

Locally Adapted Mechanisation Concepts in sub-Saharan Africa

Implemented by the *Fund for the Promotion of Innovation in Agriculture (i4Ag)*
As part of the special initiative *Transformation of Agricultural and Food Systems*

The Challenge

Missing know-how of locally adapted mechanisation solutions

The potential to increase agricultural productivity in sub-Saharan Africa remains unlocked due to insufficient knowledge of production practices and economics as well as a lack of capital and the low availability of locally adapted agricultural technology. Mechanisation solutions corresponding to current and future challenges in the agricultural sector are needed.

When investing in agricultural machinery, local conditions are not sufficiently considered, leading to various difficulties. Oversized machines, for example, cause more soil compaction and increased fuel consumption; their fixed costs are too high. On the other hand, unadapted implements for soil and seedbed preparation lead to soil degradation. Yields remain low overall, leaving small scale farmers behind in their economic development.

Name of the Project	Promotion of locally adapted mechanisation concepts in sub-Saharan Africa (Ethiopia, Kenya)
Name of the Global Fund	Fund for the Promotion of Innovation in Agriculture (i4Ag)
Commissioned by	Federal Ministry for Economic Cooperation and Development (BMZ)
Project Region	Ethiopia, Kenya
Implementing Partners	CLAAS Global Sales GmbH
Duration	09/2021 — 08/2025

The Innovation

A digital information and planning system

The digital information and planning system is an open-source tool for agricultural institutions and organisations both public and private. The planning system facilitates and improves their services to identify the most appropriate and viable mechanisation solutions for smallholder farmers.

The system is operated by trained experts who enter the necessary data, including agroecological conditions as well as economic factors. Based on this data, the system calculates the most appropriate mechanisation solution automatically.

To further strengthen their important position in agriculture, women actively contributed to the development process of the digital tool. Through this, women take leading positions in agricultural mechanisation, creating business opportunities that address their needs.



Left & Top: Trainings provided by CLAAS in Ethiopia, right: Project regions

The Main Objective

To increase the capacities of agricultural institutions to introduce gender-sensitive, locally adapted mechanisation solutions

Methodological Approach and Innovation Partnership

The project was implemented by CLAAS Global Sales GmbH, a manufacturer of agricultural machinery, with assistance from LEMKEN GmbH & Co. KG, a manufacturer of implements, as well as the Centre for Energy and Agricultural Engineering at the Education Centre Triesdorf (Fachzentrum für Energie und Landtechnik am Landwirtschaftlichen Bildungszentrum Triesdorf).

The project promoted an integrated multi-actor approach: A strong focus on the practical conditions in the development of the tool ensures its adoption by extension services and farmers. In addition, to raise awareness for the innovation, informative events and trainings were held that took into account the different roles, daily routines, commitments and needs of women and men.

Implemented Activities

- Development of a database with important technical and economic key figures for agricultural mechanisation
- Development of digital information and a planning system based on local conditions and the corresponding database
- Development of practice-oriented guidelines and video tutorials of the digital information and planning system
- Training experts in methodological aspects to formulate locally adapted mechanisation solutions
- Organise dialogue events with political and administrative decision-makers about evidence-based mechanisation concepts

Sustainability and Scaling Strategy

The aim was to anchor the approach in local structures and public institutions. To achieve this, the digital advisory tool and the practice-oriented guidelines were made freely accessible to local and national consulting, training and research institutions as well as the agricultural projects of international donor organisations. Improving the quality and capacity of agricultural extension services leads to sustained growth in demand for locally-adapted mechanisation solutions — ergo to higher incomes for farmers.

To ensure the understanding and support for the project at all levels, political partners were closely involved. The goal was to have the digital information and planning system used by public entities in order to define their development strategies for agricultural mechanisation and for the use of the tool in their public service provision.

5 agricultural institutions

have successfully used the digital information and planning system in 27 cases

14 agricultural organisations

who have received advice regarding locally adapted mechanisation rate the service satisfaction as “very high”

1 political decision-maker

from Ethiopia and

1 political decision-maker *from Kenya,*

contributed recommendations for improving services on locally adapted mechanisation approaches at the national agricultural policy level

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



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Global Agendas for Food and Nutrition Security
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Friedrich-Ebert-Allee 32 + 36
53113 Bonn
T +49 228 44 60-0
F +49 228 44 60-17 66

i4Ag@giz.de
<https://www.giz.de/en/worldwide/94538.html>

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Text

Elke Peiler

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