UNCDF

Unlocking Public and Private Finance for the Poor

Digital Traceability in Agriculture

CASE STUDY
JULY 2021

Does it improve productivity and marketing of farm produce?

The benefits of traceability are widely recognized. Yet for smallholder farmers in developing countries, especially farmers producing horticultural and other fresh food products, traceability requirements can represent barriers to trade. UNCDF in partnership with Hamwe East Africa has developed a digital traceability platform that is enabling smallholder farmers in rural communities in Northern Uganda to adopt global traceability standards and practices.

Acknowledgments

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Background

The food industry is comprised of a large array of trading partners, from the farmer or grower to internationally sourced suppliers. For this reason, a traceability application is important for the adoption of consistent business practices amongst all trading partners to effectively manage traceability in the food industry.

Supply chain inefficiencies in the food industry are partly a result of a lack of national traceability regulation and reluctant adoption of global standards. UNCDF in partnership with Hamwe East Africa is providing a digital traceability platform that will enable smallholder farmers in Northern Uganda direct access to markets, ability to standardize their produce and bargain for higher prices. The successful implementation of this project is envisioned to provide all members of the food industry with guidance to develop and adopt business processes which provide traceability to any product within the entire supply chain, regardless of size or technological sophistication.

In recent times, the accurate and timely traceability of products and activities in the supply chain has become a new factor in food and agribusiness. Increasingly, consumers in many parts of the world demand for verifiable evidence of traceability as an important criterion of food product quality and safety. Food safety and traceability are currently at the forefront of both government and industry discussions around the world. Traceability is a tool for meeting the expectations of buyers and end users, and for assuring them that a grower is indeed meeting their requirements. Consumers expect to know what happens to food products at every step of the way. Certain segments of the population are becoming more concerned about food safety and about how food is produced, for instance whether it is organic or has minimal chemical use.

Adopting traceability is not a choice. It is a question of how we do it in the best way possible, and how we take advantage of the opportunities that are emerging.

The ultimate goal of the partnership between UNCDF and Hamwe East Africa is to offer and establish both the minimum requirements and the best practices for sharing information between trading partners.

A digital solution called 'My-koop' that has been developed through this partnership offers traceability of:

a) Suppliers' practices from the point of sale to the consumer
b) All food products for human consumption
c) All levels of the product hierarchy, including pallets, cases, and consumer items
d) All supply chain segments including suppliers, wholesalers, distributors, and retailers

Traceability and Agriculture

Traceability is the ability to follow the movement of food through specified stages of production, processing and distribution. The traceability or product tracking tool should be able to identify at any specified stage of the food chain (from production to distribution) from where the food came and to where the food went, as appropriate to the objectives of the food inspection and certification system.

Forward and backward traceability play a significant role in helping businesses be competitive in the domestic and global marketplace.

The ability to trace a product through all stages of production from farm, processing, distribution, transport and retail to the end point, or consumer, is becoming a standard business practice for all stakeholders involved in today's food supply chain.

The market for safe and traceable food can exclude small-scale agricultural producers who lack the resources to comply with increasingly strict standards, particularly requirements for tracking and monitoring environmental and supply chain variables through sophisticated technologies.

Market constraints being addressed by applying a digital traceability tool

Through a rigorous in-depth inception study carried out by UNCDF, below are some of the underlying market constraints identified that this project is unlocking by leveraging digital technologies:

- Poor records management systems throughout the value chain
- Limited access to markets
- Limited access to information
- Lack of proper records management at bulking and aggregation centres
- Poor farmer loyalty and retention
- Lack of collateral for access to credit
- Limited access to credit
- Lack of access to quality inputs and traceability

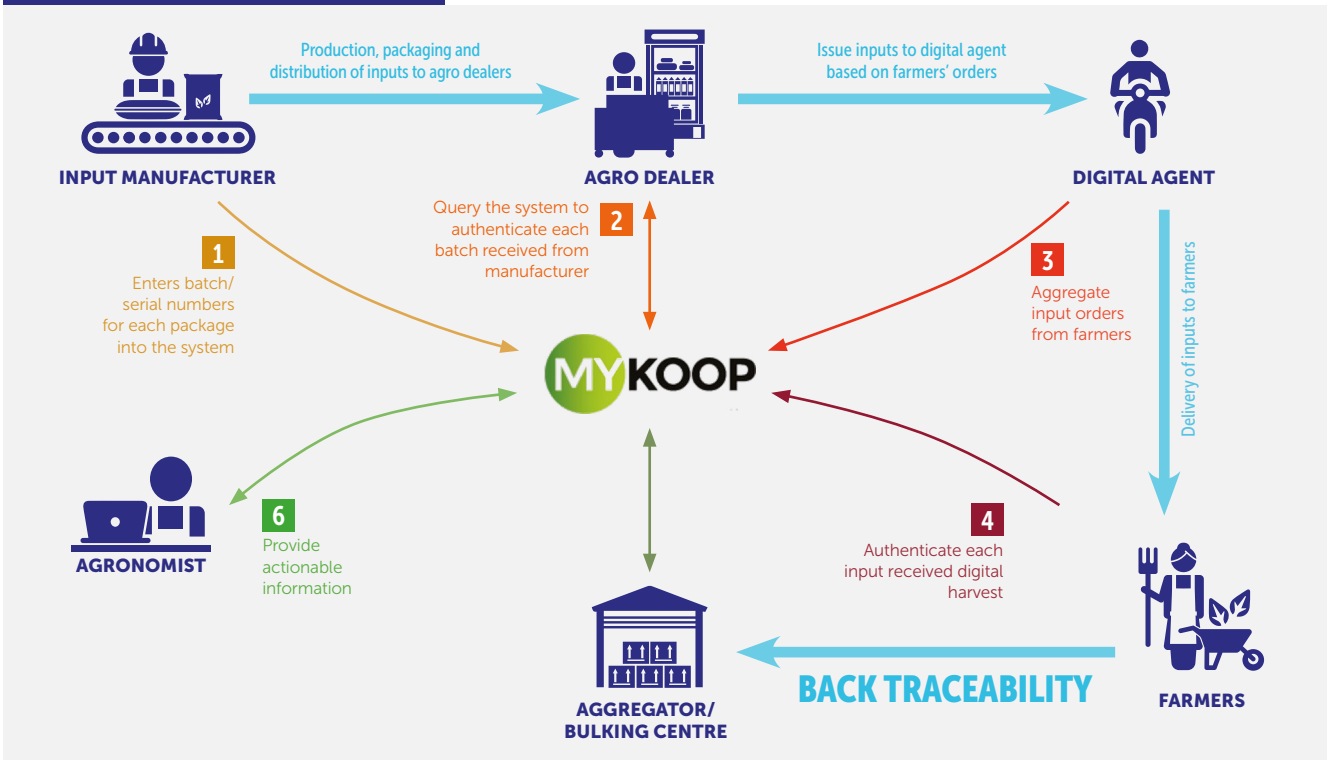
How the digital traceability tool works

My-Koop traceability system is a software system being piloted by Hamwe East Africa in Northern Uganda with support from UNCDF. It records, collects and queries all aspects of information from production, processing, packaging, storing, distribution and selling of the food chain based on modern database management technology, network technology and barcode technology.

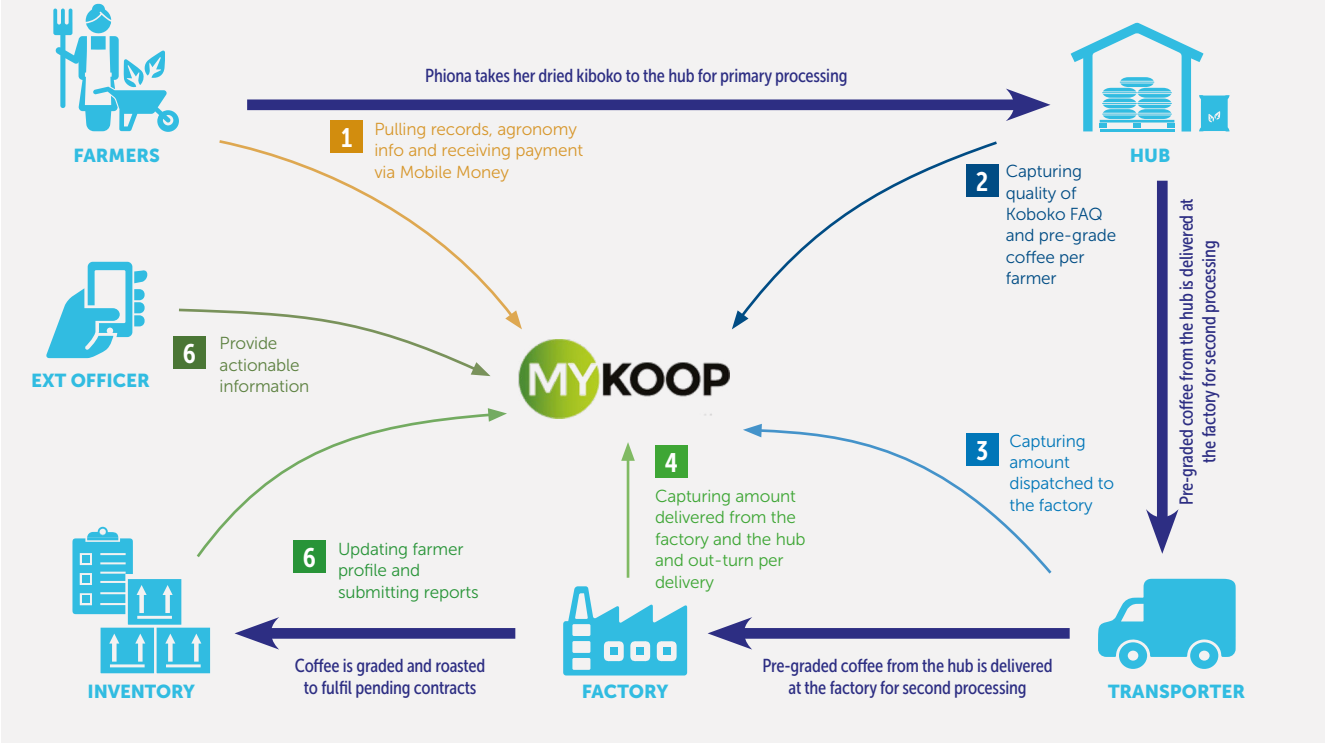
The digital traceability tool enables farmers to achieve a better balance between greater value and increased production (volume) by helping them minimize risk at each stage of the agricultural cycle. More specifically by:

- Linking them to quality seeds suppliers
- Promoting the adoption of good agricultural practices
- Linking them to profitable markets
- Enabling them access to actionable information
- Enabling the usage of their production records as loan appraisal tools

FOWARD TRACEABILITY



BACKWARD TRACEABILITY



Understanding digital traceability and agriculture: How to get it right first time

How can traceability be leveraged to improve agriculture?
How can traceability be exploited for improved productivity and marketing?
How can we ensure traceability is inclusive and impactful?

1. Customer onboarding

Hamwe uses a holistic customer acquisition strategy to educate prospects about the value proposition of the My-Koop traceability system. The strategy encompasses all aspects of the marketing funnel from lead generation, lead nurturing to closing customers. The holistic customer acquisition strategy has reduced time to market (the time it takes for a product to move from conception stage to when it is available for sale) increased adoption rates/conversions, and decreased chances of failure. Below is the customer onboarding process:

i) Hamwe conducts buy-in meeting sessions with Farmer Producing Organization (FPOs) clusters such as cooperative unions and associations to present the My-Koop system, its benefits, and the value proposition to management and board members.

ii) Sign partnership agreements with the FPO clusters to provide the My-Koop traceability system. This introduces Hamwe to the multiple primary FPO societies under the FPO cluster.

iii) Conduct engagement meetings with the individual primary cooperative to present the My-Koop system, its benefits and the value proposition and sign partnership agreements with primary societies who then select Digital Community Entrepreneurs (DCEs) who have to at least own or know how to use a smart phone, preferably be female or youth farmer and member of the FPO.

iv) Conduct engagement meetings with the bulking centres or aggregators of the FPOs to demonstrate the value proposition of the system and get their buy-in.

v) Conduct engagement meetings with the processors to demonstrate the value proposition of the system and get their buy-in.

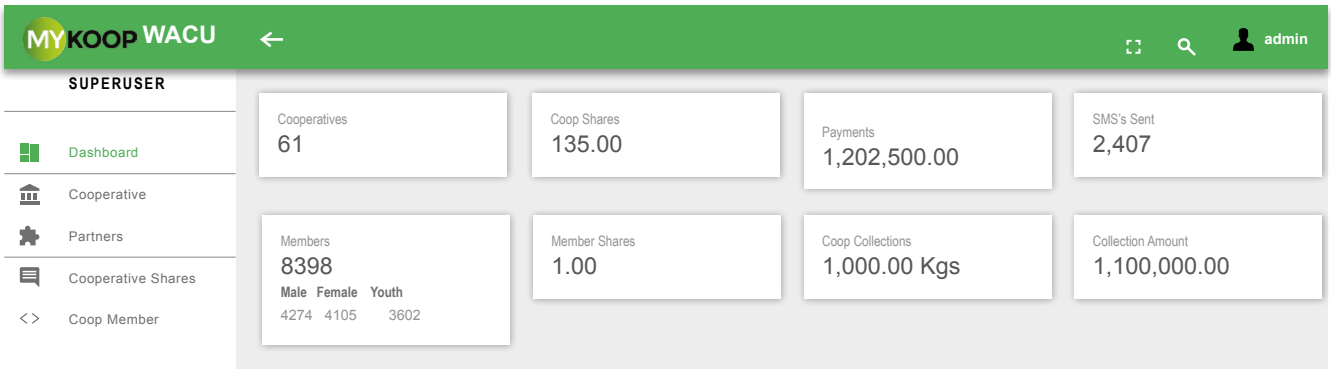
vi) Conduct engagement meetings with the farmers or members of the FPOs to demonstrate the value proposition of the system and get their buy-in.

vii) Sign partnership agreements with DCEs, bulking centres, independent aggregators, suppliers and agro-dealers, and processors to govern and clearly indicate duties and responsibilities of each party.

viii) Account creation and credential sharing: Hamwe tech team creates the FPO account on the My-Koop system and shares the web addresses and user credentials with the stakeholders.

ix) Provide user trainings:

- The project team conducts user trainings of the web users at the FPO level, the FPO team selects a team from their extension workers and or lead farmers (mostly female or youth) who reside within the farmer localities and own a smart phone or can use a smart phone.
- Conduct mobile app training of the DCEs who are trained on farmer profiling and input order taking.
- Conduct training of bulking centre staff on farmer registrations and recording produce collection or sales from farmers. Most primary FPOs own a bulking centre.
- Conduct training of processors, suppliers and agro-dealers on usage of the My-Koop traceability platform to automate their business processes.



x) Farmer registration and recording information: The trained users commence farmer registrations within their localities and also input information on the system at all levels. The bulking centre staff also enter records of collections and sales from farmers. Suppliers and agro-dealers enter their catalogue on the system, register farmers and record their sales of inputs to the farmers.

xi) Farmer sensitization: Sensitization of farmers is organized and conducted during their periodic meetings and celebrations. Other channels such as radio programs and SMS are also used to sensitize farmers about the benefits of using the My-Koop system. Sensitized registered farmers start using the system by requesting for information such as input orders via SMS.

xii) Customer service: Hamwe picks an administrator and link extension worker at each FPO who manages 10 DCEs to 15 DCEs; the DCEs manage up to 10 farmer groups with approximately 300 farmers to 500 farmers living within the same sub county or vicinity. Client support is provided at each level. Farmer queries, complaints and requests are handled by the DCE, link extension farmer and administration levels, while sophisticated cases are channelled to the Hamwe partner support staff. Customers use different channels to access support services via direct interface with a staff, DCE, administrator or link extension worker, via SMS, e-mail, or through internet services on the app.

2. Public and private stakeholder engagement

i) Hamwe engages public and private stakeholders at every step of the value chain. The local government staff involvement begins with the introduction of the My-Koop system, the proposed activities to be conducted and the value proposition to the small-scale farmers and the district. The local government also plays a part in granting permission of the activities to be carried out within refugee settlements.

ii) Local government is involved in the design, extension content provision, market and price validation, input authentication etc.

iii) The local government also supports by identifying potential stakeholders (FPOs, genuine agro-dealers, processors and suppliers) that could benefit from the traceability system.

iv) The refugee settlement commandant upon receiving permission to support the activities within the refugee settlement, liaises with NGO partners implementing livelihood programs with farmers who would benefit from the traceability system.

3. Partnerships

We have been building and nurturing a partner-centred ecosystem to enable the beneficiaries, including smallholder farmers and other value chain actors to have access to formal financial services, actionable information, markets, and genuine inputs. The current partnerships being developed are to leverage the traceability system to extend services to the people they serve to improve their productivity and livelihoods. The partners include:

- Banking institutions
- Inputs/device manufacturers
- Local governments
- Telecom service providers
- NGOs

4. Go-to market excellence

i) Target market identification: Hamwe identified a total serviceable market of 200,000 farmers in Northern Uganda and Kiryadongo district who practice coffee, cotton, cashew nuts, chili, sunflower, soya bean, ground nuts, livestock and dairy farming for business purposes. The farmers belonged to FPOs such as cooperative unions, associations, input manufacturers, NGOs and processors.

The target users are susceptible groups such as women, youth and refugees who face challenges of counterfeit seeds affecting their productivity, inadequate records, lack adequate market linkages and access to financial services that would propel their agriculture businesses.

ii) Value proposition: Hamwe's digitalization of the agriculture value chain will facilitate the profiling of smallholder farmers and enable them to order for certified genuine inputs, make cashless payments, and keep proper transaction and farming records using customized digital solutions. The features and benefits of Hamwe's agriculture digital platform include:

- Real-time communication
- Digital payments and records
- Transparency
- Digital farmer profiles
- Farmer economic identity that enables access to financial instruments and income-generating assets
- Customized financial services

iii) Marketing, sales, and distribution: This is focused on increasing sales, visibility in the marketplace, and growing businesses with activities that include sales territory allocations, business partnerships with FPO clusters and other value chain actors, direct sales through the DCEs (who sensitize farmers about the various products and services accessible through the traceability system), and using local influencers to acquire more FPOs and farmers onto the traceability system.

Expected Outcomes

Using DCEs as extension service agents is critical in promoting overall project objectives and intentions to the target audience. These are being used to educate and create awareness about the project, onboard farmers, provide basic financial literacy and digital literacy to the rural communities. They are vital since they have an already developed rapport with the farming communities

Farm cooperatives act as a catalyst or springboard in getting closer to the last mile and open doors for working with farmers directly. They are treasured within the community and give strong recommendation for any players in the rural communities

Through this work, UNCDF and Hamwe are working to profile smallholder farmers and recruit other value chain actors (aggregators, off takers, input suppliers), enabling them to use a digital traceability application, capture farmer's yield at bulking centres, and enable payments for farm produce via mobile money. This work is expected to have far-reaching outcomes at the client, stakeholder and ecosystem level.

When farmers are registered and trained to use a digital traceability application for input supplies, market information and selling/buying produce, they will have digitalized production records at bulking centres and aggregators, improved access to quality input, markets and market information while at the same time other value chain actors have better information on the farmers' production process. As more farmers and value chain actors see the value of a digital traceability solution, more similar platforms will emerge, growing the number of farmers using the solution or similar solutions, which will ultimately lead to increased incomes for the farmers.

The project is supposed to create a traceable record of all farming activity along the value chain and in so doing farmers production will be enhanced since they will be exposed to good farming practices as well as improved farm processes in the long run.

It is also intended to improve collective marketing for farmers produce through access to information on appropriate prices, and markets within the food value chain system .

Records management is anticipated to improve process within the value chain especially for the offtakers, aggregators, bulking centres, farmers groups, cooperatives so as to have better monitoring and data capturing along the value chain .

Farmer loyalty will be the ultimate goal emanating from the data being collected at different transaction nodes along the value chain. Through building a loyalty management schedule, farmers will become more loyal to the supplier side actors

There will also be improved visibility of inputs through the input aggregation and authentication module that will create a proper mechanism on how quality inputs are ordered for and paid for leveraging existing payment modalities provided by Mobile Network Operators.

Conclusion

In a nutshell, it is true that digital technology can work as an accelerator to reach marginalized people if properly designed for systemic impact. Given the limitations in the government's capacity to create enabling environments for key sectors (agriculture, health, education, energy, finance) that foster local development, participation of rural communities in a digital economy would enable them to better navigate infrastructural challenges and be connected to markets. Digital tools and tech-enabled solutions adapted to rural community needs and literacy levels can make up for gaps in productive agriculture and service delivery.

LEAVING NO ONE BEHIND IN THE DIGITAL ERA

The UNCDF strategy 'Leaving no one behind in the digital era' is based on over a decade of experience in digital financial inclusion in Africa, Asia and the Pacific. UNCDF leverages digital finance in support of the Sustainable Development Goals (SDGs) to achieve the vision of promoting digital economies that leave no one behind. The goal of UNCDF is to empower millions of people by 2024 to use services daily that leverage innovation and technology and contribute to the SDGs. To achieve this vision UNCDF uses a market development approach and continuously seeks to address underlying market dysfunctions that exclude people living in the last mile.

ABOUT THE UN CAPITAL DEVELOPMENT FUND

The UN Capital Development Fund makes public and private finance work for the poor in the world's 46 least developed countries (LDCs). UNCDF offers "last mile" finance models that unlock public and private resources, especially at the domestic level, to reduce poverty and support local economic development.

UNCDF's financing models work through three channels: (1) inclusive digital economies, which connects individuals, households, and small businesses with financial eco-systems that catalyze participation in the local economy, and provide tools to climb out of poverty and manage financial lives; (2) local development finance, which capacitates localities through fiscal decentralization, innovative municipal finance, and structured project finance to drive local economic expansion and sustainable development; and (3) investment finance, which provides catalytic financial structuring, de-risking, and capital deployment to drive SDG impact and domestic resource mobilization.

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