

Sustainable Transformation through ICT-based Agricultural Value Chain Governance Platform in Malawi

An inclusive Information and Communications Technology-based value chain governance platform being implemented in Malawi by RMSI, a global geospatial and engineering solution provider, is helping streamline the fragmented agricultural value chain and reduce risks for smallholder farmers.



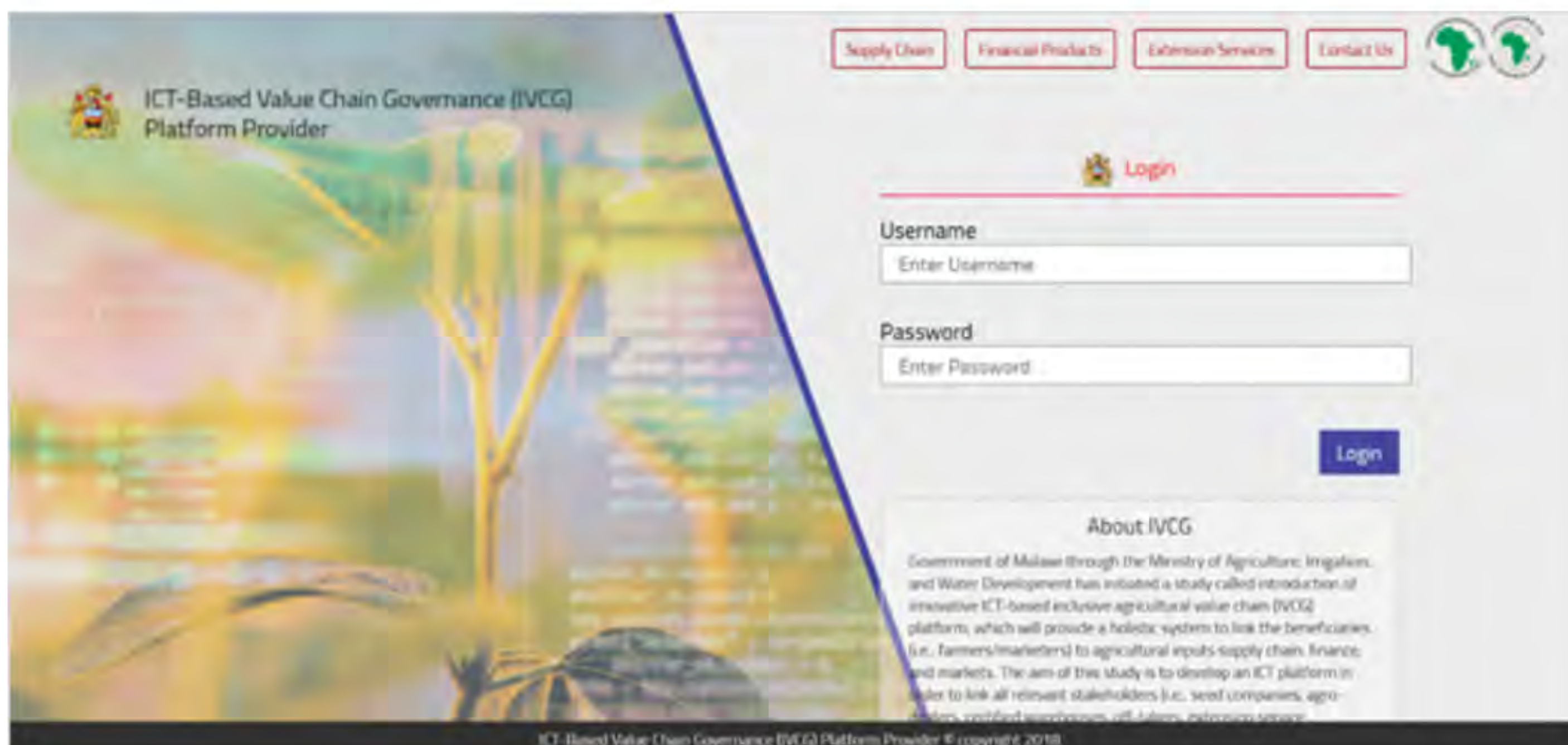
Image Credit: RMSI

By GW Prime

Malawi is a small landlocked country in Africa with an economy driven predominantly by the agricultural sector, which accounts for one third of the GDP and nearly 80% of employment. Agriculture is considered the engine of Malawi's economic growth and is dominated by maize and tobacco, followed by other food and cash crops such as cassava, sweet potatoes, sorghum, tea, sugarcane, cotton, and coffee.

Though agricultural productivity in Malawi has increased over time, limited access to improved crop varieties and fertilizer, lack of best management practices, and poorly functioning markets have resulted in low crop yield, high sales costs (due to limited storage and poor road infrastructure), and inadequate processing capacity. At times, the fragile agricultural value chain and non-existence of an Information and Communications Technology (ICT) system have triggered rampant malpractices in the government-sponsored welfare schemes, such as, agri-input distribution to the farmers.

RMSI, a global geospatial and engineering solution provider, developed an effective and innovative technological intervention in the form of an inclusive ICT-based Value Chain Governance (IVCG) platform for Malawi, to streamline the fragmented agricultural value chain and reduce the risks to small-holder farmers.



ICT-based Value Chain Governance Platform | Image Credit: RMSI

Workflow

The digital agriculture market platform helped connect the agricultural value chain players (farmers, financiers, warehouse owners, agro-dealers, agro-input suppliers, financial institutions, off-takers, etc.) on one platform. Some of the key components of the workflow were:

- The project was initiated with the farmers' online registration in the six pilot districts in Malawi — Nkhosakota, Salima, Machinga, Chikhwawa, Ntchisi, and Thyolo. It facilitated electronic agro-input distribution among the farmers and linked the warehouse receipt system to the platform to keep track of the commodities' deposit and sale.
- In this project, a location-specific geo-tagged database is developed for the agriculture value chain stakeholders, such as, agri-input suppliers (that is, fertilizer, pesticide, seed, and agri-equipment suppliers), off-takers, agri-processors, financial institutions, warehouses, authorized markets, and smallholder farmers.
- The geo-tagged mapping helps in connecting agriculture value chain players to streamline the value chain processes from crop production to collection, storage, and transport of the produce, and delivery of agri-inputs. Besides, this also helps identify and prioritize interventions and investments in the agricultural sector that can be addressed through spatial analyses based on geospatial data.
- Getting the best available seeds and fertilizer into the hands of smallholder Malawian farmers to raise current crop yields requires an effective farmer database. Hence, a mobile application was developed to collect smallholder farmers' location-specific information, such as, name, age, cropping patterns, productivity levels, landholding size, bank details, etc. Post validation by the district coordinators, it was uploaded on the platform.
- The dynamic feature permitted capturing any number of user-specified attributes associated with a farmer and farm. Several targeted farmers registered using the mobile application developed by RMSI. It was subsequently uploaded on IVCG's centrally-located server through this platform.
- The seed companies formed the agro-input distributor network whose module was incorporated on the IVCG platform. The authorized distributors provided seeds to the farmers from the pilot districts using the digital system.
- The smallholder farmers could store the produce under the pre-arranged warehouse by specifying the aggregate quantity produced. This enabled marketers to envisage the production from different districts, thus, easing the buying decisions. They could now directly connect with the farmers to buy the produce.

- The authorised financial institutions were also mapped in the platform, along with the associated products, such as, loan facility, etc., which could be availed by the agro-dealers, input suppliers, and farmers for their input financing needs.

Challenges and learnings from the project

- Initially, the agricultural value chain was fragmented in the country as all stakeholders were working in silos.
- The primary reason for the weak agricultural value chain in Malawi was limited and access to agro-inputs, extreme weather volatility, dependency on rainfall and irrigation water, lack of knowledge about high-value products, limited exposure to high productivity practices, weak market linkages, and inefficient supply chain.
- Malawi is highly vulnerable to climate change-induced hazards, mainly due to drought impacting all the value chain actors, resulting in production loss.
- The farming community is not keen to change the cropping pattern due to poor market functioning. Hence, crop diversification is not happening in the country at the desired pace.
- Poor internet connectivity and limited access to smartphones in the rural areas of Malawi, at times, affect the implementation of ICT-based solutions.

Benefits and outcomes of the project with specific focus on value of geospatial solutions

- Innovative ICT platform helped link farmers to input and output markets, extension, finance, and information services, including weather services.
- This reduces the information asymmetries for markets, input supply, and access to finance that Malawi's farmers currently face.
- By tracking farmers' production and marketing activities and other key actors on the platform, transparency and fair prices are assured to farmers leading to higher economic returns on land, labor, and capital.
- The farming communities can also avail financial services provided by banks and other financial institutions.
- This 'paperless' medium eliminated the middlemen's role in the agri-chain as it provides current market demand information from a trusted and modern market.
- The comprehensive platform enabled effortless management of sales transactions between the farmers and marketers. This avoided any payment-related complaints of the farmers as all transactions were conducted online.

Key Objectives

- Transparency among agri-value chain stakeholders.
- Support growers in marketing and sale of their produce with accurate information.
- Improve farmers' profitability.
- Improve the sustainability of agriculture.