

africa|mechanize 04 2025

ALL ABOUT THE FRAMEWORK FOR SUSTAINABLE AGRICULTURAL MECHANIZATION IN AFRICA - F-SAMA



AFRICA MUST MOVE BEYOND THE 20th CENTURY MODEL EMBRACE A NEW PARADIGM FOR THE 21st CENTURY

20th CENTURY MODEL
LIMITED • REACTIVE • UNSUSTAINABLE

- LABOUR INTENSIVE
LOW PRODUCTIVITY
- DEGRADING PRACTICES
LOW RESILIENCE
- OUTDATED MECHANIZATION
LOW EFFICIENCY
- FOCUS PRIMARILY ON
SMALLHOLDERS ONLY
- LOW SURPLUS
WEAK MARKETS

TIME TO TRANSFORM →

21st CENTURY NEW PARADIGM
PRODUCTIVE • RESILIENT • COMMERCIAL • INCLUSIVE

CONSERVATION AGRICULTURE + SUSTAINABLE AGRICULTURAL MECHANIZATION

EMPOWERED MEDIUM-SCALE FARMERS
THE MISSING LINK, THE GAME CHANGER

Mechanical Capacity

Adoption of CA Technologies

Service Providers to Smallholders

Market-Oriented Production

Economic Growth & Food Security

FEEDING AFRICA'S GROWING POPULATION

MEDIUM-SCALE FARMERS DRIVE NEARLY 80% OF CEREAL GRAINS TO MARKET IN SSA

CA AREA IN AFRICA (2017)
~1.37 MILLION ha
SSF 59% | MSF 2.5% | LSF 38%
A HUGE OPPORTUNITY FOR MSFs

MECHANIZATION + CA INCREASES PRODUCTIVITY, LOWERS COSTS, BUILDS RESILIENCE

STRONGER VALUE CHAINS JOBS, INCOMES, INVESTMENT AND RURAL TRANSFORMATION

SUSTAINABLE, COMMERCIAL AGRIFOOD SYSTEMS FOR A FOOD SECURE, PROSPEROUS AFRICA

A NEW PARADIGM FOR A NEW CENTURY. CONSERVATION AGRICULTURE + SUSTAINABLE MECHANIZATION + EMPOWERED MEDIUM-SCALE FARMERS
THE PATHWAY TO A RESILIENT, PRODUCTIVE AND FOOD SECURE AFRICA



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Editorial

From Dialogue to Delivery: Operationalizing Sustainable Agricultural Mechanization for Africa's Transformation

Africa stands at a defining moment in its agricultural transformation journey. Across the continent, there is growing recognition that achieving food security, climate resilience, economic competitiveness, and rural prosperity will depend on one critical enabler: **Sustainable Agricultural Mechanization (SAM)**. This fourth edition of the *AfricaMechanize Newsletter* captures this momentum by showcasing practical experiences, policy developments, research findings, and strategic partnerships that are collectively moving Africa from aspiration to action under the **Framework for Sustainable Agricultural Mechanization in Africa (F-SAMA)**.

The central theme of this issue—the **role of Sustainable Agricultural Mechanization in scaling Conservation Agriculture (CA)**—reinforces an important reality: mechanization is no longer simply about replacing human labour with machines. Rather, it is about transforming entire agrifood systems through technologies, business models, digital innovation, and policies that increase productivity while conserving natural resources. The discussions from the 13th AfricaMechanize Webinar, held alongside the Ninth World Congress on Conservation Agriculture, clearly demonstrate that Conservation Agriculture cannot be scaled without access to appropriate mechanization, innovative service provision, and supportive investment ecosystems.

The articles featured in this newsletter also send a strong and consistent message: **Africa possesses the technologies, knowledge, and institutional frameworks needed for transformation. The challenge is implementation at scale.** Whether through the African Union's renewed call to retire the hand hoe, the World Bank's expanding investments in climate-smart mechanization, CIMMYT's farmer-centred service delivery models, FAO's operationalization of F-SAMA, or Sokoine University's emphasis on the untapped potential of medium-scale farmers, the evidence overwhelmingly points toward the need for coordinated action rather than isolated projects.

Equally encouraging are the growing international partnerships highlighted in this issue. The Beijing Action Plan under the Forum on China-Africa Cooperation (FOCAC), FAO's collaboration with Tanzania through South-South and Triangular Cooperation, ICRIAT's partnership initiatives in Mali, and ACT

Network's engagement with global partners all reflect increasing international confidence in Africa's mechanization agenda. These collaborations offer valuable opportunities for technology transfer, local manufacturing, capacity development, investment, and innovation that can accelerate implementation of national mechanization strategies.

However, partnerships alone will not deliver transformation. African governments, Regional Economic Communities, the private sector, financial institutions, research organizations, universities, development partners, and farmer organizations must now work together to operationalize F-SAMA through coherent policies, sustainable financing, strengthened institutions, and commercially viable mechanization service models. Investments should prioritize not only machinery but also the enabling ecosystem—skills development, digital agriculture, local manufacturing, quality assurance, infrastructure, rural entrepreneurship, and climate-smart technologies.

As this newsletter demonstrates, Africa's mechanization agenda is increasingly becoming a continental movement rather than a collection of isolated initiatives. The AfricaMechanize Platform continues to provide an important forum where policymakers, researchers, manufacturers, service providers, development partners, and farmers can exchange knowledge, forge partnerships, and coordinate action toward a common vision.

The challenge before us is therefore not whether Sustainable Agricultural Mechanization works—the evidence is clear that it does. The challenge is **how quickly and collectively we can scale proven solutions to reach millions of farming households.** If Africa succeeds in transforming mechanization from a series of projects into a coordinated continental investment agenda, it will unlock unprecedented opportunities for food security, youth employment, women's empowerment, climate resilience, and inclusive economic growth.

This edition of the *AfricaMechanize Newsletter* is both a reflection of the progress made and a call to action. Let us continue building partnerships, sharing knowledge, investing in innovation, and working together to ensure that sustainable agricultural mechanization becomes the engine that drives Africa's agricultural transformation and prosperity for generations to come.

1 The Role of Sustainable Agricultural Mechanization in Scaling up the Adoption of Conservation Agriculture (CA) by Smallholder Farmers in Africa

The Featured Issue covers the information presented at Webinar 13 of the AfricaMechanize Webinar Series, jointly organized by the FAO, the AUC, and the ACT Network under the F-SAMA. The webinar was held as a hybrid event of a special plenary session at the Ninth World Congress on CA (9WCCA) in Cape Town, South Africa. The main Objective of the Webinar was to accentuate the *Role of Sustainable Agricultural Mechanization in scaling up the Adoption of Conservation Agriculture by smallholder and Medium-scale Farmers in Africa*, and devise a roadmap to operationalize the F-SAMA at national and sub-regional levels.

The webinar was designed to demonstrate how sustainable agricultural mechanization (SAM) can accelerate the adoption of CA and contribute to sustainable agricultural transformation across Africa.

Eng made the introductory presentation. Saidi Mkomwa, the ACT Network Executive Director, based on the Webinar 13 Concept Note, which highlights the global success of Conservation Agriculture, now practiced on more than **205 million hectares** in over **100 countries**, where it has improved productivity, reduced production costs, and enhanced the conservation of soil, water, biodiversity, and climate resources. In Africa, however, despite significant growth from approximately **485,000 hectares to 3.2 million hectares** between 2008 and 2018, CA adoption remains well below its potential. The remarks emphasize that successful implementation of CA depends on access to scale-appropriate mechanization, particularly specialized equipment that enables minimum soil disturbance, one of the three core principles of Conservation Agriculture.

The webinar, supported through the AfricaMechanize Platform, coordinated by the ACT Network, has since 2020 engaged more than **1,837 participants, 75 speakers**, and representatives from over **75 countries**, promoting dialogue on the operationalization of F-SAMA across Africa.

Webinar 13 sought to identify practical solutions for overcoming constraints to investment in CA and SAM by bringing together policymakers, researchers, development partners, farmer organizations, and the private sector. Discussions focused on strengthening policies, increasing long-term investment, improving mechanization services, and fostering collaboration among small, medium, and large-scale farmers. The webinar also aimed to develop a five-year roadmap for operationalizing F-SAMA and scaling Conservation Agriculture nationally and regionally. Expected outputs included a newsletter summarizing key recommendations, an action plan for priority interventions, and a proceedings report to guide future implementation.

Webinar 13 featured keynote presentations by high-level agenda speakers from the African Union Commission, FAO, the **World Bank, CIMMYT, Sokoine University of Agriculture**, and the **ACT Network**. Mr Lewis Hove, Coordinator of FAO's Resilience work in Southern Africa, moderated the session on behalf of Mr Abebe Haile Gabriel, Assistant Director General and Regional Representative for Africa, FAO.

The webinar recording is available at [AfricaMechanize Webinar 13](#), and summaries of the six contributing presentations to the webinar are presented below.

1.1. Scaling of Regenerative Conservation Agriculture Via Sustainable Agricultural Mechanization – CIMMYT approach

By Dr. Bram Govaerts, Director General of CIMMYT

Dr. Bram Govaerts focused on scaling Regenerative Conservation Agriculture (CA) via Sustainable Agricultural Mechanization. They expressed that CA is not only about improved yields but is increasingly becoming more about the resilience of farming systems. CIMMYT is more than maize and wheat variety development; rather, CIMMYT's 2100 vision



outlines the need for CIMMYT to be a change agent for climate-resilient, sustainable, and inclusive agricultural development for a food- and nutrition-secure future, based on the need to transform agriculture and improve lives.

According to Bram, a data-rich environment is critical to support scaling and delivery of technologies such as CA. Many studies conducted by CIMMYT on CA have demonstrated clear impacts on biodiversity enhancement, yield improvement, and resilience building. Crops under CA have consistently performed better than crops under conventional systems, especially during adverse or drought periods. Research on Carbon sequestration or sinks has shown positive responses to CA practices; more carbon is harvested or stored in CA systems. The critical objective is to create resilient and sustainable agrifood systems.

CIMMYT safeguards the biodiversity of maize and wheat varieties that can respond to different needs and supports characterization of these varieties to suit regenerative agriculture systems and diversified environments. Regenerative agricultural projects in Mexico have demonstrated integration of best practices and national use of natural resources, which cumulatively contribute to carbon sequestration, water resource saving, and biodiversity enhancement.

In addition, mechanization is a key driver of positive transformation in rural communities by supporting appropriate crop management, facilitating irrigation, and improving access to markets. Therefore, there is a need to look at existing machines and adapt them to CA, as well as innovations in mechanization to support the technology. Scaling SAM requires in-depth analysis to establish what is hindering the adoption and use of agricultural machinery. Bram provided CIMMYT/FAO with ten points to consider in identifying scalable solutions. Understanding mechanization from the perspective of scaling efforts emphasizes the need to look not only at technology but also at the business environment and policy factors. Smart mechanization and digitalization significantly contribute to data generation that will support decision-making.

The importance of scaling mechanization through mechanization service provision models, and majorly supporting last-mile service providers, considering the drivers of the different models, remains critical. The key take-home message is on 'the need to consider a system perspective to catalyse positive rural transformation by leveraging yield-enhancing practices, entrepreneurship skills, and market participation of sustainable

mechanization and, as a result, promote more inclusive and sustainable agricultural systems that benefit *farmers and communities*.

1.2. Retiring the Hand Hoe and the Call to Action to Member States, Private Sector and Development Partners.

By Prof. Jerome Afeikhena, Special Adviser to the Commissioner for Rural Economy and Agriculture, African Union Commission, Addis Ababa, Ethiopia.

Prof. Jerome emphasized that Africa's agricultural transformation depends on accelerating the adoption of **Conservation Agriculture (CA)** through **Sustainable Agricultural Mechanization (SAM)**. He observed that, except in South Africa and parts of North Africa, agriculture across the continent is dominated by smallholder farmers cultivating one to two acres under rain-fed, low-input production systems that rely heavily on manual labour, particularly the hand hoe, and continuous tillage. These practices have contributed to low agricultural productivity, leaving many African countries dependent on food imports despite their abundant agricultural potential.



He noted that Africa remains the least mechanized agricultural region globally. According to FAO estimates, approximately **65% of farm power** is still provided by human labour and draught animals, while only **10%** comes from engine-powered machinery. This limited mechanization constrains productivity, increases labour drudgery, and undermines the resilience of farming systems. Prof. Jerome argued that transforming African agriculture requires production systems that are more productive, environmentally sustainable, climate-resilient, and inclusive, while benefiting women, youth, and other value chain actors.

Highlighting progress in Conservation Agriculture, he referred to the **Third Africa Congress on Conservation Agriculture (3ACCA)** held in Rabat, Morocco, in 2023, where Africa's agenda for scaling CA was further strengthened. While acknowledging the achievements made, he stressed that much more remains to be done to achieve widespread adoption across the continent.

A major theme of the presentation was the recognition of **women as the backbone of African agriculture**, contributing up to half of the agricultural labour force in many countries. Despite their critical role, women continue to face severe labour burdens and limited access to mechanization technologies. Prof. Jerome recalled the African Union's **"Retire the Hand Hoe to the Museum"** campaign, launched in 2015 under former AUC Chairperson Dr. Nkosazana Dlamini Zuma, and reaffirmed by the current Commissioner for Agriculture, H.E. Amb. Josefa Sacko, as a symbolic commitment to replacing manual labour with appropriate mechanization. However, he noted that implementation has been slower than anticipated.

Prof. Jerome also highlighted the importance of the **Framework for Sustainable Agricultural Mechanization in Africa (F-SAMA)**, jointly developed by the African Union Commission and FAO and launched in 2018. He emphasized that effective implementation of F-SAMA requires stronger policies, institutional capacity, regulatory frameworks, and investments that promote scale-appropriate mechanization. Successful adoption of Conservation Agriculture depends on access to specialized equipment capable of implementing its three core principles: minimum soil disturbance, permanent soil cover, and crop diversification.

Looking ahead, he stressed that the technologies required for transformation—including digital agriculture, drones, robotics, solar-powered machinery, electric equipment, and efficient irrigation systems—already exist. The challenge is to consolidate innovations developed by national research systems, CGIAR centres, and the private sector into scalable investment programmes supported by governments, development partners, academia, civil society, and farmers themselves. Successful partnership models

should be documented and replicated to accelerate adoption across Africa.

In closing, Prof. Jerome called for stronger engagement by the African Union to mainstream Conservation Agriculture and Sustainable Agricultural Mechanization within broader continental initiatives, including the **Africa Fertilizer and Soil Health Action Plan** and the **post-Malabo agricultural agenda**. He concluded by urging stakeholders to seize the momentum created by the webinar and the **9th World Congress on Conservation Agriculture** to forge strategic partnerships, mobilize investments, and advance a shared vision of mechanized Conservation Agriculture that can improve food security, create opportunities for youth, empower women, and build a more prosperous and resilient agricultural future for Africa.

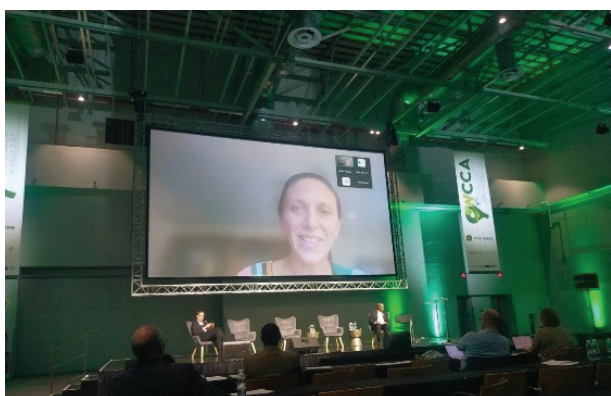
1.3. Directions for Investments in sustainable agricultural mechanization with Conservation Agriculture

By Dr. Katie Kennedy Freeman, Senior Agriculture Economist at World Bank's Agriculture and Food Global Practice

The presentation, delivered by **Katie Kennedy Freeman**, Lead Agriculture Economist at the **World Bank**, during the **9th World Congress on Conservation Agriculture (9WCCA)** on **22 July 2024**, outlines strategic priorities for investing in **Sustainable Agricultural Mechanization (SAM)** as a cornerstone of climate-smart and resilient agrifood systems. It emphasizes that mechanization should be viewed not only as a means of increasing agricultural productivity but also as a critical investment in climate adaptation, environmental sustainability, and inclusive rural development.

The presentation begins by highlighting the urgent need to transform global agrifood systems in response to climate change. Agriculture and food systems contribute approximately **16 gigatonnes of carbon dioxide equivalent (GtCO₂e)** annually, creating a cycle in which agricultural activities contribute to greenhouse gas emissions, which in turn accelerate climate change and reduce agricultural productivity. The World Bank identifies **Climate-Smart Agriculture (CSA)**, including Conservation Agriculture (CA), as a major opportunity to break this cycle by simultaneously increasing productivity, strengthening resilience, and reducing emissions. The accompanying diagram illustrates this "vicious cycle" and the need for integrated climate action.

Recognizing this challenge, the World Bank has substantially expanded its investments in climate-smart agriculture over the past decade. Financing through the Agriculture and Food Global Practice increased



from approximately **US\$326 million in FY2013 to US\$3 billion in FY2023**, demonstrating the institution's growing commitment to scaling sustainable agricultural practices worldwide. The presentation notes that Conservation Agriculture has become a key component of these investments because of its potential to improve productivity while enhancing resilience and mitigating climate impacts.

The presentation also explains how progress in Conservation Agriculture is measured. Success is assessed through indicators such as the **number of people with enhanced resilience to climate risks**, the **area of land under improved conservation and management**, and the **number of farmers adopting improved agricultural technologies**, including Conservation Agriculture practices. These indicators help evaluate both environmental and socio-economic impacts of investment programmes.

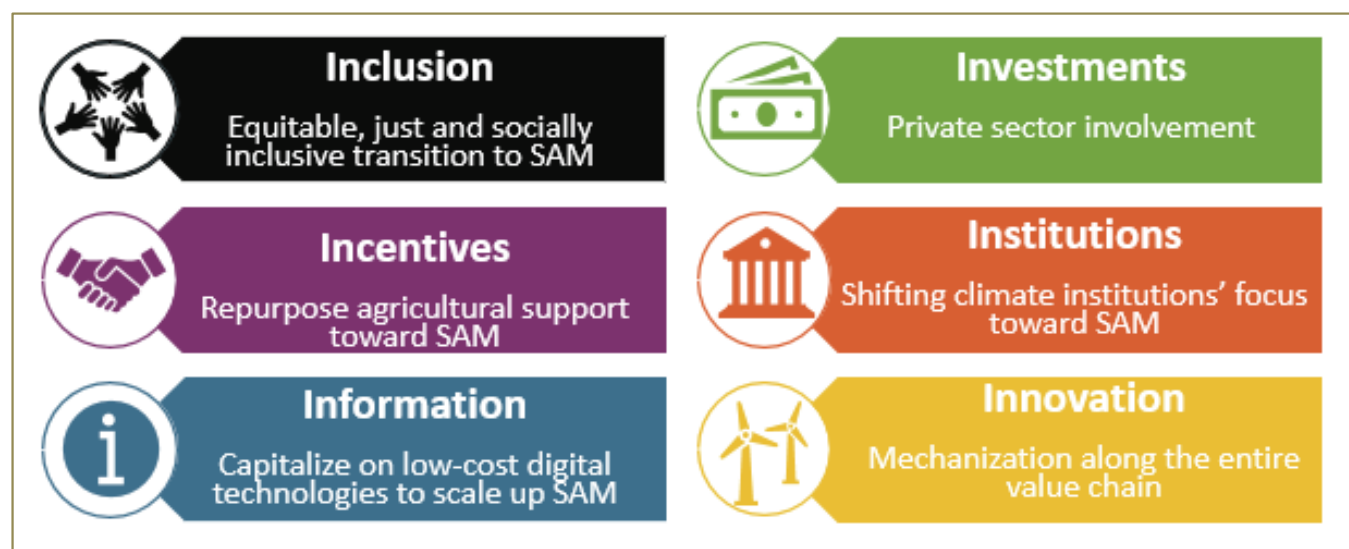
A central message is that greater investment in **Sustainable Agricultural Mechanization** is essential to sustainably increase crop yields, reduce labour requirements—particularly for women and smallholder farmers—and minimize harvest and post-harvest losses. Mechanization is therefore presented as a critical enabler of more efficient, profitable, and climate-resilient agrifood systems rather than simply a replacement for manual labour.

To demonstrate practical implementation, the presentation highlights a **US\$500,000 pilot project** financed by the **Korea Green Growth Trust Fund** under the **West Africa Food System Resilience Program (FSRP)**. Implemented in Ghana and intended for broader regional scaling, the initiative seeks to improve smallholder farmers' access to SAM technologies, mechanization services, and technical information through collaboration among organizations including **ACT Network, AICCRA, FAO, CSIR, ECOWAS, CORAF, CNTA, and TroTro Tractor Ltd.** Pilot activities include developing the AfricaMechanize digital platform to promote SAM, assessing farmers' mechanization needs, testing integrated SAM and CSA technology bundles at the Offuman pilot site in Ghana, generating evidence on their profitability and sustainability, developing strategic policy documents, strengthening awareness and advocacy, and identifying technologies for wider dissemination across FSRP countries.

The presentation concludes by identifying six strategic pillars needed to create an enabling environment for scaling Sustainable Agricultural Mechanization: **innovation**, by promoting mechanization across the entire agricultural value chain; **institutions**, by integrating SAM into climate and agricultural policies; **inclusion**, by ensuring equitable access for all farmers; **investments**, through stronger private-sector participation; **incentives**, by redirecting agricultural support toward sustainable mechanization; and **information**, by leveraging affordable digital technologies to accelerate technology adoption.

Together, these priorities provide a comprehensive roadmap for mobilizing investments that can transform African agriculture into a more productive, resilient, and climate-smart sector.

For details, please refer to the PowerPoint presentation available at: <https://africamechanize.org/webinars/presentations/102/download>



1.4. Conservation Agriculture on the move: A learning agenda through digital, mechanization and service models –

Dr. Sieglinde Snap, Program Director of the Sustainable Agrifood Systems Program at CIMMYT.

The presentation presents an integrated framework for accelerating the adoption and scaling of **Conservation Agriculture (CA)** through three complementary pillars: **scale-appropriate mechanization, digital extension services, and farmer-centred mechanization service provider models**. It emphasizes that Conservation Agriculture has demonstrated significant benefits for increasing agricultural productivity, improving soil health, strengthening climate resilience, and promoting sustainable food systems. However, widespread adoption across Africa remains constrained by practical, institutional, and knowledge-related barriers that must be addressed through coordinated interventions.



The presentation identifies three major constraints to CA adoption: the labour-intensive nature of establishing and maintaining Conservation Agriculture systems, limited farmer knowledge and technical capacity, and inadequate access to appropriate inputs, machinery, and incentives. These challenges disproportionately affect women, who undertake much of the manual agricultural labour in many African farming systems. Consequently, the presentation advocates an integrated approach that combines mechanization, digital advisory services, and innovative service delivery models to reduce labour drudgery and improve farming efficiency.

Mechanization is presented as the cornerstone of scaling Conservation Agriculture. Africa continues to depend predominantly on manual labour, with approximately **65% of farm power** supplied by human effort and only **10–12%** by engine-powered machinery. Evidence presented shows that up to **60% of attainable crop yields** can be realized using existing crop genetics if nitrogen management, timely field operations, and mechanized farming practices are improved. Mechanization is therefore viewed not simply as a labour-saving intervention,

but as an essential means of improving timeliness, precision, input-use efficiency, profitability, and overall agricultural productivity.

Drawing on CIMMYT's experiences across Bangladesh, Mexico, South Asia, East Africa, Zambia, and Zimbabwe, the presentation emphasizes that successful mechanization requires a supportive ecosystem extending beyond machinery provision. Essential elements include innovative financing, local manufacturing, spare parts supply chains, technical capacity development, enabling policies, and business-friendly environments. Participatory action research, innovation hubs, iterative co-design with farmers, and agile systems approaches are highlighted as effective mechanisms for adapting technologies to local conditions and supporting large-scale dissemination. The presentation also stresses that the most technically advanced technology is not necessarily the most scalable; affordability, versatility, profitability, energy efficiency, and suitability to local farming systems are equally important.

Digital extension is identified as the second pillar for scaling Conservation Agriculture. Given that CA is knowledge-intensive, farmers require harmonized technical recommendations, decision-support tools, improved local data systems, and mobile-based advisory services to strengthen adaptive capacity and facilitate informed decision-making. Strong partnerships among research institutions, extension services, private sector actors, and farmer organizations are considered critical for delivering locally relevant information.

Finally, the presentation highlights **mechanization service provider models** as an effective pathway for expanding access to mechanization among smallholder farmers. Affordable two-wheel tractors and Conservation Agriculture implements enable local entrepreneurs to deliver timely mechanization services, reducing labour requirements by up to **55%** and operational costs by up to **65%** while creating rural employment opportunities.



The presentation concludes that integrating mechanization, digital extension, and locally based service provider models provides a practical pathway for transforming African agriculture. Experiences from drought-affected Zambia demonstrate that farms practicing Conservation Agriculture consistently

outperform conventionally tilled systems under climate stress, underscoring the potential of these integrated approaches to improve productivity, build resilience, and support sustainable agricultural development across Africa.

For details, refer to the PowerPoint presentation available at: <https://africamechanize.org/webinars/presentations/104/download>

1.5. Conservation Agriculture and Sustainable Agricultural Mechanization synergy: Role of the medium scale farmers –

By Prof. Geoffrey C. Mrema, Sokoine University of Agriculture, Tanzania & ACT Technical Advisor.

The presentation by **Prof. Geoffrey C. Mrema** of **Sokoine University of Agriculture** examines the critical role that **medium-scale farmers (MSFs)** can play in accelerating the adoption of **Conservation Agriculture (CA)** and **Sustainable Agricultural Mechanization (SAM)** in Africa. It argues that while much attention has historically focused on smallholder farmers, Africa's evolving agricultural landscape requires a strategic shift that recognizes the growing contribution of medium-scale farmers to food production, mechanization, and agricultural transformation.

The presentation begins by describing the development of the **F-SAMA**, which was formulated through a 30-month continent-wide consultative process led by the African Union Commission (AUC) and FAO between 2016 and 2018. The process involved extensive stakeholder consultations and benefited from contributions by organizations such as the African Conservation Tillage Network (ACT). F-SAMA provides a comprehensive framework built around ten interrelated elements covering commercial, environmental, and socio-economic sustainability, including farm power, financing, manufacturing, technology development, land preparation, human resource development, and regional cooperation.

Focusing on **Element 6**, which addresses the sustainable transformation of land preparation and crop and livestock husbandry practices, the presentation reviews the current status of Conservation Agriculture adoption across different farm sizes. Although Africa had approximately **1.37 million hectares** under Conservation Agriculture in 2017, nearly **60%** was managed by small-scale farmers and **38%** by large-scale farmers, while medium-scale farmers accounted for only **2.5%** of the total area. This finding is particularly striking because medium-scale farmers generally rely on mechanized land preparation and are well positioned to adopt Conservation Agriculture technologies. The presentation also notes that by

2021, Conservation Agriculture under large-scale farming in South Africa had expanded significantly, while adoption by medium-scale farmers remained negligible.

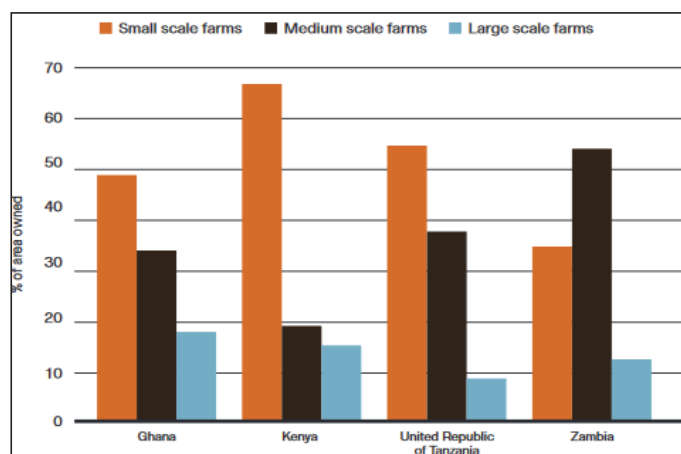
CA Area in Africa	X 10 ³ ha	Total (%)
Total	1,366	
Small-scale farmers [SSFs]	811.4	59.4
Medium-scale farmers [MSFs]	33.6	2.5
Large-scale farmers [LSFs]	521.0	38.1

The presentation argues that this limited uptake represents a missed opportunity. Medium-scale farmers are becoming increasingly important producers of staple cereals - including maize, rice, wheat, and sorghum - and are estimated to supply nearly **80% of the cereal grain marketed in Sub-Saharan Africa**.

Looking at four different countries, as provided by statistics from 2015, indicates different levels of land ownership, as shown in the Figure below.

In addition to producing food, they frequently own agricultural machinery and provide mechanization hire services to surrounding smallholder farmers. Despite these advantages, little research has examined why medium-scale farmers have been slow to adopt Conservation Agriculture. The presenter therefore calls for greater research, investment, and policy attention to this important farming category.

In conclusion, the presentation contends that medium-scale farmers should become a central focus of future mechanization and Conservation Agriculture strategies. Their capacity to invest in machinery, generate marketable surpluses, and strengthen supply chains positions them as key drivers of sustainable agricultural transformation. Prof. Mrema argues that Africa must move beyond development models designed for the twentieth century and adopt a **new paradigm** that reflects the realities of the twenty-first



century. By integrating Conservation Agriculture with Sustainable Agricultural Mechanization and placing greater emphasis on medium-scale farmers, Africa can build more productive, resilient, and commercially sustainable agrifood systems capable of meeting the food demands of its rapidly growing population.

For details, refer to the PowerPoint presentation available at: <https://africamechanize.org/webinars/presentations/105/download>

1.6. The futuristic perspective on operationalization of the F-SAMA; an FAO perspective

By Eng. Josef Kienzle, Head of sustainable agricultural mechanization at the Plant Production and Protection Division, the Food and Agriculture Organization of the United Nations (FAO),

The presentation by **Josef Kienzle** and **Karim Houmy** of the **Food and Agriculture Organization of the United Nations (FAO)** provided a forward-looking perspective on the implementation of the **F-SAMA**. It highlights the critical role of sustainable agricultural mechanization in transforming African agriculture to meet the challenges of population growth, climate change, urbanization, and food insecurity. The presentation notes that although Sub-Saharan Africa possesses one-quarter of the world's arable land, it produces only about 10% of global

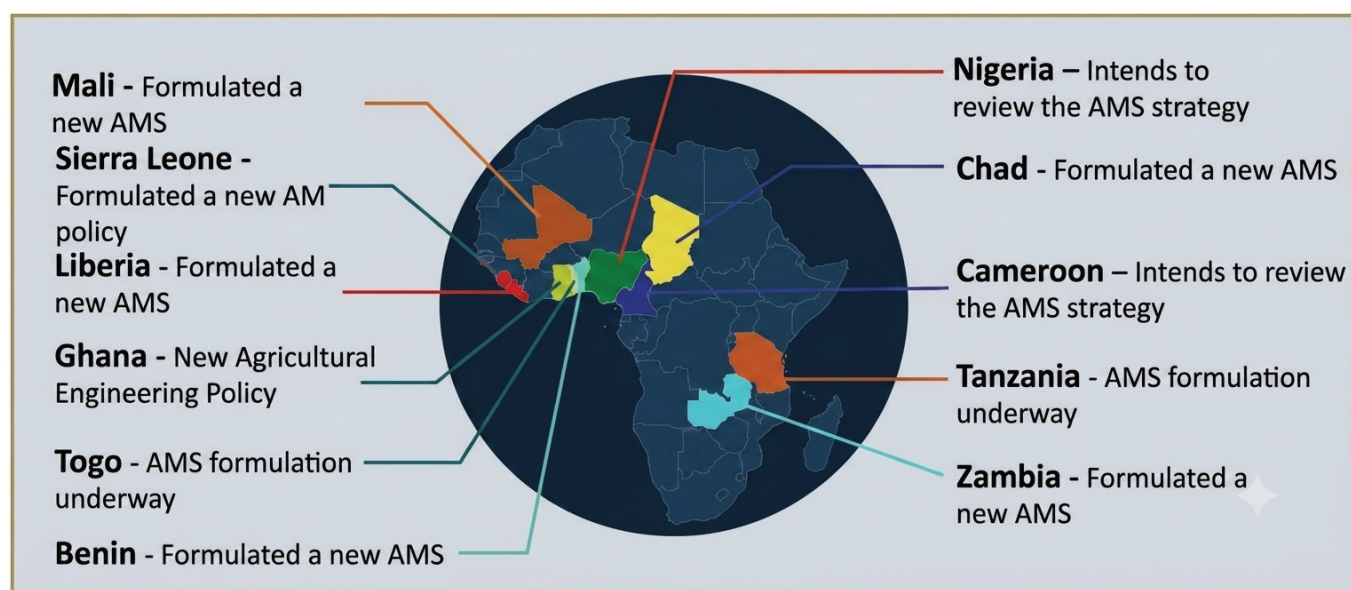
agricultural output. In comparison, smallholder farmers cultivate approximately 80% of the region's farmland. Consequently, sustainable mechanization is presented as a key driver for improving productivity, food security, and rural livelihoods.

The presentation reviews the **ten interrelated elements of F-SAMA**, which provide a flexible framework for countries to develop national mechanization strategies. These elements encompass increasing farm power through appropriate technologies, innovative financing, local manufacturing and distribution of machinery, sustainable value chains, technology development and transfer, conservation agriculture, social inclusion, human resource development, long-term planning, and regional cooperation. Rather than prescribing a single model, F-SAMA encourages countries to prioritize interventions that reflect their ecological conditions, farming systems, and development priorities.

Significant progress has already been made in operationalizing the framework. The following have been **accomplished** so far:

- o Conducted regional training on mechanization hire service provision in Ivory Coast with 4 countries participating (Benin, Burkina Faso, Côte d'Ivoire and Senegal) and in Uganda with 5 countries participating (Ethiopia, Ghana, Kenya, Uganda, Tanzania and Zambia)





- o Organized a global conference on SAM and digitalization (GAMC) in September 2023.
- o Developed a Roadmap to leverage Sustainable Agricultural Mechanization for climate-smart agriculture (SAM4CSA) in Southern Africa
- o Organized webinars for all stakeholders as part of the efforts to operationalize F-SAMA – 12 webinars with more than 1,837 participants and 75 speakers from over 75 countries globally (45 from Africa).
- o Working towards creating collaborative alliances to address mechanization challenges: FAO works closely (MoU) with CEMA and ACT to operationalize F-SAMA; FAO, with CIMMYT, through financial support from GIZ, developed e-learning materials on mechanization hire service provision- available in FAO E-Learning Academy.
- o Supported the formulation of agricultural mechanization strategies in several countries as indicated here. In essence, there is a need for countries to review and revise mechanization strategies to sort out the roles of public and private sectors.

Looking ahead, the presentation identifies future priorities that include strengthening mechanization policies, expanding education and capacity building, integrating precision agriculture, artificial intelligence, automation, robotics, renewable energy, and climate-smart technologies, while promoting sustainable soil and water management. It also emphasizes the need for stronger public-private partnerships, innovative financing mechanisms, monitoring systems, and farmer field schools that incorporate mechanization.

The presentation concludes by acknowledging persistent challenges, including inadequate private-sector participation, weak enabling policy environments, limited investment, insufficient financing, and the need for sustainable business models suited to African conditions. Addressing these constraints through targeted incentives, public-private partnerships, improved access to finance, and strengthened institutional capacity will be essential for successfully operationalizing F-SAMA and accelerating Africa's transition toward productive, resilient, and sustainable agricultural systems.

For details, refer to the PowerPoint presentation available at:

<https://africamechanize.org/webinars/presentations/103/download>

2 Globally Featured Issue

2.1 The Belt and Road International Agricultural Equipment and Smart Agriculture Technology Innovation Conference 2024

The “Belt and Road” International Agricultural Equipment and Smart Agricultural Technology Innovation Conference was held October 22-28, 2024, in Beijing and Changsha, China. In response to the Belt and Road Initiative, China Agricultural University has carried out fruitful and in-depth cooperation in agricultural mechanization, intelligent agricultural equipment, and smart agricultural science and technology to improve the ability of small-scale farmers and women to apply advanced farm equipment and technology, improve agricultural production efficiency, promote farmers’ income, jointly promote the development of family agricultural production, and gradually eliminate absolute poverty.



The 2024 conference has been sponsored by China Agricultural University and organized by the College of Engineering, China Agricultural University; the “Belt and Road” International Innovation Institute of Agricultural Equipment and Smart

Agriculture, China Agricultural University; Chinese partners (including Chinese enterprises); Foreign partners (including relevant universities, NGO, etc.); and supported by the Chinese government, industry associations, societies, and international organizations.

The meeting was attended by representatives from UN agencies such as the Food and Agriculture Organization, the World Food Programme, the UN Center for Sustainable Agricultural Mechanization, embassies of countries related to the Belt and Road Initiative in China, international organizations, and the International Association for People’s Cooperation from Latin American, Caribbean, ASEAN, and African countries. Representatives from Chinese

government departments, industrial associations/ societies, universities, research institutions, agricultural machinery enterprises, technology extension, agricultural machinery cooperatives, and other institutions attended.

In her opening remarks, Professor Minli Yang, Director of China Research Center for Agricultural Mechanization and Dean of the “Belt and Road” International Innovation Institute of Agricultural Equipment and Smart Agriculture at China Agricultural University, shared China’s experiences on how 55 million smallholders owning an average of 0.52 hectares have been lifted out of poverty using agricultural mechanization.

During the official opening ceremony of the “Belt and Road” international agricultural equipment and smart agriculture technology innovation conference 2024, in Beijing, China, Josef Kienzle, Head of the Sustainable Agricultural Mechanization Unit at FAO Rome, made a keynote presentation. He emphasized the substantial labour saving from 600 hours to 3 hours per hectare when mechanization is used; the provision of hire services as an innovative approach to enable smallholder farmers to access machinery services without the need to own expensive machinery; and the low investments in agricultural mechanization infrastructure as a bottleneck. He continued to elaborate on the different business models that can

be used to support access to mechanization services, access to finance, close linkages with processors, involvement of farmer organizations, and the overall profitability of the agrifood value chain. Josef concluded by reaffirming the commitment of FAO and partners to supporting national



governments and scaling the adoption of Sustainable Agricultural Mechanization.

At the same event, Saidi Mkomwa, Executive Secretary and Chief Executive Officer (CEO) of the African Conservation Tillage Network, reaffirmed, in his opening remarks, the commitment of the ACT Network to Sustainable Agricultural Mechanization.



“After promoting Conservation Agriculture for the past 25 years, it has become clear to the Network that its adoption is inseparable from mechanization. We could have increased our adoption rates, maybe three-fold, if CA was promoted with SAM. CA needs to be promoted with mechanization, and vice versa. The evidence, from Africa, includes the mechanized medium and large-scale farmers who are very successfully practicing CA.” Explained Saidi.

The role of mechanization in transforming smallholder farmers cannot be overemphasized. The average 0.5 ha farm per Chinese household presented at the conference resonates very well with what is in Africa. However, the major difference is that while China has overcome poverty in 2020, poverty in Africa still stands at 429 million people. The sad thing is that these people need not be poor, because they have fairly good land and weather, and more than 300 days of sunshine annually. They lack appropriate mechanization. From Chinese lessons and experiences on mechanization, appreciable efforts to design small machines for smallholder farmers, as well as consolidation of land so that medium-scale machines can be used, along with innovative business models for farmers to acquire mechanization services at a fee (custom hiring), demonstrate the pathways that led to the successes witnessed. For Africa, what SMART solutions are ideal for which typology of farmers in Africa is an area requiring adaptive research, proof of concept, and commercialization.

The positive gesture is that Africa has started to put her house in order and harness the power of mechanization, with the development of the Framework for Sustainable Agricultural Mechanization (F-SAMA) by FAO and the AUC, which has been endorsed by all African countries and the regional

economic communities, highlighting the initial efforts towards mechanizing Africa. However, an operational/implementation plan, which is a priority, is underway to ensure coordination at the continental and REC levels.

Unlike the tillage-based mechanization of the '70s that was blamed for soil erosion and rampant land degradation, SAM is compliant with the three climate-smart agriculture pillars. SAM results in reduced production costs, increased productivity, enhanced climate change resilience, and a smaller environmental footprint. African farmers must remain competitive to tap the huge Chinese market for agricultural produce.

However, there are challenges to be unlocked before the aspiration of ACT and partners to reach and transform 5 million households with mechanization by 2035 can be realized. First, it must be recognized that agricultural mechanization will not be adopted or scaled if it is not developed within a broad framework of national development in which accompanying measures such as improved infrastructure and a supportive ecosystem, such as innovative technologies, financing, and access to markets, are provided. The SAM infrastructure includes stumping, rural roads, provision of water and electricity, rural mechanization services centres, and innovation hubs.

Operationalization of the AUC-FAO F-SAMA, supported partly by the FAO-ACT MoU and the CAU-IIIAESA-ACT-CAAMM MoUs, informed by Asia's C-SAM, has the potential to achieve these aspirations through market-driven approaches and PPP/PP partnerships. Specific aspirations include joint efforts under the AUC-FAO-ACT AfricaMechanize platform to share knowledge and Information (Webinars, Newsletters, First Africa Congress on SAM in 2025), the establishment of Sustainable Agricultural Mechanization Centres and Regional Demonstration Centres for innovative technology validation and adaptive research, among others.

During the event, ACT signed a Memorandum of Understanding (MOU) with the “Belt and Road” International Innovation Institute of Agricultural Equipment and Smart Agriculture of China Agricultural University (IIIAESA) and the China Association of Agricultural Machinery Manufacturers (CAAMM). The objective is to establish a strategic partnership to facilitate enhanced coordination, collaboration, and alignment between the Parties, to continue supporting African and Chinese farming households transitioning from subsistence farming to commercially and market-oriented farming, and to create opportunities for economic growth through sustainable agricultural mechanization.

The partnership aims to develop, promote, and strengthen joint actions and projects related to sustainable, inclusive, and resilient agrifood systems by



through sustainable agricultural mechanization efforts.

The MOU establishes the framework for cooperation between the Parties. The Parties agree to develop programmes or projects in areas of common mutual interest in China and Africa which will include among others: Research and development, manufacture and trade of agricultural machinery; Demonstration and popularisation of agricultural machinery; Education and training in agricultural mechanisation; technical training in the use of agricultural machinery; Co-operation in creating sustainable institutions for regional cooperation and networking including centre/network for SAMA; Optimizing communication and advocacy through virtual networks thus providing a neutral platform for stakeholders in Africa and in China to communicate, and meet to exchange knowledge, articulate commitments and promote actions to improve SAMA; Technology and equipment for processing and value addition of agricultural

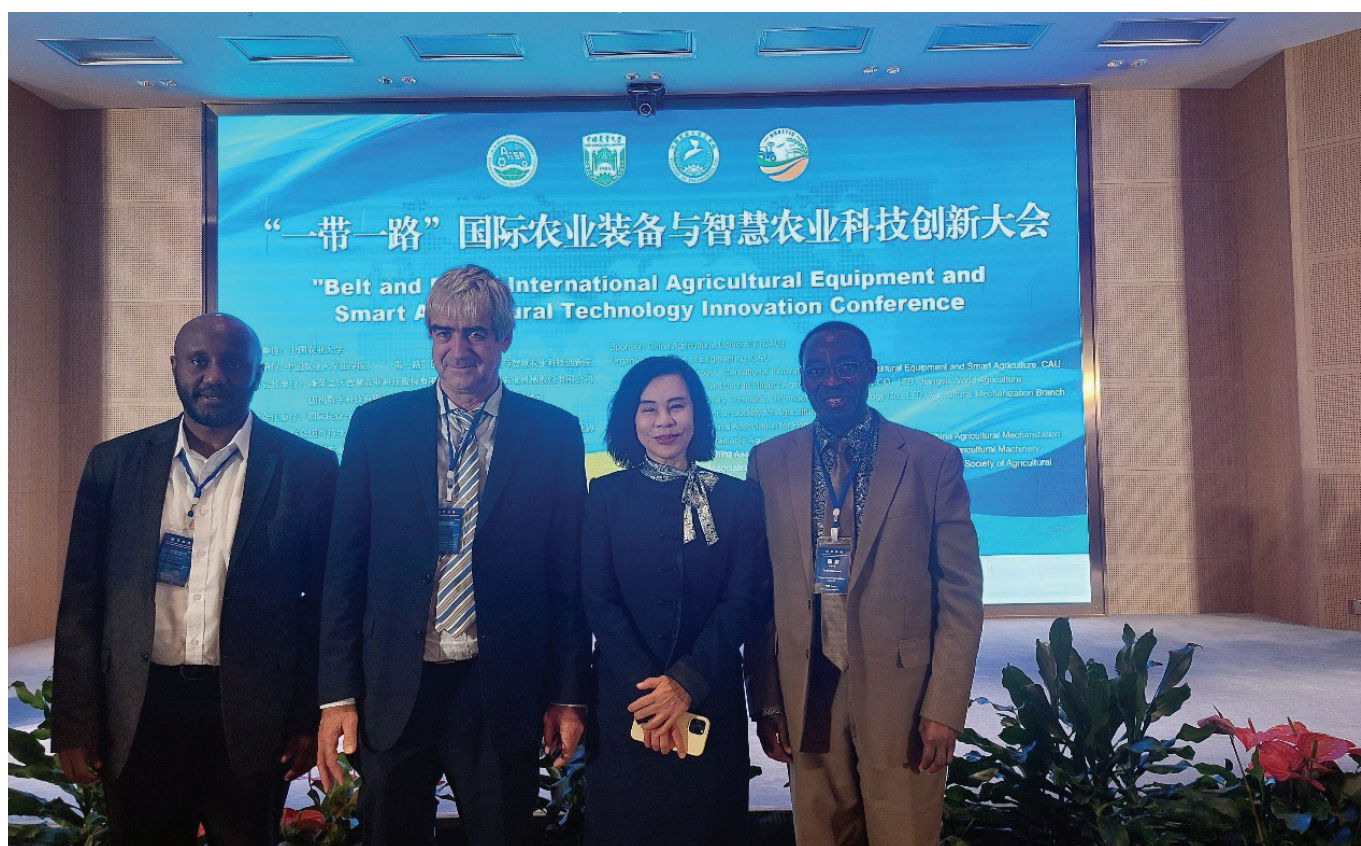
products and Co-operation in relevant frontier, cutting edge technology fields such Bio-inputs using social technologies, Reforestation technology, strategic fodder production and storage, technology and equipment in solar energy, thermal energy and other related fields, Manufacture and improvement of small and medium-sized wind turbines and Biomass energy and biofuel products.

The delegates from the ACT Network to the conference included Philip Wanjohi, ACT Head of Partnerships and Business Development.

2.2 FAO launches new Four Betters Courses initiative

The Food and Agriculture Organization of the United Nations (FAO) announced the new FAO Four Betters Courses initiative on 7th October, 2024, aimed at extending FAO's outreach and partnerships with academia to transform global agrifood systems. The initiative will provide a systematic and methodological framework for the Organization to collaborate with universities, enhancing their curricula in line with [FAO's Strategic Framework 2022-2031](#).

At the launch event on the sidelines of the [World Food Forum](#), FAO Director-General QU Dongyu explained that the “[Four Betters](#)” – better production, better nutrition, a better environment, and a better life – are the overarching integrated principle of FAO's Strategic Framework, in support of the [2030 Agenda for Sustainable Development](#).





In this context, Qu advocated for a holistic approach to education that extends beyond traditional academics to encompass well-being, highlighting the crucial role of partnerships with academic and research institutions in addressing the growing complexities of agrifood systems.

The Four Betters Courses initiative will leverage the [FAO e-Learning Academy](#), which already offers over 600 multilingual certified courses free of charge and has supplemented several university master's and postgraduate degree programmes through partnerships with universities and university networks worldwide. In the context of the initiative, these courses will be enriched with key FAO publications and knowledge resources, providing a comprehensive learning experience.

By integrating FAO resources into university curricula, the initiative aims to amplify FAO's global impact. This integration will enrich educational standards and better equip young professionals to contribute actively to the transformation of agrifood systems and address the associated challenges.

The FAO Four Betters Courses initiative is a significant step forward in FAO's efforts to promote education and innovation in agrifood systems. By partnering with universities worldwide, FAO aims to ensure that the next generation of agrifood systems leaders is well-equipped to address the challenges of the 21st century. [Read More.](#)

2.3 Forum on China-Africa Cooperation Beijing Action Plan (2025-2027)

By Ministry of Foreign Affairs, The People's Republic of China ([September 5, 2024 Top stories](#))

The **2024 Beijing Summit and Ninth Ministerial Conference of the Forum on China-Africa Cooperation (FOCAC)** reaffirmed the strong strategic partnership between China and Africa, highlighting the Forum's achievements over the past 24 years

in advancing South-South cooperation, sustainable development, and mutually beneficial partnerships. The participating leaders commended the successful implementation of the **Nine Programs**, the **Dakar Action Plan (2022-2024)**, the **China-Africa Cooperation Vision 2035**, and the **Declaration on China-Africa Cooperation on Combating Climate Change**, while committing to deepen cooperation in industrialization, agricultural modernization, and human resource development.

Agricultural modernization was identified as a key priority for promoting Africa's sustainable development and food security. China reaffirmed its commitment to implementing the **Plan for China Supporting Africa's Agricultural Modernization** through joint research on locally adapted agricultural technologies, support for localized production of fertilizers, pesticides, and small agricultural machinery, and promotion of eco-friendly agriculture, livestock production, and agro-ecotourism. The partnership also aims to strengthen scientific cooperation by establishing satellite remote sensing centres, earth science laboratories, and meteorological stations, while enhancing collaboration on climate-smart agriculture, water-saving irrigation, food loss reduction, disaster risk management, and sustainable natural resource management.

The Summit further emphasized expanding agricultural trade, digital agriculture, e-commerce, entrepreneurship, and employment opportunities. China pledged to strengthen agricultural mechanization through aid, leasing, joint ventures, and local assembly of machinery. Additional commitments include establishing a **China-Africa Centre for Tropical Agricultural Science and Technology**, improving rice value chains in partnership with the **Food and Agriculture Organization (FAO)**, promoting sustainable crop systems and soil health, introducing improved cassava varieties, and supporting organic and ecological agriculture to address food insecurity, climate change, soil degradation, and rural poverty across Africa. [Read more.](#)

2.4 Breaking the Cycle of Poverty Through Mechanized Farming: The Story of Madhuri Mallick

BATIAGATA, Bangladesh, October 17, 2024 -

Madhuri Mallick, a 34-year-old resident from Fultola, Batiaghata, has transformed her life through innovation and training, leaving behind a life of poverty and deprivation. Living in a household of four without any farming land, Madhuri used to work as a day labourer, struggling with minimal income and an uncertain future. That changed in 2016 when she joined the USAID-funded Sustainable Intensification Innovation Lab (SIIL) project of IRRI in Polder **30** and learned about mechanized farming.

Initially, Madhuri received training on operating a power reaper, a machine that speeds up rice harvesting. Before this, she toiled in the fields during the Aman and Boro seasons, earning just USD 45-75 after 12 to 22 days of exhausting manual work. With the power reaper, she could cut her harvesting time down, earning the same amount (USD 45-75) in 4-5 days.

As her skills grew, so did her opportunities. Madhuri began providing reaping services in her community, eventually working 17 to 27 days each cropping year. However, moving the heavy machine was a challenge. To help her overcome this, the project introduced the “husband-wife model,” where her husband assisted her in the fields. This teamwork allowed her to work longer hours and boost her income.

Over 10 farming seasons, Madhuri’s earnings grew steadily. She used her income to invest in livestock. What started as one cow has since grown to seven, and she recently sold one to support her expanding business venture. From 2020 to 2024, Madhuri’s net income amounted to BDT 131,870. She used this income to repair her house and cattle shed, purchase agricultural inputs and livestock feed, and maintain her agricultural machinery. Additionally, she invested in her children’s education, ensuring a brighter future for them. Part of her earnings also went toward groceries for both her family and her small business. What are the gaps here?

She opened a grocery shop that continues to grow and provides her with a steady income throughout the year. Her investments in livestock and her shop have created a reliable income, securing her family’s future. Today, her son is pursuing an honours degree, and her daughter is married and settled, all thanks to the financial stability she has worked so hard to build. Now, she is planning to expand her house and invest more in her business to secure her children’s future. [Read more.](#)

2.5 The FAO/CIMMYT e-learning course on “Small-scale Mechanization Hire Service as a Business”

In 2018, FAO, in collaboration with CIMMYT, produced a training manual on ‘Hire service as business enterprises’ for small-scale mechanization service providers, which is available online and in hard copies. In addition, FAO received support from GIZ to convert the training manual into an e-learning course, which FAO Academy completed, and the course is now available online for anyone interested in learning more about small-scale mechanization hire services. Please note that you need to register and log in to take the course.

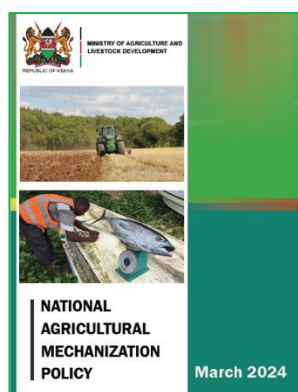
The course is available at the link: <https://elearning.fao.org/>. The course is currently available in English and French as indicated below:

English	French
1. Small-scale agricultural mechanization hire services as a business enterprise https://elearning.fao.org/course/view.php?id=711 2. Local area and market assessment https://elearning.fao.org/course/view.php?id=712 3. Selection, assessment and purchase of power sources and implements https://elearning.fao.org/course/view.php?id=714 4. Managing the hire service as a business https://elearning.fao.org/course/view.php?id=713 5. Operation and maintenance of agricultural equipment for hire service businesses https://elearning.fao.org/course/view.php?id=780 6. Farm machinery and equipment for harvest, post-harvest and storage https://elearning.fao.org/course/view.php?id=906	1. Évaluation de la situation locale et du marché https://elearning.fao.org/course/view.php?id=766 2. Sélection, évaluation et achat de sources d'énergie et d'outils https://elearning.fao.org/course/view.php?id=778 3. Services de mécanisation agricole à petite échelle en tant qu'activité commerciale https://elearning.fao.org/course/view.php?id=765 4. Exploitation et entretien du matériel agricole pour les entreprises de prestation de services de mécanisation: https://elearning.fao.org/course/view.php?id=791 5. Gestion d'une entreprise de prestation de services de mécanisation agricole : https://elearning.fao.org/course/view.php?id=787 6. Machines et matériel agricoles pour la récolte, l'après-récolte et le stockage https://elearning.fao.org/course/view.php?id=983

3 | Country Focus Issues

3.1 National Agricultural Mechanization Policy 2023, Kenya.

Authored and published by [the Ministry of Agriculture and Livestock Development: State Department of Agriculture](#)



Agricultural mechanization is recognized as a critical input for enhancing productivity and efficiency across Kenya's agricultural value chains. The country currently utilizes both **animal-drawn and motorized machinery, implements, and equipment**, with mechanization initiatives being promoted through

collaboration between the Government and the private sector. In line with **Kenya Vision 2030**, mechanization is expected to play a pivotal role in expanding agricultural production and improving the sector's overall performance.

Despite its importance, Kenya has lacked a comprehensive agricultural mechanization policy, resulting in fragmented interventions that have not adequately addressed the country's mechanization challenges. Consequently, mechanization levels remain low, contributing to environmental degradation, declining produce quality, low agricultural productivity, and the under-utilization of agricultural land. These challenges have been compounded by rapid population growth and continued subdivision of farmland into smaller holdings, reducing the viability of conventional mechanization approaches.

The policy responds to emerging challenges such as declining farm labour availability, limited youth interest in agriculture, and the increasing impacts of climate change, all of which underscore the need for greater access to efficient and sustainable mechanization technologies.

Its overarching objective is to **increase agricultural productivity and farmers' incomes** through sustainable mechanization. The policy proposes interventions in training, research and technology development, local

manufacturing and distribution of machinery, quality assurance, investment in mechanization services, technology adoption, and strengthened extension systems. It also seeks to establish an enabling institutional and legal framework that promotes innovation, supports public-private partnerships, and provides clear strategic direction for the sustainable development of Kenya's agricultural mechanization sub-sector through coordinated action by national and county governments. [Read More](#)

3.2 FAO concludes training on Sustainable Agricultural Mechanization, and hands over equipment to TARI

By Alice Maro, National Communication Consultant, FAO Tanzania.

In August 2024, the Food and Agriculture Organization of the United Nations (FAO), in partnership with the Korean Ministry of Agriculture, Food and Rural Affairs (MAFRA) and the Tanzania Agricultural Research Institute (TARI), concluded a week-long training programme on Sustainable Agricultural Mechanization (SAM) in Morogoro, Tanzania. The training formed part of the South-South and Triangular Cooperation (SSTC) project supporting Tanzania's National Rice Development Strategy II (NRDS II), which aims to transform the rice sector into a driver of economic growth through sustainable production and increased productivity.

More than 50 participants, including researchers, extension officers, policymakers, technicians, and rice farmers, received practical training on modern mechanization technologies and sustainable rice production practices. The programme sought to strengthen institutional capacity, promote technology adoption, and improve productivity while addressing challenges such as climate change, labour shortages, and increasing food demand.

To reinforce these efforts, MAFRA and the Korean Rural Community Corporation (KRC) donated agricultural equipment to TARI, including seed drills, motorized paddy weeders, and land levelers, with additional machinery planned. The initiative demonstrates FAO's commitment to strengthening Tanzania's rice value chain through capacity building, technology transfer, and strategic international partnerships. [Read More](#)

3.3 Challenges and opportunities to scaling smallholder mechanization in Kenya, Malawi, Zambia, and Zimbabwe

By Hambulo Ngoma, Esau Simutowe, Md. Abdul Matin and Christian Thierfelder. International Maize and Wheat Improvement Center (CIMMYT), Harare, Zimbabwe.

As governments heighten the drive to mechanize agriculture, critical information is required on (i) existing mechanization options, (ii) barriers and challenges, (iii) opportunities for scaling and effective demand for mechanization. This paper combines quantitative and qualitative surveys to help elucidate some of these key issues in Kenya, Malawi, Zambia, and Zimbabwe, where mechanization is part of national policy priorities. Data were collected through qualitative surveys involving 484 participants in focus group discussions and 109 key informants. Focusing mainly on farm mechanization and irrigation options for smallholder farmers, we found that animal draft power is still dominant for land preparation, ahead of two- and four-wheel tractors. Common options for post-harvest management include shellers, improved granaries and hermetic bags.

In terms of demand, there is nascent literature suggesting that farmers in Malawi, Zambia and Zimbabwe are willing to pay positive amounts for different mechanization services, indicating prevalence of effective demand and good opportunities for mechanization. Supply-side barriers to scaling mechanization include limited availability of machines and spares, poor after-sales and repair and maintenance services in the vicinity of farmers. On the demand side, high capital requirements, limited awareness and technical knowledge, and the high cost of hire services are some of the main barriers to scaling. Based on these findings, there is a need for inclusive and innovative financing mechanisms, demand creation, and awareness-raising to scale up and scale out mechanization. [Read More](#)

3.4 The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) Strengthens Agricultural Partnerships in Mali

Media Release by Agathe Diama, Senior Communications Specialist – West and Central Africa, ICRISAT

An ICRISAT delegation, led by Dr. M.L. Jat, visited Mali to strengthen partnerships for enhancing agricultural resilience and innovation in the country's dryland farming systems. The delegation held high-level discussions with the Ministry of Agriculture, IFDC, USAID, Toguna Agro Industries, and Mali Tracteurs to promote collaborative approaches to sustainable agricultural development.

A key outcome was engagement with the Minister of Agriculture, Dr. Daniel Simeon Kelema, on an ambitious initiative to expand millet production across one million hectares. The programme is built around five strategic components: socio-economic characterization and suitability mapping, improved seed systems, climate-resilient crop and soil management practices, climate information services, and stronger markets and value chains with active participation of youth and women.

Meetings with IFDC focused on integrating scientific research with practical soil fertility and soil health solutions. At the same time, discussions with Toguna Agro Industries explored public-private partnerships in mechanization, agro-processing, capacity building, and soil fertility mapping. Overall, the mission reinforced the importance of multi-stakeholder collaboration, innovation, and technology transfer in improving agricultural productivity, resilience, and sustainable development in Mali's dryland farming systems. [Read More](#)

4 | Upcoming Events

4.1 The 8th Africa Agri Expo in 2025



The 8th edition of Africa Agri Expo, a leading platform that connects Africa's rich agribusiness to the world, is scheduled to take place on

19th - 20th February, 2025 at Kenyatta International Convention Centre (KICC), Nairobi, Kenya. The event offers an exceptional opportunity for agribusiness and agri-professionals to expand in Africa's burgeoning sector, which is anticipated to reach US\$1 trillion by 2030.

With Agriculture being a crucial sector in Africa's economy, AAE 2025 is a striking event aimed at providing a platform for showcasing the latest products, services, and innovations to improve the agriculture sector through expansive exhibition space, networking lounges, strategic conferences, panel discussions, and seminars.

As the largest agriculture trade show in Africa, this is the go-to event for those interested in developing their network, acquiring channel partners, and propagating business. It will feature the latest technologies and solutions for agriculture, including farm machinery, irrigation systems, greenhouses, fertilizers/ agrochemicals, seeds, and more from all over the world. Read More on: <https://africa-agriexpo.com/>

4.2 Eastern Africa's Biggest Farming & Agricultural Technologies Trade Show



The Africa FarmTech Expo is the premier agricultural innovations and technologies

conference and exhibition in Kenya and Africa and is scheduled to take place on 3rd - 5th September, 2025 in Nairobi, Kenya.

This exceptional event unites commercial and small-scale farmers, agro-processing industry players, national government ministries and agencies, county government departments and agencies, suppliers of ground-breaking farming and post-harvest technologies, NGOs/development organizations, and academic/research institutes to shape the future of agriculture and agro-processing industries both in Africa and globally.

The Africa FarmTech Expo facilitates the exchange of experiences and the exploration of new technologies and market trends. It also offers unparalleled networking and business opportunities that are crucial for the growth of the agriculture sector in Kenya and Africa.

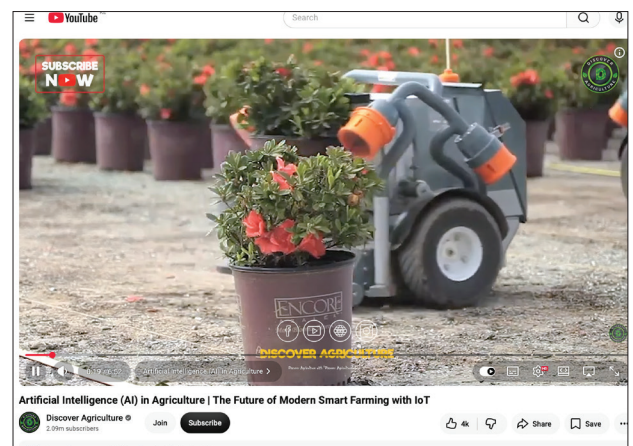
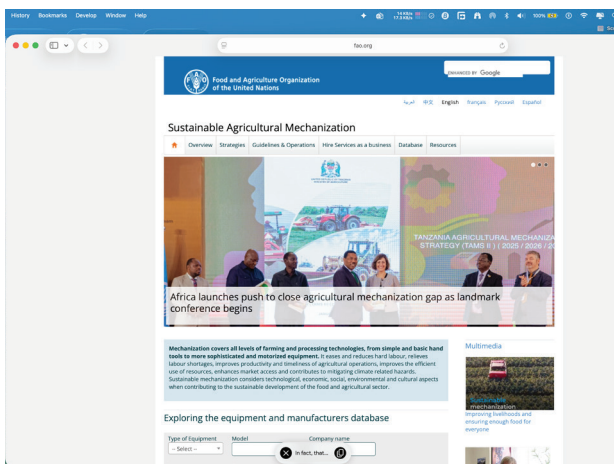
The Expo will feature three days of extensive learning through daily conferences, an Exhibition Hall showcasing the latest technologies, and countless chances to connect with individuals and businesses from Africa and beyond. More at <https://www.africafarmtechexpo.com/>





5 | Sustainable agricultural mechanization in Resources links

- Sustainable Agricultural Mechanization: <https://www.fao.org/sustainable-agricultural-mechanization/en/>
- Mechanization and Technology Video on: [*Artificial Intelligence \(AI\) in Agriculture | The Future of Modern Smart Farming with IoT*](#) by Discover Agriculture



- AfricaMechanize platform: www.africamechanize.org

Contact AfricaMechanize

Secretariat. AfricaMechanize
African Conservation Tillage Network (ACT)
KALRO Compound, Waiyaki Way, Westlands
PO Box 10375 00100 Nairobi, Kenya
Tel: + 254 20 8076064
Email: secretariat@afriamechanize.org

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