



EXCHANGE VISIT BRIEF
IN ETHIOPIA AND KENYA



CLIMATE-SMART AGRICULTURE AND AGRIBUSINESS

Photo: UN Women

Executive summary

UN Women Ethiopia Country Office (ECO), under its Women’s Economic Empowerment (WEE) programme, works to improve the livelihoods of women farmers and young girls through the delivery of gender-responsive non-financial and financial services, and advocacy for gender-transformative approaches by others. By synergising existing experiences at country level, the WEE programme aims to build on prevailing knowledge and good practices towards more climate- and gender-responsive interventions.

The WEE programme is pursuing a pilot gender-transformative Climate-Smart Agriculture (CSA) and Agribusiness intervention in locations in Ethiopia where marginalised and vulnerable people live. To strengthen knowledge and experience within the programme team and among partners and stakeholders, UN Women ECO conducted exchange visits on CSA and agribusiness in various locations in Kenya and Ethiopia on 24–28 October and 17–18 December 2019, respectively. These south–south events focused on sharing both small- and large-scale

agribusiness experiences, including successful research and extension practices in higher education and research institutions. Following the visits, an action planning session was held, at which the CSA and agribusiness taskforce was established.

The next visit was to Yatta Beekeepers. The company is a woman-led social enterprise that sells bee products and beekeeping equipment in Kenya and across East Africa. The team was briefed by a founder of the enterprise, Joanne Kinyanjui, about the business and the technologies it uses.

By providing training to women farmers on best practices in beekeeping, and in the processing and packaging of bee products, Yetta works to increase the availability and competence of technical beekeeping assistants in the local community. In turn, this facilitates income generation for the women farmers through the production and sale of bee products, which the company collects from beekeepers at the village level.

The enterprise has managed to create links with rural women producers, making sure their products have a sustainable market, and

supporting women technically to increase production and productivity.



OBJECTIVE

The main aim of the visits was to get exposure to, and gain a better understanding of, countries' experiences on climate-smart agriculture (CSA) and agribusiness practices so as to synergise with national-level lessons for action.

THE GROUP

A diverse team took part in the exchange visits, including development practitioners, researchers and agribusiness entrepreneurs from different institutions in Ethiopia. UN Women ECO's WEE team facilitated the visits in collaboration with UN Women Eastern and Southern Africa Regional Office (ESARO) and Kenarava Group – a youth-led agribusiness consulting firm based in Nairobi.

ITINERARY

Kenarava Group facilitated learning from the successes and challenges of CSA technologies and practices at individual farms, agribusiness cooperatives, and medium and large enterprises. Also, UN Women ECO organised a visit at national level, where experiences from research institutions were included.



Research and extension: Jomo Kenyatta University of Agriculture and Technology



The first exchange visit was held at Jomo Kenyatta University of Agriculture and Technology (JKUAT). The professors at the university shared their work on creating increased access to fruit post-harvest technologies. JKUAT has identified various problems in the mango value chain, such as poverty among producers, sustainability, seasonality, post-harvest loss, market, disease and pests. In collaboration with UN Women, JKUAT has fabricated equipment and provided women's groups with training on the mango value chain and seedling production. JKUAT has also been working with The Rockefeller Foundation on improving technologies and approaches to grow and process mango, orange, avocado, melon, papaya, and passion fruit. Extensive production of improved seedlings, which are drought resistant and early maturing, is conducted on the campus. The seedlings are distributed to farmers, as well as to organisations in other countries. The university's Innovation and Prototyping Integrated Center works on designing post-harvest processing machinery. The machines are produced, tested and supplied to agribusiness entrepreneurs. The equipment, prototyping, production and supply allow farmers to engage in value addition at the farm/community level, and connect them to wholesalers. This has improved the skills, market, and broker interference problems the community was facing.

It was remarkable to see how the university functions beyond research and education to engage in community development initiatives. The university is also working on agricultural research, and in collaborations with other countries, such as China, sells seedlings of improved fruit varieties.

A mixture of compost, forest soil and sand, in a standard 3:2:1 plant nursery ratio, is used for the propagation of various seedlings. Irrigation technologies for fruit production have reduced seasonality challenges. Food safety management and the safe application of pesticides are implemented through organised groups of sprayers with sufficient safety training.

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Best practices

- The enterprise focuses on empowering rural women by engaging them with urban market opportunities and knowledge of the business/production process and technology supply. Access to sustainable markets and technical field support is a win-win situation for both rural women and urban women/youth entrepreneurs.
- The link between research and development practised by JKUAT, where prototypes are prepared by researchers and provided to producers, is an approach that could be replicated to enhance universities' contribution to engage in grassroots-level development activities by mobilising resources to maximise impact.
- Regulation is needed on recommended pesticide use and the formation of legally organised groups of sprayers to prevent the application of pesticides having a negative impact on food safety, and so that workers, consumers, and the environment are protected.
- Priority should be given to women-friendly machinery designed and supplied by universities and other institutions engaged in the business.
- The use of social media for climate data sharing and information on extension services and the market has brought agricultural services closer to hard-to-reach locations and community groups.
- The use of Farm TV (KTN Farmers TV), dedicated to broadcasting farming-related matters, is important to reach many farmers.
- Practical training provision on production and post-harvest handling is central to women's enhanced productivity in a changing climate.

Integrated agriculture: visit to Zippy and Kikaboni Farms

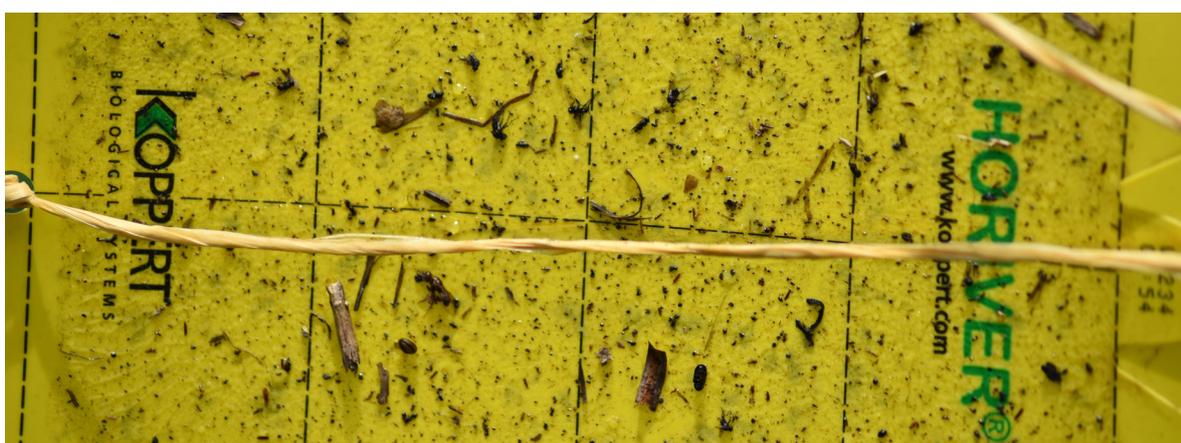
On the second day, the group visited Zippy Farm and Kikaboni Farm. Zippy Farm is a woman-led horticulture farm owned by Zippy Wahome. It has a greenhouse and open field crops that are supplied to local supermarkets and groceries.

Both farms produce vegetables, such as tomato, onion and capsicum. Zippy Farm's business cycle begins with market needs assessment and then grows produce to meet those needs. Accordingly, it has reduced the risk of post-harvest losses, achieved better prices, and reduced the amount of greenhouse gases by minimising the transportation of produce. Zippy sources much of her produce from women farmers near her farm. The farm buys vegetable products from local farmers and supplies them to buyers.

Best practices

Zippy joined the ranks of female youth role models engaged in agricultural activities after she left employment at a bank in Nairobi. She is not only generating business for herself, but is providing technical support so that other women residing in the farm area can produce high-quality vegetables. Zippy buys vegetables from these women in bulk, and sells them in large markets.

The farm follows demand-driven production by conducting market assessments, identifying market niches, and reducing the risks associated with post-harvest loss and price fluctuations.



Integrated pest management

Despite recent developments in smallholder agriculture, yields remain unpredictable due to environmental challenges, and yet many areas in countries such as Ethiopia have an unexploited potential for productivity growth. Smallholder farmers face the growing impact of climate change and variability, resulting in effects such as an extended dry season, the introduction of invasive species, and crop failure.

In developing countries, exposure to climatic risks, such as extreme weather events, is high, especially given the prevailing poor access

to agricultural inputs and technologies. Thus, integrating indigenous knowledge and contemporary CSA technologies, practices and approaches is essential.

For biological control, both farms use Horivertraps to monitor and kill aphids, leaf miners, whiteflies, thrips and sciarids. The sticky traps have squares to monitor the number of flies on the farm so that the amount of pesticide needed can be decided upon. This process avoids over-spraying and non-target spraying. Zippy Farm also uses grey strings for hanging vegetables to dispel insects.



Zippy Farm uses a borehole as a source of water for off-season production. Water is supplied via drip irrigation to the plant root. The emitter/hole for the water droplet regulates the amount of water required by the plant, which depends on the type of crop being produced. This technology has helped to use less water and produce greater crop yields in water-stressed areas. Also, fertiliser is injected into the irrigation system.



Zippy Farm and Kikaboni Farm use greenhouses and shade nets, respectively. The type of plastic selected for the greenhouse structure is identified based on the level of radiation intensity in the area. Materials used for the structure are locally available. Barbed wire used to support plants biomass when they are growing. This technique substituted consumption of wood for supporting plants.



Both farms are clean and well protected from weeds to avoid competition for nutrients and to minimise pest infestations.



Kikaboni Farm is almost entirely a women-led demonstration farm. This integrated farm employs a highly productive and resource-efficient food production model. The farm produces chicken, fish, and vegetables, and combines permaculture farming with aquaponics. Through non-soil-based agriculture, the farm implements efficient recycling of water and nutrients between the fishpond and vegetable gardens. In this process, the farm has significantly reduced the inputs of water and nutrients, while producing pesticide-free organic vegetables and sources of protein in the form of chicken and fish.

Kikaboni Farm also implements integrated pest management (IPM). Using fly traps and plants that repel insects, as well as rabbits' urine, the

farm is protected from whiteflies – sap-sucking insects that attack crops.

Both Zippy and Kikaboni Farms have demonstrated the process of increasing productivity through the application of precision farming.

Best practices

The rabbits are kept at the farm at a minimal cost, as they consume the left-over vegetables from the farm. The company benefits from the dual advantage of getting pesticide from the farm, and producing organic and healthy vegetables which are sold at higher prices. This results not only in higher profits for the farm, but is a sustainable agricultural practice for the local environment.



Wendy Farm is an integrated farming model centre which houses chicks in its poultry section, and has a fish pond, insect-rearing area, horticulture area and an apiary. The farm is a good example of how integrated farming can be organised and managed into a sustainable ecosystem with the limited resources of smallholder producers. The visiting team got the chance to learn about various edible plants that are considered weeds in Ethiopia. Apart from the integration of poultry, apiculture, and horticulture, this farm manages locally bred chickens in an open field and uses chicken droppings as feed for fish. Also, the ammonia-rich water in the fish pond is used to irrigate the vegetable farm.

This farm is owned by a young entrepreneur, Caleb Karuga. The farm is a good place to see trial and error in the agribusiness sector. For example, some of the initiatives, such as livestock fattening, have

been unsuccessful, while others have fared much better, such as preparing larvae from trapped insects (black soldier flies), producing an excellent natural source of protein for chickens. The larvae are processed, dried and ground into the chicken feed.

The farm also has a refrigerator prototype that works manually using water circulation through a pumice structure. The refrigerator can keep vegetables fresh for up to two weeks using electric power for water circulation – though it could be modified to use solar.

Best practices

Innovations at a local level are being practised by this farm, such as vertical farming using sacks, cutting PVC pipes in half and trapping insects as a protein source for chickens, and constructing a prototype refrigerator. These types of innovations are easy to adopt since their cost is minimal.



Agribusiness entrepreneurs and innovation

The exchange visit was concluded at an experience-sharing session involving agribusiness entrepreneurs and innovative researchers at the Kenarava Group office. Kenarava Group is a profit-making organisation that strives to achieve social impact. Its main activities are agribusiness advisory and organisational services, and the provision of on-farm and indoor training.

The Melkassa Agricultural Research Center in Ethiopia shared its extensive work at this session, followed by Vijana Reloaded, an agribusiness enterprise that focuses on soil testing and affordable education. Vijana Reloaded shared the process of its work on soil testing to help agribusiness entrepreneurs analyse the nutrient needs of their soil so that they can buy bespoke mixtures from fertiliser blending companies.

Kilimototo, a social enterprise that works on agriculture, education and the protection of children, as well as strengthening the earning power of women farmers and value addition in the production of spices with a brand name 1618 spices, also shared its work at the final session. As did iAgribiz Africa, an agribusiness organisation that advocates for, communicates and educates on agricultural matters. The organisation runs a model farm and training facility committed to inspiring, training and providing support to rural youth and women.

The event was wrapped up at a reception for informal discussions in the beautiful garden at Kenarava Group's office compound.





Zippy Wahome is the owner of Zippy Farm. It has been a year and half since she started her agribusiness. Zippy Farm is achieving social impact through its innovative business model of engaging local women horticulture farmers within the value chain.

Zippy was originally an auditor by profession, working for a large bank in Kenya. After she decided to leave formal employment, Kenarava Group supported her with farming advice, including drip irrigation and farm operations and structures.

“I wanted to open my mind and see what else it could do,”

Zippy recalls with excitement when reflecting on starting her business. She began the investment with the support of a loan, her personal savings and financial contributions from friends and family. Although she is now able to influence others, she told the visitors that her path had many challenges.

National experience sharing

With the same objective of strengthening partners' and stakeholders' capacity through experience sharing and lesson exchange as practical and effective learnings in CSA and

agribusiness practices, national-level experience-sharing visits were organised on 17–18 December 2019 at different locations in Ethiopia.

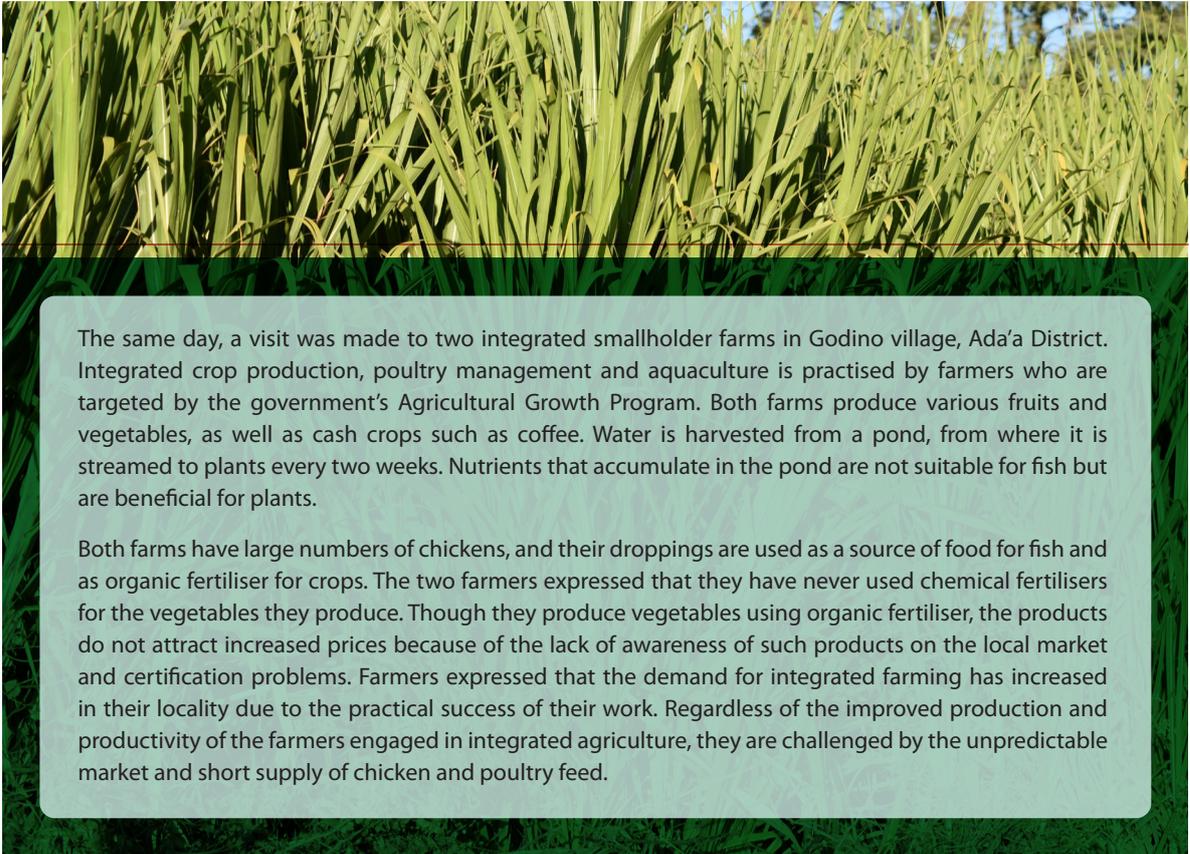


On 17 December 2019, a national-level experience-sharing event began at JoyTech Farm. JoyTech is a large farm enterprise located on the outskirts of Bishoftu town. Joytech is an Israeli Investment and is engaged in producing vegetables and herbs, and plant propagation. Significant operation of the farm is for export. The farm sales young seedlings for local market to improve production and productivity of local farmers. Given the need for careful seedling handling, of 1,500 employees on the farm, 90% are women. JoyTech adheres to several local and international standards and is very serious about hygiene and standard operating procedures (SOPs) for propagation.

The farm is highly mechanised and uses a lot of modern farm technology. Transferring mechanisation or modern technology to farming communities that buy seedlings through capacity-building sessions is greatly appreciated and enhances the company's corporate social responsibility profile.



However, based on the information provided, JoyTech still has a long way to go to, for example, adhere to the Women's Empowerment Principles (WEPs).



The same day, a visit was made to two integrated smallholder farms in Godino village, Ada'a District. Integrated crop production, poultry management and aquaculture is practised by farmers who are targeted by the government's Agricultural Growth Program. Both farms produce various fruits and vegetables, as well as cash crops such as coffee. Water is harvested from a pond, from where it is streamed to plants every two weeks. Nutrients that accumulate in the pond are not suitable for fish but are beneficial for plants.

Both farms have large numbers of chickens, and their droppings are used as a source of food for fish and as organic fertiliser for crops. The two farmers expressed that they have never used chemical fertilisers for the vegetables they produce. Though they produce vegetables using organic fertiliser, the products do not attract increased prices because of the lack of awareness of such products on the local market and certification problems. Farmers expressed that the demand for integrated farming has increased in their locality due to the practical success of their work. Regardless of the improved production and productivity of the farmers engaged in integrated agriculture, they are challenged by the unpredictable market and short supply of chicken and poultry feed.

Best practices

- The farmers in Godino village state that they are self-sufficient to a large extent and their produce is used for household consumption and to sell at the local market.
- Both smallholder farmers adopt organic farming practices. However, they lack promotional skills and branding expertise.

Thus, they cannot charge more for their 'organic' produce. The situation indicates the need to engage and build capacity for branding and connect the farmers with suitable markets. It would be worthwhile to carry out market research on this, and to look at the option of establishing all-organic farmers' markets in the capital, Addis Ababa, or at the local level, depending on demand and purchasing power.



Experience from Melkassa Agricultural Research Center

The second day of the national experience-sharing visit was conducted at Melkassa Agricultural Research Center (MARC), located in the town of Awash Melkassa in Oromia Region. MARC has a lot of experience in improved rain-fed and irrigated agricultural development, with a major focus on dry and lowland areas characterised by moisture stress, and irrigable areas of the country. The visit to MARC focused on innovative activities related to fruits, silkworm and mechanisation. The fruit department at MARC is working to improve avocado, banana, pineapple, grape and date palm. MARC also supports the community with a variety of seedlings appropriate for the region, helps farmers with resources and know-how on agricultural mechanisation and agricultural inputs, and distributes silkworms for free to interested community members. However, MARC is struggling with outreach to community members, and many farmers do not know what kind of services it offers.

Best practices

- As an important income diversification technology for women, MARC works on the production of silkworm, which are fed leafy vegetables and produce silk. MARC supports women and vulnerable community groups through the provision of improved seed varieties. Collaboration with MARC in making improved technologies available to women farmers is essential.
- MARC has established seed multipliers, and releases sample varieties to communities for expansion. CSAAB intervention can work on strengthening the link between MARC and the communities.

Plenary

Having finalised the field visits, a plenary session was held in Bishoftu town to discuss lessons learned and prospects for the future. At this session, the scalability of integrated farming was emphasised, as was the need to strengthen the loose coordination between research centres and extension by project interventions such as CSAAB. The following were the key matters discussed at the plenary session:

- Many of the technologies, practices and approaches that were observed on the visits are useful for supporting many women farmers.
- Women agribusiness entrepreneurs need to be connected to research centres to get access to the various technologies that are available, and interventions such as CSAAB should work on making this happen.
- The Ethiopian government needs to ensure large farming enterprises are committed to corporate social responsibility.
- Improving the existing awareness gap on CSA is urgently required to strengthen the knowledge, attitude and practice of farmers and development practitioners.

At the end of the visits, the CSAAB taskforce was established; a CSA forum will be set up in the near future.

Summary

Countries such as Ethiopia are challenged by a growing population and climate change paradox. Though their global greenhouse gas emission contribution is low, they contribute to climate change through land use and land cover changes. Increasing agricultural expansion and the resulting land use conversion of natural vegetation by human activities are negatively

influencing the adaptive capacities of nature and people's livelihoods. This has increased the time and effort required by women to collect necessities for their families. The CSAAB programme embedded within UN Women operations in Ethiopia is a response to this challenge.

From these exchange visits, practical techniques of climate change mitigation were observed, as were precision agriculture and extensive healthy food production as an adaptation response to the impact of climate change. This creates a balance to build resilience and reduce the impact of climate change by increasing the use of knowledge and technologies, innovations and practices, while strengthening indigenous

knowledge. Strengthening innovation and entrepreneurship in the CSA sector and alleviates the drudgery of labor-intensive toil and makes the sector more attractive to women and youth.

As a result of the visits, there were two main practical lessons on IPM. First, once the current extensive use of chemicals is reduced, soil health will be maintained. Second, it is essential to put in place safe and targeted spraying programmes (for fertilisers, herbicides, and pesticides), crop treatments and pest-mitigation measures.

Following the successful and informative exchange visits, UN Women and its partners look forward to maximizing actions that address climate change through CSAAB intervention.

Feedback from some participants

The key knowledge gained is on integrated poultry–fish–horticulture production and beekeeping technology. My research institution is working on such technology delivery systems, and it will be easy for women farmers to upgrade to more climate-smart and inclusive systems. In Ethiopia, this could be very effective, as rural women can manage and use such technology safely for their family consumption and marketing. The lack of links with different stakeholders and shortage of budget are the key challenges in applying the knowledge gained. Based on the knowledge I acquired, I will contribute to establishing and strengthening relations with stakeholders in facilitating support for resource mobilisation, as well as inspiring government institutions to make budget available for climate-smart and gender-transformative activities.

Tilahun Geneti Abdi

Oromia Agricultural Research Institute

I have had experience-sharing visits before. What made this one different is the fact that it focused on current burning issues in Ethiopia: gender, climate-smart agriculture (CSA), and women's and youth economic empowerment. Involving different organisations and individuals from numerous disciplines made the experience in-depth and broad. I learnt about the possibility of empowering women economically in the agriculture value chain through evidence-based results. The organic farm visit, where we learned about the use of rabbit urine to prevent pest, was invaluable. In collaboration with different stakeholders and our organisation, we will design a project for CSA and women's economic empowerment through aquaculture and hydroponics.

Lemlem Abebe

Ethiopian Institute of Agricultural Research

This was my first time interacting with successful young entrepreneurs in the agricultural sector. I have learnt a lot about effectively producing, harvesting and processing agricultural products. Enhancing small plots of land by applying technology is one of the significant lessons learned. The opportunities in applying the acquired knowledge to my business include the availability of determined young female entrepreneurs and suitable environmental conditions. Finance is one of the main challenges. I am determined to broaden my links by inviting shareholders. For the betterment of collaborative work with government offices, I will continually interact.

Sefanit Amde

General Manager, Sefanit Pineapple

The main lesson I learnt was the importance of involving youth and women in the agriculture sector, as agriculture is the backbone of the economy. The results of agricultural initiatives by young women and girls in Kenya have motivated me to invest more in youth. Where I am from, although we have more youth, they have significant knowledge gaps on agriculture matters, yet the opportunities to address them are limited. I used to have more older farmers as shareholders in my one-hectare farmland. Now I am determined to include more youth as stakeholders. In my community, the size of land has been very much associated with productivity. From the visits in Kenya, I have seen the effectiveness of small lands if better managed, including the use of forests. In response, I plan to campaign to discourage deforestation.

Amina Ademsa

Uma Farm Manager

This visit showed us how women-tailored interventions are successfully managed and become productive in the face of a changing climate. The main knowledge gained was the importance of designing market-driven interventions; identifying key players in the value chain; giving due attention to innovation and technology that can help smallholder farmers save their time/labour and improve productivity in a small unit area; and establishing sustainable links between smallholder farmers and young farmer entrepreneurs (who have the passion, knowledge and commitment to help farmers).

The main challenges we face are the poor agricultural extension system and policy frameworks to encourage young women to engage in productive agribusiness, as well as limited resources. However, our organisation is working in rural areas with a special focus on women and landless and jobless youth, and the new partnership with UN Women will create a good opportunity to leverage our resources and experiences to address the needs of women in areas of CSA. In collaboration with the management team, we will find any loopholes in each project that can be filled with the lessons we learnt and try to cascade to poor farmers using the resources we have at hand, as we have seen technologies and practices that can be adapted to our projects in the short or long term, depending on demand, resources and time.

Naomi Berhanu and Tewabe Kassa

SOS Sahel Ethiopia