

# Sustainable Mechanization of Value Chains through Innovative, Gender-Sensitive Business Models

A project of the Fund for the Promotion of Innovation in Agriculture (i4Ag) of the special initiative of the Federal Ministry for Economic Cooperation and Development (BMZ) 'Transformation of Agricultural and Food Systems'

## Challenges and potentials in agriculture and food production in Kenya and Rwanda

Agriculture and food production are of great importance in Kenya and Rwanda and employ around 70 per cent of the total population. Despite their significant share of gross domestic product, 31 per cent in Rwanda and 33 per cent in Kenya, these sectors face numerous challenges: Outdated production methods and lack of access to modern technologies lead to low yields, soil degradation and soil acidification.

The procurement of agricultural technology and processing machinery poses challenges for farmers and private and public agricultural institutions: Mechanisation at individual farm level is difficult due to small areas and limited capital. Services in the downstream agricultural sector are limited, which restricts value creation. Renewable energies are only used to a limited extent in agriculture. In Kenya and Rwanda, electric tractors are not available as an alternative to diesel, and operating costs are rising due to supply chain problems.

Project title	Nachhaltige Mechanisierung von Wertschöpfungsketten durch innovative, gendersensible Geschäftsmodelle
Programme	Fonds zur Förderung von Innovationen in der Agrar- und Ernährungswirtschaft (i4Ag)
Commissioning party	Bundesministeriums für wirtschaftliche Zusammenarbeit und Entwicklung (BMZ)
Region	Kenia, Ruanda
Partners	sequa gGmbH, Maschinenring Foundation gGmbH, Volkswagen, LEMKEN
Duration	08/2023 - 12/2026

## Innovative linkages in the electrification of agriculture, business models and climate resilient agricultural practices

The innovations combine the introduction of e-tractors and other electric agricultural machinery as a technical innovation with the scaling up of the machinery ring (MR) business model successfully tested in Kenya, as well as climate-resilient farming techniques and an e-tractor tested in Rwanda. Implementation will take place at regional level. A South-South exchange is planned, in which MR managers and trainers trained in Kenya will be deployed in Rwanda, and e-tractors will be used for the first time in Kenya. Another innovation is the establishment of a multifunctional empowerment hub (e-hub) in Rwanda to support SMEs and their employees in agricultural value chains. The e-Hub will include electric vehicle workshops, training rooms and premises for SMEs, with a decentralised photovoltaic power supply.

The integration of the partners' innovations addresses the challenges of transforming the agriculture and food sector in many African countries, and is expected to provide impetus for scaling up in other countries through impact studies and the organisation of round tables with national and international organisations.

## The goal

**Farmers have put innovative, sustainable solutions in the fields of mechanisation and energy to good use.**

## Key indicators

**9,000 Farmers** improve their income opportunities

**100 kWp** of renewable energy is available in the empowerment hub

**1,300 ha** are cultivated using innovative climate-resilient farming techniques

The project contributes to the achievement of these Sustainable Development Goals (SDGs):



## Key activities

- Introduction of e-tractors and innovative agricultural implements linked to the MR business model, including capacity building
- Establishment of an e-hub with photovoltaic system and premises for SMEs and training courses
- Capacity building in the area of sustainable management of agricultural practices and businesses
- Carrying out impact studies on socio-economic aspects, e-mobility in agriculture and CO2 savings through renewable energies

## Sustainability and scaling

Machinery Rings' knowledge transfer on business management issues and climate-resilient farming techniques promotes sustainable soil fertility and income generation for generations to come. Positive changes in farming techniques are recognisable after just one growing season. The local MRs strive for financial independence through membership fees and intermediary fees, based on experience from existing MRs in Kenya. The Federal Association of Machinery Rings integrates local MRs into its global structure and ensures long-term support.

The knowledge centre integrated in the e-Hub builds sustainable skills in mechanisation and decentralised energy supply for the local economy (societal and organisational level). The sustainability of the approach is ensured through cooperation with the private sector, which facilitates long-term investments in the introduced innovations (e-tractor and e-hub).

## Approach and project partners

The project focuses on imparting technical and entrepreneurial knowledge in the fields of agroecology, management, marketing and investment in machinery. The development of gender-sensitive business models and training programmes takes into account the different needs of women, men and young people alike. The establishment of SMEs in the e-Hub for the post-harvest and processing phase aims to develop gender-sensitive business models and create job opportunities, especially for women.

The project is being implemented by a consortium partnership consisting of Volkswagen, sequa gGmbH in cooperation with Maschinering Foundation gGmbH, LEMKEN GmbH & Co. Kg and GIZ.



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Machinery Rings Kenya, Mateo Gomez Jattin

Text

Project factsheet

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