

AGRA Impact Series



Digitally Enabled Farm Mechanization Aligns Incentives to Revolutionize Smallholder Livelihoods - Tanzania

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The arrival of a tractor in the small farming community of Luhindo in Tanzania's Kilolo district feels to local residents like "a revolution" according to local farmer Chesko Mdeko. Three years ago, Mdeko purchased a tractor from one of AGRA's partners, the equipment dealer ETC Agro, with financing from a local bank. The tractor has enabled Mdeko to expand cultivation from three acres to 15 acres, and to increase his maize harvest five-fold. But the impact of Mdeko's tractor extends well beyond his own farm. Mdeko also rents out mechanization services to other farmers in the area. As a result, farm production and crop sales have risen throughout the community—attracting in turn more maize buyers who supply Dar es Salaam and even neighboring Kenya. Thanks to increased productivity and profits, Luhindo village has improved its food security and local economy.

While Mdeko and his fellow Luhindo residents credit the tractor for this revolution, in fact an entire ecosystem is needed to bring mechanization to villages like this one. Equipment dealers need a sufficient market of buyers to warrant serving a given area; financial service providers require collateral, risk-sharing and evidence of income before providing asset financing in what is considered a risky sector; skilled maintenance providers are



Chesko Mdeko in Luhindo with his tractor

needed nearby to keep the equipment in good working order; potential tractor owners must perceive a solid business opportunity, be able to access affordable financing and maintenance, and succeed in reaching rental customers efficiently; local farmers need to be confident that their increased production will find a reliable buyer at a price that makes their investment in mechanization and farm inputs worthwhile. In the absence of any of these components, the mechanization ecosystem (Figure 1) cannot function.

AGRA and its partners—like ETC Agro in Tanzania, TROTRO Tractor Limited in Ghana and Hello Tractor in Kenya—are working with the support of Mastercard Foundation to unite these ecosystem actors to advance smallholder farm mechanization in sub-Saharan Africa. Underpinning all of their efforts, digital technology offers a promising way to align the overlapping goals and address the constraints of equipment dealers, financial service providers, agricultural value chain actors, maintenance providers, equipment owners and operators, booking agents, technology providers and smallholder farmers. On the one hand, GPS-enabled equipment trackers permit real-time monitoring and operational data, such as acreage covered, which helps establish the business case for financing and investment. On the other, digital platforms permit efficient matching, service delivery and payments between equipment owners, tractor operators and disparate smallholder farmers. AGRA provides strategic financial and technical support to its partners for leveraging digital technology to augment both the supply of and demand for mechanization.

On the supply side, AGRA and partners are engaging equipment owners by:

- Building the business case for farm equipment ownership and provision of rental services.
- De-risking investment to increase access to finance for tractor ownership.
- Aggregating farmer demand and maximizing tractor uptime.

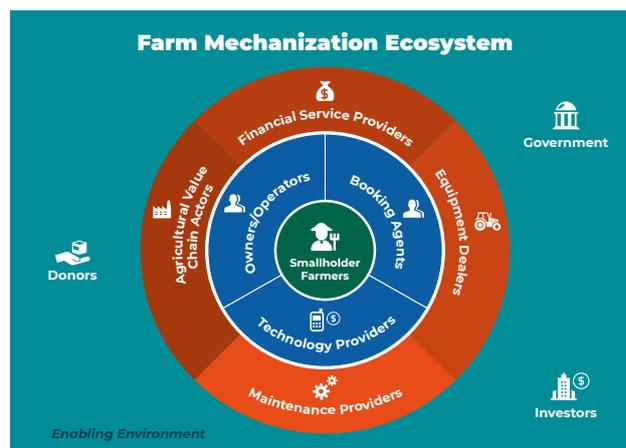


Figure 1

On the demand side, they are engaging farmers by:

- Reinforcing interest in and justification for farm mechanization.
- Fostering access to, trust in and usage of mechanization rental services.
- Making farm mechanization affordable and effective for farmers.

As these and other farm mechanization innovators continue to explore strategies for enhancing smallholder mechanization, AGRA plans to keep advancing the state of the practice through strategic investments in promising models and the exchange of lessons learned.

Read more [here](#) about the work of AGRA and its partners to advance farm mechanization; see more on Mdeko’s story [here](#).
