Uganda can not only improve their own lives but also contribute to the larger goal of developing climate-resilient, sustainable agricultural systems that benefit their families, communities, and the country as a whole.

Chelangat Avin's leadership has demonstrated that empowering women in agriculture entails not only improving individual livelihoods, but also bringing about systemic change that benefits entire communities and contributes to national development goals. Her journey demonstrates that with collective effort, informed decision-making, and access to Climate-Smart Agriculture technologies, smallholder farmers, particularly women, can transform their future and pave the way for a more sustainable agricultural sector.

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The Role of Agricultural Extension

A Bridge to Climate-Smart Agriculture Practices and Technologies in Rural Farming Communities

Bukedea District, in Uganda's eastern region, is primarily made up of smallholder farmers who rely on rain-fed agriculture for a living. Farmers in the region have faced increasing challenges in recent years as a result of erratic rainfall patterns, long dry spells, and soil degradation. These climate-related challenges have jeopardized food security and household incomes, leaving many farmers struggling to adapt.

Despite these obstacles, Malcolm Seth, an agronomist with the Popular Knowledge Women's Initiative Farmer to Farmer Cooperative (P'KWI FFC) who is passionate about agricultural development, has become a beacon of hope for his community's farmers. He has played an important role in introducing and promoting Climate-Smart Agriculture (CSA) practices that improve farmers' resilience to climate change while also increasing productivity and income. Malcom collaborates with government agricultural officers to engage farmers and facilitate knowledge transfer.

A Bridge to Climate-Smart Agriculture (CSA) Practices and Tecchnologies

Agricultural extension services in Bukedea are critical for providing farmers with Climate-Smart Agriculture knowledge and practices. Extension officers are farmers' primary source of information about new technologies, best practices, and government policies addressing climate change adaptation. Extension services help farmers make informed decisions that improve agricultural productivity and resilience by providing tailored advice and practical solutions.

Training and Capacity Building: One of the primary responsibilities of extension workers is to provide Climate-Smart Agriculture training. Malcom organizes regular field trips, workshops, and demonstration plots for farmers to learn about various CSA techniques. These hands-on demonstrations allow farmers to see the practical benefits of implementing new technologies, such as drought-resistant crop varieties or better soil management practices.

Farmers are trained in conservation agriculture techniques such as mulching and crop rotation, which help to preserve soil fertility and reduce erosion. In areas where water scarcity exists, extension officers teach farmers how to harvest rainwater and store it for use during dry spells. Malcom has contributed to greater resilience to climate variability by increasing farmers' understanding of Climate-Smart Agriculture practices, ensuring that farmers can continue to produce food and earn income even as weather patterns change.

Climate Information Dissemination: Farmers rely on timely and accurate weather information to plan their activities and make informed decisions. Malcom is responsible for disseminating climate forecasts and weather updates, collaborating with meteorological agencies and other stakeholders to keep farmers informed of upcoming weather patterns such as heavy rain or drought. This information enables farmers to adjust their planting schedules, harvest at the optimal time, and take preventive measures to avoid crop damage.

Promoting Climate-Resilient Seed Varieties: Another important consideration is the promotion of climate-resilient seed varieties. Malcom collaborates with agricultural research institutions to ensure that farmers have access to high-yielding, drought-tolerant, and disease-resistant seeds. These seeds have been specifically bred to withstand changing climates and are more suited to the local conditions in Bukedea. Farmers are introduced to improved sunflower, cassava, and other crop varieties that are more resistant to droughts, pests, and diseases as a result of extension services. Malcom also educates farmers on the importance of seed selection, storage, and seed-saving practices, all of which contribute to long-term agricultural sustainability.

> "Before CRAFT, we concentrated on sunflower farming for grain. CRAFT introduced a broader perspective on Climate-Smart Agriculture, allowing farmers to adopt new practices and thrive with increased production. After seeing the benefits of CSA practices, more farmers joined the cooperative".
>
> **Malcolm Seth**

Fostering Collaboration and Partnerships: Agricultural extension services also facilitate collaboration between farmers, local government, NGOs, and research institutions. Malcom often acts as an intermediary, helping farmers connect with various stakeholders who can provide additional resources, training, and support. This collaboration strengthens the agricultural value chain and ensures that farmers have access to a broader range of Climate-Smart Agriculture solutions.

Challenges and Opportunities to Agricultural Extension

While agricultural extension has proven effective in disseminating Climate-Smart Agriculture knowledge, several challenges remain, including a lack of resources and capacity, which limits the ability to reach all farmers, particularly those in remote or marginalized regions. Poor roads, limited access to technology, and inadequate communication networks all impede the effective delivery of extension services. Farmers may struggle to obtain training sessions, timely climate information, and necessary inputs.

Despite the challenges, Malcom is confident that increased investment in expanding and strengthening extension services will result in enough trained extension officers to reach all farmers. Improving access to rapidly evolving technology. Weather updates, pest alerts, and agricultural advice can all be delivered directly to farmers via mobile technology. Building Community Capacity and empowering local community-based organizations and farmer groups to serve as extension agents can help reach more farmers and promote peer-to-peer education.

Looking Ahead

As Malcom continues his work, he is determined to help more farmers in Bukedea and beyond. He believes that with proper training, access to resources, and community support, smallholder farmers can thrive in the face of climate change. Malcom's work demonstrates the power of knowledge, innovation, and community collaboration in meeting the challenges of climate change. By promoting Climate-Smart Agriculture practices, he has not only assisted farmers in Bukedea District in adapting to the changing climate but also empowered them to create a more sustainable and prosperous future for themselves and their families. Malcom Seth's success story demonstrates the importance of extension workers in transforming agriculture. Through his dedication, knowledge, and hands-on assistance, he has helped farmers in Bukedea District turn climate challenges into opportunities, demonstrating that Climate-Smart Agriculture can be a powerful tool for sustainable development when done correctly. Extension is critical in promoting knowledge co-creation among farmers and cooperatives.

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Climate Resilient Value Chains for Improved Livelihoods

Equipping Women to Achieve Financial Independence

Save Together. Empower One Another.

In the remote hills of Kisoro District, nestled between the lush green hills of southwestern Uganda, women often faced many challenges when it came to economic empowerment. Most of them depend on subsistence farming, and while this lifestyle provides just enough to survive, it offers little opportunity for growth or financial independence. Many women struggle to access formal banking services, and traditional roles often limit their ability to make independent financial decisions. However, a small but determined group of women decided to change their fate.

The Beginning

In December 2020, a group of 20 women from the Soweto Village came together with a shared vision: to improve their lives and create a more secure future for their families. They talked about the Village Savings and Loan Associations (VSLAs) from the SNV-CRAFT project, which had introduced the concept of self-managed community savings groups to help rural farming communities increase access to finance as part of its intervention to the financial freedom of smallholder farmers. This concept was part of the financial literacy training, which included records and bookkeeping, investment, and how to save.

With a small contribution from each member of 100,000/= Ugandan Shillings, they formed the Soweto Women's Village Savings and Loan Group. The goal was simple: save together, lend to one another, and empower each other to start and grow small businesses.Each member contributes a fixed amount of 3,000/= Ugandan shilling weekly into a communal fund, and over time, this pool of savings grows. Members then borrow from this fund at a low interest rate of 5% to meet personal or business needs. Members are encouraged to pay back loans with small weekly repayments, and they can access a portion of the group's savings during the end-of-cycle payout.

Overcoming Challenges

The first year was tough. Some members struggled to save regularly, as they had pressing household expenses. But the group leaders who were women with a deep understanding of local challenges took it upon themselves to provide moral support and educate others about the long-term benefits of consistent savings.

They held regular weekly meetings where everyone could discuss their challenges and successes, strengthening the group's bond. With time, the women began to see the fruits of their labor. Loans were given to start small businesses like piggery, cattle farming, and shoe selling. One member, Ben, used her loan to buy cattle. Within a year, her cattle had grown, and she was able to sell milk and use the cattle manure in her potato garden, significantly improving her family's income. Another member, Judith, used her loan to expand her shoe-selling business, purchasing more stock, which allowed her to employ other women in the village.

Success Stories

By the end of their third year, the savings pool had increased substantially to a whooping 30,000,000/= Ugandan shillings, and members were reporting a noticeable improvement in their livelihoods. The Soweto Women's Group was no longer just a small savings group - it had become a platform for economic independence and growth.

- **Ben's Cattle:** Nyiramucyo Ben's business has become so successful that she was able to send her children to school and improve the condition of her home. Ben, aged 57, even began to lend small amounts of money to other women in the village to help them start their own businesses.

- **Judith's Shoe shop:** Grace expanded her shoe business and became a key employer in the village. Not only did she train and employ other women, but she also started selling shoes in Kisoro municipality, further increasing her revenue. Nyiramutuzo Judith is 35 years old.

- **Alice's piggery project:** Alice used her loan to start her piggery project alongside her potato farming. The income she earned allowed her to invest in a larger piece of land for farming and pay fees for her children. Kamanzi Alice is 38 years

As these women's businesses flourished, the group's collective savings increased, and at the end of each cycle, every member received a share of the profits. This payout is often used to improve living conditions or reinvest in their businesses. This success is credited to the knowledge acquired from the SNV-CRAFT financial literacy training that the individual members attended.

Impact on the Community

The success of the Soweto Women's Village Savings and Loan Group has a ripple effect throughout the community. As the women's financial independence grew, they became more active in village decision-making, advocating for better healthcare and education for their children.

They also became more confident, demonstrating that women could take control of their financial futures despite the challenges they faced. The women of Soweto are no longer dependent on seasonal potato farming alone or on borrowing from expensive moneylenders. They have built a sustainable system of support, one that not only helped them thrive but also strengthened the entire community.

> "Look for VSLA and if you don't find one, form your own. Those groups are good. When we are together, you share different ideas. Projects cannot come to you as an individual, they come to a group. Those who are working together." **Rosemary Muhawenlmana**

Looking Forward

Today, the Soweto Women's Village Savings and Loan Group is seen as a model for other villages in Kisoro District. The women have been able to invest in agricultural tools, improved seeds, and fertilizers - resources they might otherwise have lacked due to limited access to formal banking systems. The collective voice as a savings group has increased their bargaining power, allowing them to purchase supplies in bulk and access better markets for their produce. They are now looking into opportunities for collective investments, including a house for rental to diversify their income and become more resilient. What started as a simple savings group has transformed into a powerful force for change, proving that when women come together with a shared purpose and support each other, they can overcome even the most significant challenges and create lasting economic change.

The success of Soweto Women's Village Savings and Loan Group is a testament to the power of collective action and financial empowerment, and their story continues to inspire other women across Kisoro District and beyond. The impact of these initiatives extends beyond just the financial benefits. The Soweto Women are now more confident, empowered, and respected in their communities, and their success in potato farming has created ripple effects benefitting families and communities. As more women join VSLAs, adopt Climate-Smart Agriculture farming practices, and engage in entrepreneurial activities, the agricultural economy is becoming more diverse and resilient. The path to financial independence, gender equality, and sustainable development is being paved by the hard work and perseverance of these remarkable women.

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Resilience in Agriculture

Weaving Success through Potato Farming in Kisoro District

Sanyu Shakira, a remarkable 30-year-old wife and mother from the lush hills of Kooga Village in Kisoro District, Uganda, has transformed her and her family's lives through potato farming, emerging as a role model for resilience in the face of climate change. Shakira, like many other women in her community, has been farming for the past six years. She grew up in a subsistence farming family where potatoes are the primary crop. She used to farm potatoes on the same plot of land every season without using crop rotation, which resulted in low yields. However, due to unpredictable weather patterns and pest infestations, her family struggled to make ends meet. The situation became more difficult when she noticed a decline in soil fertility and crop yields.

Shakira decided to diversify her farming practices in 2021, seeking advice on best farming practices from the Kisoro District Potato Farmers' Cooperative, which was supported by the CRAFT Project. She learned about the benefits of growing Taurus, an improved potato variety that thrived in the cool, fertile volcanic soils of Kisoro's highlands. Shakira planted her first batch of potatoes on her small plot of land, investing in better seed varieties and implementing Climate-Smart Agriculture practices such as proper spacing, pest management, fertilizer use, crop rotation, and the cultivation of climbing beans to increase nitrogen in the soil. She benefited from various trainings on gender and Climate-Smart Agriculture practices such as investing in agroforestry, using organic and non-organic fertilizers, working with an agronomist, integrating soil and water management, and gaining market access to produce. Terracing is very important in Kisoro, though it is costly due to the amount of initial manual labor required.

Success Through Potatoes

The first harvest was game-changing. Shakira harvested a large crop of potatoes, which she sold at the cooperative contract price for a profit that far exceeded what she had earned from maize or beans in previous years. Encouraged by her success, she became a Trainer of Trainers (ToT) for Climate-Smart Agriculture practices in her communities, assisting more than 100 potato farmers.

> By growing potatoes, I've been able to afford to send my children to a private school and purchase a cow, two goats, and a motorcycle. The motorcycle not only aids in bringing manure to my garden but also in transporting my produce to the market. I now feel secure about having enough food,"
> **Sanyu Shakira**

The growing potato business enabled her to achieve financial independence and purchase a cow, a valuable asset that provides a consistent supply of milk for her family. The cow dung applied to the garden is used to increase soil fertility. The cow and two goats feed on the maize silage from her integrated farming system of maize and beans, making potato farming more affordable, resilient, and sustainable in the face of climate change.

Climate-Smart Agriculture Practices and Resilience

Shakira's commitment to sustainable farming grew stronger as she recognized the importance of climate resilience. She diversified her farm by adding maize as an additional crop, which provides a good alternative to potatoes during the off-season. She also implemented Climate-Smart Agriculture practices such as water conservation, crop rotation, and the use of organic fertilizers, which not only increased her yields but also guaranteed that her land would remain fertile for years to come.

> "I am deeply grateful to CRAFT for their invaluable support. Without them, we would have remained far behind. The various training sessions have significantly improved my life."
> **Sanyu Shakira**

Shakira made another significant investment from her potato profits a motorcycle. This venture, managed by her husband, allows her to transport her produce to markets in neighboring towns, expanding her customer base and enhancing her access to larger markets. The motorcycle also provides her with the flexibility to pursue other income-generating activities in the region, thereby boosting her overall resilience.

Role of Gender Inclusion

Before Shakira embarked on her farming journey, she managed everything on her own. However, after receiving training from the CRAFT project, she realized the value of involving her husband in various aspects of the farming business, from planning and planting to spraying and harvesting, as well as managing profits. This integration has not only brought harmony into their home but has also enhanced their farming practices.

Shakira calls out for the CRAFT project to assist in increasing access to obtaining improved seeds, particularly the Taurus variety. It has proven to be excellent due to its quick maturity and sweet taste, making it highly marketable. She notes. Additionally, she would appreciate it if CRAFT could ensure the timely delivery of these seeds for the planting schedules.

A Thriving Community Leader

Today, Sanyu Shakira is both a successful farmer and a beacon of hope in her community She actively shares her knowledge as a Trainer of Trainees with fellow farmers, using her farm as a demonstration plot, particularly other women, during farmer field days on Climate-Smart Agriculture and sustainable farming practices. She also emphasizes the importance of diversifying income sources to withstand the challenges and shocks posed by climate change.

Her story exemplifies how a Kisoro woman farmer used potato growing to turn misfortune into opportunity, paving the way for a more resilient, diverse, and sustainable living. Shakira has proved the viability of potato farming, which she was able to purchase with a cow, two goats, and a motorbike, as well as diversifying her farming with beans and maize to withstand farming shocks and become more resilient. Shakira encourages other farmers, particularly women and young people, to adapt to changing climates and establish rich futures for themselves and their communities, provided they have determination, access to information, and the necessary resources. Shakira encourages farmers to join cooperatives so they may obtain access to money, knowledge, and innovations like enhanced potato seed varieties.

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Overcoming Barriers and Building Dreams

Meet David, a Potato Farmer and Person Living with Disabilities (PLWD)

David's story is set in the remote Kangoma Village hills of Kisoro, Uganda, where lush green valleys and rocky terrain combine to create a stunning setting. It is one of resilience, tenacity, and human spirit triumph. Despite losing his sight at a young age, David Semakuba, a 66-year-old husband and father of eight children, has become a prosperous potato farmer, demonstrating that a disability is never an impediment to success. David, who was born in Kisoro, was a young boy when he lost sight in his left eye in a car accident in 1976. He initially found it difficult to accept his new situation. Like many persons with impairments, the world seemed to close in on him. He could no longer engage in daily activities as he used to. However, David's life takes a turn when he decides not to let his blindness define him.

David's family has always been involved in farming, and planting potatoes has been a generational heritage. David learned the value of hard labor and the need for land management at a young age. When he lost his sight, he was unsure whether to continue doing the work he loved. However, the memories of the fertile soil, the feel of the potato vines, and the delight of harvesting motivated him. David and his wife Gloria Nyiramutuzo, together, manage their farming efforts.

As Gloria prepares breakfast for the family before the kids leave for school, David tends to the piggery business before they both head to the potato garden. We farm together, planning for the next season, preparing the garden, planting, harvesting, and investing our profits.

Turning Around

With the support of his family and local community, David began to adapt. He joined the Kisoro District Potato Growers Cooperative Union Ltd under the Nyakinagwa Potato Growers branch. David's success did not happen overnight. He began planting a few potatoes and experimenting with various farming methods on his demonstration plot. With the help of agricultural extension experts and a strong desire to learn, David rapidly increased his productivity. He learned to adopt Climate-Smart Agriculture practices, such as optimal potato spacing, crop rotation with climbing beans, and growing Taurus, an enhanced potato seed type, which increased his productivity. These are some of the practices encouraged by the CRAFT project in the potato value chain.

> My wife and I do everything in farming together. When you work with your wife, you develop. You cannot hide the money when you are working together. We harvest together. We sell together."
> **David Semakuba**

Over time, his plot became successful, and David established himself as a hard-working and innovative potato farmer in Kisoro. At the set cooperative selling price of 1,500 Ugandan Shilling per kilogram. David can feed his children at home, send them to school, and save money. The family also began piggery farming to supplement potato and bean growing.

> We people with disability got a special grant from the Parish Development Fund (PDM). I used the money to buy improved potato seed and this has helped me improve the livelihood of my family, now that we are in the system of the Government, I encourage members to adopt the use of Climate-Smart Agriculture practices so that they can improve on their livelihoods."
> **David Semakuba**

A Beacon of Hope

Today, David's farm is a demonstration farm training 25 farmers, nine of whom are women in the Climate-Smart Agriculture practices as Trainer of Trainees (ToT). David notes that men are more interested in farming because if they don't have money, they cannot afford the Taurus seeding. He has become a role model for many, especially for those with disabilities. His story is shared as a testament to the power of persistence, showing that challenges, no matter how great, can be overcome with determination and the right support. His farm is not only a source of income for his family but also a testament to the possibilities that lie beyond adversity Beyond farming, David has used his success to uplift others in his community.

He's worked with the cooperatives to train other farmers, particularly those with disabilities, on how to use accessible climate farming practices and technologies. He regularly hosts workshops where he shares his knowledge about farming, providing both practical skills and inspiration to others who may be facing similar challenges. David's journey is not just about potatoes it's about perseverance, adaptability, and the importance of community. His determination has not only transformed his own life but has also empowered others in Kisoro to believe that their dreams are within reach, no matter their circumstances.

In a world that often underestimates people with disabilities, David's story stands as a powerful reminder that blindness is not a barrier to success. With courage, creativity, and a relentless spirit, David has proven that anything is possible.

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Climate Resilient Value Chains for Improved Livelihoods

Seeds of Success: Cultivating Quality for a Better Tomorrow

The Okeba Story of Transformation and Resilience

OKEBA, an agribusiness seed company located in Mubende District, Uganda has made a significant impact on the seed sector. It was established to address the challenges local farmers face due to poor seed quality and limited access to high-yielding varieties. Specializing in certified seeds, OKEBA has transformed local farmers into outgrowers, thereby enhancing food security and strengthening local economies. By 2024, OKEBA had registered 15,000 farmers, marking it as a success story in Uganda's agri-business sector. The company deals in soybeans, maize, and beans, collecting grains and cereals from farming communities and farmer cooperatives, which it then cleans and sorts before selling.

Turning Seed into Business

OKEBA began its journey with soybeans in response to the growing demand for high-quality soybeans in Mubende. Kenneth Owoyesigyire traveled to northern and eastern Uganda in search of seeds and discovered significant seed enterprises, such as Mukwano. He also ventured into Congo, known for its soybean cultivation, but faced resistance from buyers in Rwanda who sought the same seeds. Although he managed to obtain the seeds, their quality was poor due to a mix of grains with popcorn seed, which raised the sorting costs for the business. Kenneth recognized the strong demand for quality, clean seeds, prompting him to establish a premium seed processing factory in Mubende with the support of CRAFT. However, during this process, Kenneth incurred a loss of approximately 500 Million Ugandan shillings, which was a bank loan intended for business expansion and growth. This was a particularly challenging time for the business.

During this challenging period, Kenneth received a call from SNV regarding a potential collaboration with the private sector. This led to an expression of interest, allying with OKEBA and the SNV-CRAFT initiative. The Climate Resilient Agribusiness for Tomorrow (CRAFT) initiative employs a private-sector model to foster inclusive and sustainable growth within agricultural food value chains. The project's interventions target small and medium enterprises (SMEs) in agribusiness, aiming to enhance food security by assisting these SMEs in developing climate-resilient farming systems that improve productivity while reducing food waste and losses across the supply chain.

The project supported SMEs and their contracted farmers by integrating Climate-Smart Agriculture practices and technologies with initiatives aimed at mitigating risks and facilitating the scaling of Climate-Smart Agriculture investments in value chains. OKEBA collaborated with various partners, including Makerere University Research Institute, which developed improved drought-resistant and early-maturing soybean varieties, as well as the Uganda National Meteorological Authority (UNMA), which provides weather forecasts (both seasonal and monthly) for farmers. Additional collaborators include financial institutions, smallholder farmers, off-takers, and the local government extension system.

Thinking Smart and Building a Resilient Business

To boost production and quality, OKEBA staff needed to receive training and expand farmer onboarding from 4,000 to 8,000 enrolled. OKEBA concentrated on the MakSoyN3 seed variety with advice from Makerere University Research Institute, which has several advantages, including early maturation (90 days), all leaves falling off when planted following pod development, decomposition, and soil fertility improvement. When there is considerable rain or sunshine, the pods remain intact, therefore the focus is on that particular kind.

When applying for bank loans, it is critical to have high output and expanded market connectivity, notes Kenneth. After growing the number of farmers with the help of the CRAFT project, the company was now bankable and could meet the majority of the bank and other value chain players' requirements. During the CRAFT interventions, it was critical that OKEBA as a company collaborate strategically with key value chain players such as Climate-Smart Agriculture service providers, government, research, and the Ministry of Agriculture, as well as build working relationships with cooperatives.

> "In business, you cannot grow alone, you grow with others. Achieving our goal as OKEBA for expansion and impact took us two years in comparison to the planned five years because of CRAFT intervention.
> **Kenneth Owoyesigyire**

The company expanded, and OKEBA began supplying national off-takers as well as Kenyan off-takers. Soybean production rose as we focused on only one variety. It drew a large number of off-takers because we were heading into a new area with pure types with no contamination, as opposed to Uganda's eastern and northern regions.

When the COVID-19 pandemic struck in 2020, OKEBA had to diversify as a company because they were losing some of their operations, such as those in Kenya, as a result of the border closure. To help farmers access seed and markets, three value chains of maize, beans, and soybeans produced as seed and grain were introduced. Being a local seed company, OKEBA faced difficulties because it could only supply seed to Mubende.

The CRAFT initiative helped OKEBA connect with important value chain participants like the Ministry of Agriculture, Animal Industry and Fisheries (MAIIF), National Agricultural Research Organisation (NARO), and MUIAK, who helped them obtain OKEBA certification. Currently, OKEBA has eight seed varieties that have been licensed by NARO to grow and provide farmers with high-quality seed. As a result, OKEBA was able to provide seed nationwide, creating further business prospects for the company's expansion.

With the increasing supply of seed to over 8,000 farmers, farmers started demanding additional services such as access to quality pesticides and agrochemicals. This resulted in the setting up of agro-input shops in town centers and mobile kiosks within farming communities to address issues of accessibility, availability, and affordability of quality inputs. Some CSA innovations include the use of collapsable dryers for drying produce at both the farmer and cooperative levels, reducing moisture content from 20% to 13.5% in 3 days to 6 hours. Threshers stationed at the cooperative level help farmers cut their transportation costs to the factory.

OKEBA employs a moisture meter to detect moisture content in produce and promotes the planting of MakSoy3N, which matures in 90 days. The storage facilities are partitioned with transparent sheets to save lighting and optimise seed drying, reducing power costs.

To become and remain resilient, OKEBA expanded into the bean and maize value chains to supplement the soybean in case one crop is impacted by climate and business shocks. Other technologies and practices supported at the farmer level include the use of silos and pics bags for storage, mulching, solar irrigation, and the establishment of demonstration plots for farmers to learn about Climate-Smart Agriculture practices and technologies.

Transforming Communities

Okeba now works with over 15,000 smallholder farmers in the soybean value chain, offering Climate-Smart Agriculture (CSA) services, input distribution, aggregation, and supporting paths for farmers to access finance, weather information, and markets, all with the help of the CRAFT collaboration.

Furthermore, the factory's presence has benefited the local economy by producing jobs. Many locals work in the factory's operations, which include seed processing, packaging, transportation, and distribution. This has given a steady income for many households in the region.

In addition to promoting economic growth, OKEBA has made substantial contributions to food security. It has contributed to a consistent supply of food crops for the local community and the country by manufacturing and disseminating high-quality seeds. The availability of high-quality seeds has also allowed farmers to diversify their crops, which improves nutrition while lowering the risk of crop failure due to insect or disease outbreaks.

OKEBA worked with the CRAFT project to set up mobile kiosks in farming communities, allowing farmers to acquire low-cost, high-quality seeds, pesticides, and knowledge of Climate-Smart Agriculture practices and technologies. OKEBA currently provides agro-inputs such as fertiliser in addition to seed. Previously, most farmers walked about 15 kilometers to get agro-inputs. Farmers now travel half a kilometer to access these services.

Triumph against all Odds

OKEBA is an excellent example of how local ingenuity and a dedication to quality can transform agriculture. By providing farmers with credible, high-quality seeds, the company has not only increased productivity and incomes but has also contributed to food security and economic development in three to eight additional districts in southwestern Uganda, including refugee settlements in Kyegegwa and Kamwenge districts. The company has expanded from a three-roomed rental space of 50x100 to a completely owned facility on six acres of land, employing 20 regular employees and 60 women who sort grain, 60% of whom are youths.

Furthermore, the company has established a nursery to assist working mothers, particularly ladies at the sorting facility and breastfeeding personnel who require solitude.

OKEBA has attracted more capital from iGravity in cooperation with the Refugee Investment Facility of 450,000USD lending at 5-7% with very little collateral and an additional 275,000 USD in working capital from Kenyan social business development. All of this was made possible by CRAFT's business readiness support, which ensured the company's viability and ability to attract investors. With expansion ambitions and a sustained emphasis on sustainability, OKEBA is prepared to have an even greater effect in the next years, ensuring that more Ugandan farmers can thrive by positioning themselves for export and local markets.

OKEBA raised their revenue by 150% thanks to cooperation with CRAFT, as farmer engagement went from a target of 4000 to 15,000 farmers, with over 1,000 farmers performing seed multiplication. OKEBA has made an impact in areas such as Mubende, Kyegegwa, Kakumiro, Kibale, Kasanda, Kamwenge, and Kyenjojo, surpassing its project objective of 8,000 farmers.

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Climate Resilient Value Chains for Improved Livelihoods

The Power of the Collective. One Voice. One Price.

Cooperatives Championing Climate-Smart Agriculture (CSA)

Smallholder farmers, the majority of whom rely on subsistence farming, confront considerable barriers to market access, fair pricing, and livelihood improvement. Despite their economic contributions, small farmers frequently face restricted access to information, weak infrastructure, and financial restraints, making it difficult for them to compete in large marketplaces. Cooperatives have proven to be effective tools for expanding market access, strengthening bargaining power, and empowering smallholder farmers to engage in more sustainable and profitable agricultural methods through practicing Climate-Smart Agriculture.

Improved Bargaining Power

One of the most immediate and significant advantages of forming a cooperative is that smallholder farmers acquire more bargaining power when negotiating prices with customers, suppliers, and financial institutions. Cooperatives provide farmers with a collective voice in farming areas, where they are frequently marginalised and isolated, allowing them to negotiate higher prices for their produce. Farmers can achieve higher pricing for their output by selling in bulk to wholesalers, processors, or large-scale customers.

Furthermore, cooperatives enter into contracts with larger purchasers or agricultural processing corporations, resulting in a more stable market for its members. These contracts not only ensure sales, but they also shield farmers against price volatility by allowing them to lock in pricing ahead of time, decreasing the uncertainty associated with selling on the open market. An example is the Kisoro District Potato Growers Cooperative Union that has improved its bargaining power through contract signing with Sumz.

Access to Larger and More Profitable Markets

Cooperatives offer smallholder farmers access to larger, more profitable markets. Farmers use cooperatives to aggregate their produce, increasing the volume of items available and enhancing their ability to fulfil the demands of larger markets. This aggregation is especially crucial for products like soybean, sunflower, and potato, which require size to attract buyers such as agro-processors, export businesses, and supermarket chains. Cooperatives also allow farmers to pool resources for transportation, lowering the logistical expenses of bringing produce to market.

In Uganda's rural regions, where roads are poor and distances to urban centers are long, cooperatives assist farmers in organising collective transportation, lowering prices and guaranteeing that supplies reach fresh and on time.

Access to Financing and Inputs

Access to financing is one of the most significant impediments to increasing agricultural productivity and market participation. Cooperatives, on the other hand, are helping to close this gap by providing farmers with better access to funding. Because cooperatives aggregate their members' financial demands, they are frequently able to obtain larger loans from banking institutions or development organizations on more favorable conditions than individual farmers. These loans are used to acquire inputs such as seeds, fertilisers, equipment, and irrigation systems, which are required to increase productivity and meet market demand. Cooperatives also use group savings and lending schemes, allowing farmers to borrow from their collective savings and invest in their fields. An example is the Sebei SACCO in Kapchowra that promoting the culture of saving among its members and financial literacy.

Capacity Building and Technical Support

Cooperatives are essential venues for providing agricultural training and technical help to farmers. They give a forum for farmers to learn about Climate-Smart Agriculture practices like pest management, soil conservation, and Climate-Smart Agriculture (CSA) approaches that boost yields and quality. These training programs are frequently conducted in collaboration with service providers from the private sector, agricultural extension, or government agencies. Cooperatives also assist farmers in developing skills in financial administration, record-keeping, and business planning, which are critical for controlling income, reducing waste, and reinvesting in agricultural activities. This capacity building promotes long-term sustainability for farmers and cooperatives.

> "Agriterra has built the capacity of management through trainings. We have been able to raise money, run the cooperative better and we are stronger as an institution than before. We now provide credit, banking, extension, and marketing services to our members and in the next eight years, aspire to be the leading producer of cooking oil with a working capital of UGX 15 billion,"
>
> **CEO Sebei**
> **Farmers SACCO**

Enhancing Gender Equality and Social Inclusion

Cooperatives are particularly important in promoting gender equality and empowering women in agriculture. Women play a critical role in farming but are often excluded from key decision-making processes and access to resources. Cooperatives provide a platform for women to participate more actively in agricultural production, marketing, and leadership roles. By joining a cooperative, women farmers now access training, resources, and financing that they might not otherwise have. Furthermore, the collective nature of cooperatives ensures that benefits are shared more equitably among members, which helps reduce inequalities within farming communities. Many cooperatives also work to ensure the inclusion of youth, providing them with opportunities to engage in agriculture as a viable livelihood. Through education, mentorship, and access to capital, cooperatives can help create a new generation of young farmers who are better equipped to succeed in modern, market-driven agricultural systems. An example is P'KWI, a cooperative in Bukedea district promoting gender inclusive in farming.

Leadership Role

Cooperatives play a critical role in leading and championing new innovations and climate smart technologies and practices. Their leadership is so important in the successful implementation and buy-in of agricultural innovations. SAACOs and Cooperatives c that worked with the CRAFT project have witness success in knowledge sharing, improving access to finance and improved access to climate smart technologies like the improved seed varieties, collective bargaining and market price influence.

Looking Ahead

Agricultural cooperatives are a vital tool for increasing market access for smallholder farmers in Northern Uganda. By organizing farmers into cohesive units, cooperatives enable them to overcome many of the barriers they face, such as price instability, limited financial resources, and inadequate market access. Through cooperatives, farmers gain improved bargaining power, access to larger markets, better financial options, and training that boosts their productivity and competitiveness. Furthermore, cooperatives promote social inclusion and gender equality, ensuring that women and youth benefit from improved economic opportunities. For the model to reach its full potential, however, further investment is needed in capacity building, infrastructure, and policy support. With continued strengthening of cooperatives and partnerships with government agencies, NGOs, and the private sector, smallholder farmers in Uganda can build more resilient agricultural systems and achieve greater economic prosperity.

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Website: **www.crafteastafrica.org**

CRAFT

Climate Resilient Value Chains for Improved Livelihoods

Turning Potatoes into Crisps and Chips

A Value Addition Opportunity for Small Businesses in Kisoro, Uganda

Potatoes are a staple crop cultivated across Uganda, including in Kisoro, a district located in the country's southwest. Kisoro is renowned for its ability to produce high-quality potatoes, a feat attributed to its fertile soil and favorable climate. However, a significant portion of the local potato harvest is sold raw at low prices with limited market access. This situation presents a unique opportunity for small businesses to engage in value-added processing by transforming potatoes into crisps or chips. This strategy not only boosts the profitability of potatoes but also creates new economic opportunities and fosters local entrepreneurship in Kisoro.

Kisoro is predominantly an agricultural district, where small-scale farmers cultivate potatoes for both local consumption and regional markets. Despite the increasing demand for potatoes, these farmers encounter several obstacles, including low prices, insufficient storage facilities, and limited access to processing centers. Consequently, a significant portion of the potato harvest is sold at a price that barely covers its potential value. Moreover, the absence of value-added products such as crisps and chips results in the local economy losing out on the substantial profits that could be derived from processed potato products.

Potatoes as a Raw Material for Crisps and Chips

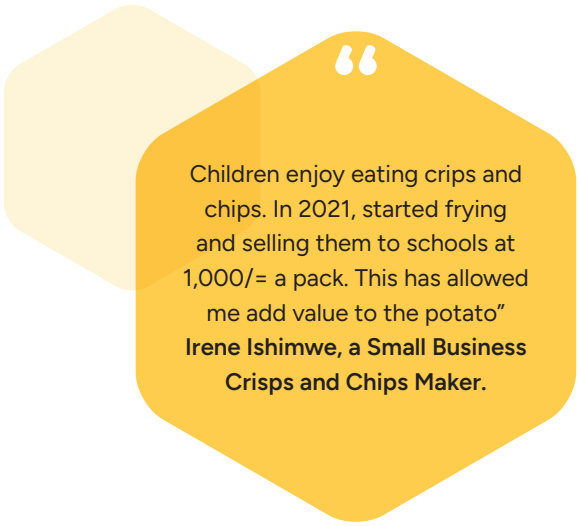
Potatoes are a versatile crop, offering a wide range of culinary applications. When transformed into potato crisps and chips, they become popular snacks enjoyed globally. In Uganda, crisps and chips are gaining popularity, particularly among the youth and those living in urban areas. The demand for these snacks is on the rise, and Kisoro, situated near both rural and urban regions, enjoys a strategic advantage in fulfilling this demand. Turning potatoes into crisps or chips involves several steps, including:

- **Cleaning and Peeling:** It's essential to thoroughly clean potatoes to eliminate any dirt and impurities. In certain cases, leaving the skin on can add a rustic touch to the chips.
- **Slicing:** The potatoes are then sliced into thin pieces, either by hand or with a slicer, depending on the desired thickness of the chips or crisps.

- **Frying:** The sliced potatoes are cooked in vegetable oil at a consistent temperature to ensure they turn out crispy. This step is crucial, as frying them for too long or too short can affect the texture of the final product.

- **Seasoning:** After the frying process, the chips or crisps can be seasoned with salt, pepper, or other spices to boost their flavor.

- **Packaging:** The finished product is sealed in air-tight bags to maintain freshness and prevent moisture from ruining the chips or crisps.



Opportunities for Small Businesses

Value addition to potatoes presents significant opportunities for small businesses in Kisoro. Here are a few key benefits:

- **Increased Profit Margins:** By transforming raw potatoes into crisps or chips, businesses can significantly enhance the product's value. While raw potatoes might sell for UGX 1,500 to UGX 2,000 per kilogram, crisps and chips can fetch UGX 5,000 to UGX 10,000 per kilogram, depending on packaging and brand.

- **Job Creation:** The process of potato processing requires labor at various stages, including cleaning, peeling, slicing, frying, and packaging. This creates employment opportunities for the local community, which can improve livelihoods and contribute to community development.

- **Entrepreneurship and Innovation:** Small businesses have the opportunity to enter the growing snack food market by developing unique products and flavors that appeal to local tastes. This fosters innovation in the food sector, allowing entrepreneurs to carve out a niche market and establish a strong brand.

- **Diversified Income Sources for Farmers:** Potato farmers in Kisoro often face challenges with fluctuating prices. However, value-added products provide a more stable income stream. By selling their potatoes to local businesses for processing into crisps and chips, farmers can earn a higher and more consistent income, reducing their dependence on raw potato sales.

- **Improved Market Access:** Processed potato products like crisps and chips have a longer shelf life and can be distributed to a wider market, including urban centers like Kampala, where there is a high demand for such snacks. Kisoro's proximity to the border with Rwanda also opens up opportunities for cross-border trade.

Challenges to Overcome

While the potential for value addition is clear, several challenges must be addressed for small businesses in Kisoro to thrive in the crisps and chips market:

- **Access to Equipment:** Small businesses face difficulties in affording the necessary equipment for processing, such as fryers, slicers, and packaging machines. Access to affordable loans or grants from government or development organizations could help alleviate this issue.

- **Training and Skills Development:** Proper training in food safety, hygiene, and production techniques is crucial for ensuring that the crisps and chips meet quality standards. A lack of expertise in food processing could lead to poor products that fail to meet consumer expectations.

- **Capital Investment:** Starting a small-scale potato processing business requires significant capital investment, especially in equipment, raw materials, and marketing. Entrepreneurs may need financial support to cover these initial costs.

- **Quality Control and Consistency:** Maintaining a high standard of quality and consistency in the final product is key to building a loyal customer base. Entrepreneurs need to develop reliable production processes and quality control mechanisms.

- **Market Competition:** While there is potential for growth, competition from established brands and large-scale processors may pose a challenge. Small businesses will need to differentiate their products through unique flavors, packaging, and local branding.

Support for Small Businesses

Several initiatives can assist small businesses aiming to enter the potato processing market in Kisoro:

- **Government Support:** The Ugandan government can significantly contribute by providing incentives, subsidies, or tax breaks to businesses engaged in agricultural value addition. Additionally, government support could encompass infrastructure development, such as enhanced road networks for transportation and market access.

- **Cooperatives and Associations:** Small-scale farmers and processors can benefit from forming cooperatives or business associations. These groups enable the sharing of resources, cost reduction, and joint marketing efforts. Moreover, they can bolster bargaining power and secure better prices for raw materials.

- **Access to Financing:** Microfinance institutions and banks can offer loans or grants to small businesses, facilitating their expansion. Furthermore, these financial institutions can provide training on financial management and business planning, enhancing the overall business acumen.

Transforming potatoes into crisps and chips presents a promising avenue for value addition for small businesses in Kisoro, Uganda. It not only enhances the profitability of local agriculture but also creates employment opportunities and fosters local entrepreneurship.

However, to realize this potential, small businesses must navigate challenges such as securing capital investment, accessing equipment, and providing adequate training. With the appropriate support from the government, non-governmental organizations (NGOs), and financial institutions, small businesses in Kisoro can seize the opportunity presented by the increasing demand for processed potato products, thereby contributing to the economic development of the region.

> “My capital is very low, and it presents a significant challenge. If I had the means, I would invest in a frying machine, a sealing and packaging machine. This would open up a larger market for me and enable me to compete with other potato processing businesses, such as Sumz, and improve my operations.” **Irene Ishimwe, a Small Business Crisps and Chips Maker.**

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