



## **FINAL REPORT**

# **IMPROVING THE PRODUCTIVITY AND INCOMES OF COFFEE FARMERS IN EASTERN UGANDA BY LEVERAGING MOBILE PHONES TO PROVIDE LOCALLY CONTEXTUALIZED INFORMATION**

**BUDUDA, UGANDA**



**Submitted**

**By**

**Ivan Pinno  
Co-Founder  
Digital Woman Uganda**

## Table of Contents

Table of Contents .....	1
Introduction.....	2
Statement of Activities.....	3
Project Deliverables .....	3
Inception Meeting .....	3
Methodology and Structure.....	3
Welcome Remarks .....	3
Official Opening of the Meeting.....	4
Project Overview .....	5
Training of Enumerators on Mobile Data Collection .....	5
Content Development .....	6
Content Dissemination.....	7
Linking the Cooperative to International Markets.....	8
Monitoring and Evaluation .....	9

## Introduction

Digital Woman Uganda (DWU) is a Civic-tech and Digital Rights Advocacy organization. The organization was established to provide digital literacy skills to women and girls both in urban and rural areas, preparing them to be competitive and self-sustaining in the digital world, advocate for the rights of women and girls in accessing and using the internet and other digital tools to benefit equally from opportunities provided by the new digital tools in the digital world. With funding from the Commonwealth of Learning through the Life Long Learning for Farmers (L3F) initiative, DWU implemented a project titled “Leveraging Mobile Technology to Enhance Knowledge and Skills of Post-Harvest Management Practices among Smallholder Farmers in Eastern Uganda,” which is hinged on the principles of the Lifelong Learning for Farmers (L3F) of the Commonwealth of Learning (COL). The project objectives were; (i) provide farmers with access to information on best practices, market prices, and other relevant information that can help them make informed decisions about their coffee farming activities; (ii) develop a central database to manage membership information such as the automatic generation of membership codes based on certification (e.g., organic, fair trade, rain forest); (iii) increase yields and improve the quality of coffee produced by farmers and ultimately increase incomes for coffee farmers. The project also built the capacity of cooperative extensionists and local coffee farming communities by providing training and support for the use of mobile-based agricultural services. COL is an intergovernmental organization established to support commonwealth governments and institutions to create and widen access to opportunities for learning through the promotion of Information and Communication Technology (ICT) and Open and Distance Learning (ODL) strategies. COL’s Lifelong Learning for Farmers (L3F) program attempts to strengthen the agricultural sector through training agricultural officers in ICT-based extension, empowering government, and institutions to implement L3F, promoting financial literacy and entrepreneurial skills development for farmers, and strengthening linkages.

DWU facilitated an inception meeting at Bududa Integrated Area Cooperative Enterprise (BIACE) on January 16th, 2024. The meeting drew 10 cooperative leaders from 10 primary cooperatives. Key discussions centered around enhancing coffee production, with a particular focus on post-harvest handling by leveraging partnerships and technology. A curriculum on improved coffee production with a focus on pos-harvest management was developed and translated into Lumasaba and disseminated through various channels, including USSD, SMS, and voice messaging.

Building on the momentum generated by the inception meeting, DWU successfully connected the cooperative with an esteemed international coffee buyer, Volcafe International. Subsequently, a groundbreaking coffee export contract was inked between Volcafe International and the cooperative, encompassing 19.2 tons of coffee valued at \$94,848, equivalent to \$4.94 per kg. This significant price marks a remarkable 30% increase from the prevailing market rates, setting a historic precedent for the cooperative.

## **Statement of Activities**

1. Organise an inception meeting about the project with farmers representatives;
2. Engage 10 enumerators, organise a one-day workshop on data collection, ODL/ICT, L3F model, and farmer profiling for them and engage a facilitator to facilitate the workshop;
3. Engage another facilitator for 5 days to facilitate the 10 enumerators to profile 8,000 farmers over 10 days;
4. Hire an Instructional Materials Expert to develop a mobile curriculum on improved coffee production and engage a language expert to translate the developed curriculum into Lumasaba language;
5. Disseminate 30 advisory nuggets to 8,000 farmers through the telephone;
6. Engage 1 M&E officer to undertake monitoring and evaluation of project participants for 3 days

## **Project Deliverables**

### **Inception Meeting**

Digital Woman Uganda (DWU) conducted an inception meeting at the cooperative premises on January 16<sup>th</sup>, 2024. The objectives of the meeting were:

1. Clarify the goals, objectives, and approach to be used in the implementation of the project
2. Involve cooperative leaders from the start and identify factors to mitigate risks to achieving the goals of the project
3. Under the needs of the cooperative and customize project activities towards these needs
4. Build Consensus on the Project Implementation Plan (PIP)

The meeting was attended by 10 (2 female and 8 males) representatives from the following cooperatives: Bumati Growers Cooperative Society Limited, Bunabutiti Growers Cooperative Society Limited, Ambilokho Growers Cooperative Limited, Mulunda Womens Cooperative, Nuusa Coffee Farmers Association, Bubore Youth Association Initiative, Bufuma Agro Produce Farmers' Cooperative Savings and Credit Society Limited, Wonderful Fellowship Group Bumalaka, Shienga Growers Cooperative Society Limited, and Bukimuma Organic Coffee Farmers. The list of participants is presented in Annex 1.

### **Methodology and Structure**

Various methods were employed to actively involve the participants, ranging from informative PowerPoint presentations to engaging discussions, interactive exercises, and dynamic question and answer sessions.

### **Welcome Remarks**

Welcome remarks were delivered by Mr. Pinno Ivan, who expressed sincere appreciation to all participants for their prompt response to the invitation, demonstrating their keen interest in the project from its onset. He conveyed heartfelt gratitude to COL for their invaluable support to



smallholder farmers and reiterated DWU's unwavering dedication to ensuring the project's success.

### **Official Opening of the Meeting**



Figure 1: Mr. Samuel Wakinya the cooperative chairperson making the opening remarks

The meeting commenced with an official opening by Mr. Samuel Wakinya, the chairperson of the cooperative, who conveyed heartfelt gratitude to COL for their generous support extended to the cooperative. He expressed optimism that this partnership would endure over time, fostering a mutually beneficial relationship. Mr. Wakinya also extended sincere appreciation to DWU for their collaborative efforts with the cooperative, emphasizing the importance of further strengthening this constructive partnership.

Highlighting the cooperative's significant challenges, Mr. Wakinya emphasized the persistent obstacle of limited access to favorable coffee markets despite the cooperative's earnest endeavors to obtain essential certifications such as Organic and Fairtrade. He recounted the frustrating experience of acquiring an export license from the Uganda Coffee Development Authority two years prior, only to see it expire without any coffee being exported. He lamented the reality that the fruits of their labor are often enjoyed by export companies and intermediaries who purchase coffee from the cooperative at lower prices, depriving farmers of their rightful share of benefits when exported to international markets.

In light of these challenges, Mr. Wakinya earnestly appealed to DWU and COL to leverage their networks and connections to establish direct links between the cooperative and international markets. He emphasized the importance of ensuring that farmers receive fair compensation for their produce, enabling them to reap the rewards they rightfully deserve.

## Project Overview

Mr. Pinno delivered a comprehensive overview of the project, outlining its objectives, activities, and key partners. He emphasized the critical importance of the coffee industry in Uganda, highlighting its status as the country's second-highest value export. However, despite its economic significance, annual coffee production has remained stagnant at approximately 3 million 60 kg bags for an extended period. This stagnation can be primarily attributed to the pervasive impact of pests and diseases such as coffee wilt disease and black twig borer, compounded by a lack of specialized extension support to bridge the knowledge gap among farmers regarding recommended agronomic practices. Mr. Pinno elucidated the specific objectives of the project, which include:

- Developing a centralized database to efficiently manage membership information, thereby meeting the stringent requirements of international coffee partners.
- Enhancing the capacity of cooperative extension staff and farmers through comprehensive training and support in utilizing mobile-based agricultural services.
- Improving the productivity and income of coffee farmers by disseminating timely and accurate information on enhanced coffee production techniques.

He underscored that while these objectives serve as guiding principles, they remain adaptable to the evolving needs of the cooperative. This flexibility ensures that the project remains responsive to the dynamic challenges and opportunities encountered by the cooperative.

## Training of Enumerators on Mobile Data Collection



On October 21<sup>st</sup> 2023, Digital Woman Uganda (DWU) in partnership with M-Omulimisa facilitated a comprehensive training session on farmer digital profiling for the Bushika Integrated Area Cooperative Enterprise (BIACE). The training aimed to equip cooperative extension workers with the necessary skills to conduct digital profiling of cooperative members efficiently. As a result, a specialized farmer profile tool was meticulously developed and digitized, enabling seamless data collection by cooperative extension workers.

The farmer profiling tool was strategically designed to capture essential farmer information such as name, educational background, farming techniques, GPS coordinates, and other pertinent details. Ten dedicated cooperative workers, comprising 2 females and 8 males, underwent rigorous training. Each trained agent received a mobile phone to facilitate the farmer profiling exercise, along with other data collection tasks orchestrated by DWU in collaboration with the cooperative.

The initiative has already yielded significant progress, with 3,200 farmers successfully profiled thus far, marking a commendable milestone in the ongoing exercise. DWU and BIACE remain committed to continuing this endeavor, ensuring comprehensive profiling coverage across the cooperative's membership base. The list of participants who attended the training is presented in Annex 1. Each enumerator was tasked with profiling 800 farmers in the Bushika sub-county, under the cooperative's domain. However, the enumerators expressed concerns that this target was overly ambitious given the project's timelines. They recommended that in order to maintain the quality of their work, the duration of the activity should be reasonably extended. As of the latest update, the enumerators have successfully profiled 3,282 farmers, and the profiling exercise is still in progress. An excel file with the current number of farmers profiled is presented in Annex 2.

### **Content Development**

During the inception meeting, fruitful discussions were held with cooperative leaders regarding the capacity-building needs of their members concerning enhanced coffee production. The leaders acknowledged the cooperative's ongoing efforts in providing training to improve production among their members. However, they highlighted existing gaps, particularly in post-handling and management techniques. They emphasized the potential offered by technology in disseminating learning materials to a broader audience, contrasting it favorably with physical training sessions, which often demand substantial resources.

Recognizing the significance of improving coffee quality in preparation for potential export markets, the leaders recommended that content development primarily focus on post-handling and management aspects. They further suggested that the dissemination of information should encompass multiple formats, including SMS and voice messages, to ensure accessibility for all members, including those with limited literacy.

Consequently, a consultant was engaged to develop a comprehensive coffee curriculum with a specific emphasis on post-handling practices. The resulting content was meticulously converted into various formats, including SMS, USSD tips, and audio scripts, to cater to different learning preferences and literacy levels among the cooperative members. The developed curriculum materials are provided in Annex 3 (SMS), Annex 4 (USSD Tips), and Annex 5 (Audio Scripts). Each course format encompasses comprehensive content covering essential topics such as post-harvest management, soil erosion, climate change, pests and disease management, and harvesting techniques. Specifically, the audio course comprises five concise 3-minute audio messages, complemented by a collection of 32 SMS tips and an equal number of toll-free USSD channel prompts.

## Content Dissemination

Upon the recommendation of cooperative leaders, the intricately crafted coffee curriculum is being disseminated through three diverse channels: SMS, voice, and USSD. Specifically, 1,014 farmers are receiving two SMS tips daily over a 15-day period. Concurrently, 500 farmers are benefiting from audio messages delivered across five days, with each farmer receiving one voice message per day. Moreover, all farmers that have phones have access to the USSD tips via the toll-free USSD code 217101#. Through this system, farmers can dial the code and select their preferred topic among the five categories: harvesting, post-harvest management, soil erosion, climate change, and pest and disease management. Upon selection, the system will dispatch two messages daily—scheduled for 8:00 AM and 5:00 PM—until the topic's messages are fully delivered. Farmers can subscribe to additional topics sequentially until they have covered all the subjects.

For the audio channel, 500 farmers with lower levels of education were specifically selected to benefit from the audio tips. Upon enrollment in the course, farmers can keep the system number, prompting an immediate call back. Each farmer can listen to one message per day. If a farmer misses the call, the system will automatically schedule a call back at 4:00 PM for the next five days, ensuring comprehensive access to all course lessons.

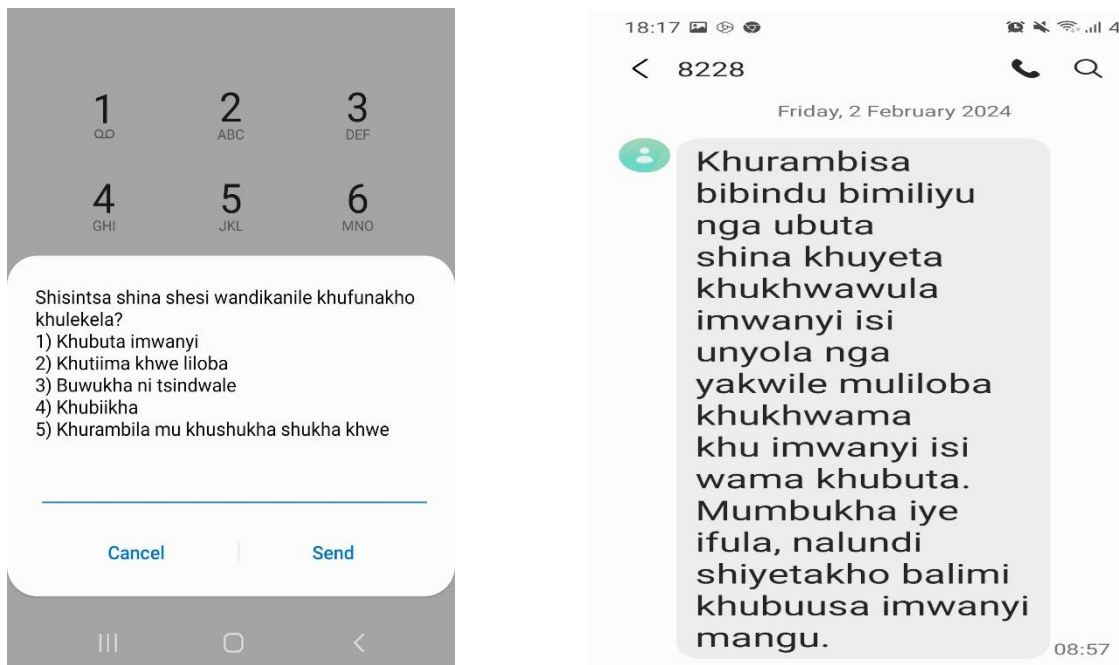


Figure 3: Toll-free USSD platform - \*217\*101#



Course: Coffee Agronomic Tips (BIACE) [x]

Search [Reset]

Position	Title	Content Audio	Quiz Question Audio	Course	Quiz Correct Answer	Action
	Soil Erosion	0:00 / 0:49	0:00 / 0:12	Coffee Agronomic Tips (BIACE)		
	Pest and Disease Management	0:00 / 1:23	0:00 / 0:12	Coffee Agronomic Tips (BIACE)		
	Harvesting	0:00 / 1:09	0:00 / 0:12	Coffee Agronomic Tips (BIACE)		
	Post Harvest Management	0:00 / 0:51	0:00 / 0:12	Coffee Agronomic Tips (BIACE)		
	Climate Change	0:00 / 1:14	0:00 / 0:12	Coffee Agronomic Tips (BIACE)		

Figure 4: The BIACE Coffee Audio Tips on the MobiMOOC System

Student	Course	Topic	Scheduled	Attended	Status	Reminder Call	Reminder Date	Quiz Answer	Audio Question	Audio Answer
Nandala Rose	Coffee Agronomic Tips (BIACE)	Climate Change	15 Feb 2024 16:54	10 Feb 2024 18:55	Attended	No	Not set	Not Answered	No Question	0:00 / 0:03
Nandala Rose	Coffee Agronomic Tips (BIACE)	Post Harvest Management	14 Feb 2024 16:54	10 Feb 2024 18:54	Attended	No	Not set	Not Answered	No Question	No Answer
Nandala Rose	Coffee Agronomic Tips (BIACE)	Harvesting	13 Feb 2024 16:54	10 Feb 2024 18:53	Attended	No	Not set	Not Answered	No Question	No Answer
Nandala Rose	Coffee Agronomic Tips (BIACE)	Pest and Disease Management	12 Feb 2024 16:54	10 Feb 2024 18:52	Attended	Yes	10 Feb 2024 00:00	Not Answered	No Question	No Answer
Nandala Rose	Coffee Agronomic Tips (BIACE)	Soil Erosion	11 Feb 2024 16:54	09 Feb 2024 17:21	Attended	No	Not set	Not Answered	No Question	No Answer
Marthus Kigai	Coffee Agronomic Tips	Climate Change	15 Feb 2024 16:52	24 Feb 2024 14:49	Attended	Yes	12 Feb 2024 00:00	2	No Question	No Answer

Figure 5: Farmers that have listened to lessons of the audio course

### Linking the Cooperative to International Markets

Responding to the cooperative leaders' urgent appeal for enhanced market connections, we embarked on a meticulous research endeavor to identify esteemed international coffee buyers in Europe whose values, quality standards, and production capacities resonated with those of the cooperative. This quest led us to pinpoint a promising prospect situated in Switzerland – Volcafe.

Concurrently, we collaborated closely with the cooperative to ensure alignment with stringent international quality standards and certifications imperative for accessing the discerning German market. This comprehensive approach encompassed acquiring vital certifications such as Fair Trade, Organic, and Rainforest Alliance. Notably, our concerted efforts culminated in the

cooperative obtaining their organic certification on November 3rd, 2023, a significant achievement detailed in Annex 6. Moreover, the cooperative had previously secured a Fairtrade certificate in July 2022, further bolstering its credentials.

With the organic certification secured, we initiated strategic outreach to Volcafe, leveraging various communication channels including email correspondence and virtual meetings. Facilitating a series of ten (10) meetings between the buyer and the cooperative proved instrumental in fostering trust and navigating negotiations towards a prospective contract.

Subsequently, on January 31st, 2024, a landmark contract was formally executed between the cooperative and Volcafe. This pivotal agreement entailed the sale of 19.2 tons of coffee worth \$94,848 at a premium price of \$4.94 per kg, representing a remarkable 30% increase over the prevailing national market rates sanctioned by the Uganda Coffee Development Authority (UCDA). The comprehensive details of this transformative contract are meticulously outlined in Annex 7.

However, similar to numerous farmers' cooperatives across the developing world, the cooperative encountered a challenge: they lacked sufficient liquidity to execute the transaction and lacked a robust banking relationship to access financing. Recognizing this hurdle, we facilitated negotiations with the buyer, who demonstrated flexibility and cooperation. An agreement was reached whereby the cooperative would deliver the available coffee quantities to a bonded warehouse in Kampala, with the buyer agreeing to make payment based on the delivered quantity. On February 19th, 2024, the cooperative successfully delivered 9,140 kgs to the warehouse and invoiced the buyer for 80% of the coffee delivered, as detailed in Annex 8.

On February 29th, 2024, the farmers received their payment, marking a significant milestone in the transaction. With a steadfast commitment to fulfilling their obligations, the farmers are diligently working to deliver the remaining 10,060 kgs of coffee.

### **Monitoring and Evaluation**

Monitoring and Evaluation (M&E) activities were structured to include a blend of qualitative and quantitative methodologies, comprising two on-site field visits and a series of phone interviews conducted via extension agents. These M&E activities were crafted to measure the tangible effects of the initiative, with a keen focus on assessing the uptake of innovative technologies and the implementation of enhanced agricultural practices disseminated through mobile technology.

In the course of the field visits, the M&E team conducted observations and focus group discussions with a select group of farmers who had benefited from the training content. These interactive discussions were pivotal in capturing the farmers' insights regarding the applicability of the curriculum, the effectiveness of mobile communication channels, and the practical improvements manifested in their coffee cultivation methods post-training.

A prominent insight that emerged from these evaluations was the farmers' preference for audio messages over text messages. This trend was particularly pronounced among farmers who faced literacy challenges or found the small screens of mobile devices inhibitive due to visual impairment or age-related factors. Furthermore, the feedback indicated that the instructional content was not only accessible but also resonated well with the farmers, proving to be highly beneficial in the enhancement of their daily agricultural practices.

These findings underscore the significance of tailoring dissemination strategies to the target audience's capabilities and preferences, ensuring that crucial agricultural knowledge is imparted in an accessible and user-friendly manner. The M&E activities, therefore, have provided pivotal data that will inform the optimization of future project deliveries, ensuring that educational materials are both impactful and conveniently consumable by the farming communities.