Inclusive Rural Transformation: agricultural mechanization, digitalization, women and youth

33rd Regional Conference for Africa

Theme: Resilient agrifood systems and inclusive rural transformation
The imperatives for inclusive rural transformation thru agric automation

Progress in African countries and lessons learned

Key gaps and bottlenecks

Suggestions to unlock the bottlenecks

Some questions for deliberations
The link between poverty and share of employment in agriculture.

✓ Agric the largest employer in Africa.

✓ Top 5 countries by % employed in agriculture are all in Africa (ranging from 73% to 86%)

✓ Rate of return on agriculture has been low - hence direct link with poverty

Agric activity is dominated by women and older people in Africa – hence it will also have a gender and generational dimension of inequality.

**Bottomline:** We cannot achieve agrifood systems transformation without rural transformation!

**Question:** How to make agric effort & investment rewarding, leaving no one behind.
The Nexus
Rural transformation, mechanisation & digitalization, and inclusiveness

Evolution of agricultural automation:

- Manual labor
- Animal traction
- Motorized Mechanization
- Digital equipment
- Robotics with AI

![Evolution of Agricultural Automation Diagram](image-url)

Source: FAO 2022. State of Food and Agriculture
The agricultural production possibility

• More than 350m ha cultivated.

• More than double the EU cultivates

Qn – how are we cultivating the land?

The Nexus
Rural transformation, mechanisation & digitalization, and inclusiveness

Source: FAO. The state of food and agriculture 2022

Bottomline: without automation, we cannot transform agrifood systems!
Mechanization:

• Offers opportunities to:
  ✓ boost production & productivity (could be increased by 2-3 times – see graph)
    – current yield level 1-2 ha for cereals on average.
  ✓ Evidence: Africa: tractor use helped increase maize yield by 0.5 tons/ha. Zambia: households using tractors doubled their income through increased cultivated land.
  ✓ add value and reduce post-harvest loss. Covers all value chains.

• Create job opportunities for young people.

• Reduce drudgery for all, and the use of child labor in agric – increasing the likelihood of children attending schools.

• Automated & smart agric practices enhance resilience to climate variability, favoring sustainability
Digitalization has brought new dimensions to mechanization!

- Transforming mechanization services and business models, thus offering opportunities to modernize the agrifood systems

- Resulted in:
  - Leveraging farming for precision agriculture, hence improving efficiency of resource use (e.g., providing real-time services), and increasing productivity.
  - Better performance to reduce unit costs, hence enhancing competitiveness;
  - Improved market access (e.g., AfCFTA’s e-commerce, etc).
  - Enhanced public service and social protection delivery – such as use of farmer registries; early warning systems and forecasting;
Progress in African Countries

A. Increased investments in agric mechanization by governments, farmers organizations, private sector and others

- Engagement of global machinery manufacturers and small companies in the African market supplying both used and new machinery (e.g., two-wheel tractors, etc.)
- Growing uptake of mechanization across value-chains –
  ✓ Local manufacturing sectors progressively growing for simple types of equipment (small scale processing machineries, offering machinery hire services)  
- Solar powered irrigation technologies,
- Governing offering incentives (e.g., tax holidays) on machinery imports

B. Penetration of digital connectivity has led to emergence of digitally enabled mechanization

- Expansion in internet users – Africa up by 17% in 5 years. Mobile cellular subscriptions in Africa surged from 59% to 89% in 10 years period between 2012 and 2012.
- Mobile money enabled significant improvement in access to financial resources by disadvantaged social sectors.
- Tractor-hiring services: e.g., Hello Tractor in Kenya and Nigeria; TROTRO Tractor in Ghana,
Progress… experiences… lessons learnt

- **Demand-driven approach works better.**
  Top-down initiatives pushing machinery without considering farmer needs often failed.

- **One-size fits all solutions won’t work.**
  Local contexts and situations must be factored in.

- **Affordability, accessibility and appropriateness**
  of the technologies and services to local contexts should take primacy.

- **Collaborations between governments, the private sector, NGOs contribute to success**
  (e.g., the mechanization service centers initiative in Ethiopia)

- **The underlying hard and soft infrastructure determines success** in mechanization and digitalization.

- **Inclusiveness should be factored in explicitly and boldly**
  right from the design stage and continuously monitored and supported. Exclusionary practices result in sub-optimal outcomes

- **There will be no substitute to conducive policy environment.**
Key gaps and bottlenecks

- **Availabilities, access and affordability of suitable tools/systems:**
  - Agrifood systems are the mainstay of smallholders: low-income status
  - Access to finance and other resources, including access to credits – due to prohibitive high costs of borrowing.
  - Low level of digital literacy and skills

- **Inadequacies of necessary infrastructure and services**
  - Roads, electricity, internet connectivity, etc., hinder adoption of mechanization and digitalization.

- **Widening gender gap, instead of narrowing down.**
  - Women:
    - ✓ 45% of farmers and 54% of those employed in off-farm agrifood systems
    - ✓ 13% less likely than men to own a mobile phone and 37% less likely than men to use mobile internet.
  - We cannot realize the full potential of sustainable mechanization and digitalization without addressing persistent inequalities.
Suggestions to unlock bottlenecks

Solutions should address the ‘Rural transformation–Mechanization/digitalization–inclusiveness’ Nexus

**Rural transformation pivotal:**
- Reposition agrifood systems at the center of development agenda; this requires agrifood plus efforts – multisectoral co-ownership and collaboration of the agenda (infrastructure, energy, health, etc.)
- Embrace innovation to drive the transformation agenda, including being intentional to improve business models, partnerships, financing, etc.

**Ensuring Inclusiveness**
Exclusion is multi-dimensional in nature, requiring multifaceted response.
- Address resources availability, access, affordability and sustainable application!
- Implement **targeted and tailored solutions** to local and target-group contexts; e.g. pro-poor, gender-and youth responsive policy measures

**Enabling environment**
- Fix the incentive structure - new investments in infrastructure, energy access and connectivity
- Strengthen capacity continuously – skills development; digital literacy, incubation hubs exist – strengthen them and scale them up, etc., work on mindset.
- Learn from successful cases and experiences. The good news is that experiences exist in some countries.
AU-FAO: Framework for Sustainable Agric Mechanization in Africa - SAMA

**Call to Actions to bolster Mechanization**

The AU-FAO: Framework for Sustainable Agric Mechanization in Africa (SAMA) is a strategic plan aimed at promoting mechanization in African agriculture to enhance productivity, efficiency, and resilience. The framework underscores the importance of integrating sustainable agricultural mechanization practices to achieve food security and poverty reduction.

**Online Platform:**
www.africamechanize.org

**AU Digital Agriculture Strategy to leverage digital solutions for agric transformations** *(e.g., Kenya and Nigeria leading the way)*

The AU digital Agriculture Strategy (DAS) is a comprehensive plan designed to harness digital solutions for agric transformations. This initiative is aimed at leveraging digital solutions to support the adoption of farm and non-farm digital services, driving innovation in the agricultural sector.

**Call to Actions to bolster Mechanization**

The FAO Digital Villages Initiative (DVI) is a key component of the AU digital Agriculture Strategy. It leverages support for the adoption of farm and non-farm digital services to improve agricultural productivity and transform rural communities.

---

AU Digital Agriculture Strategy (DAS) and Implementation Plan 2028 – 2030

Draft

May 2023
Some questions for deliberations

Towards achieving more inclusive rural transformation through mechanization and digitalization

• What have been tried and what worked better – and what contributed to success? -

• What challenges were faced during design and operationalization, and how have these been solved?

• How can these promising practices be scaled up?

• How can FAO and other partners support these efforts? e.g., through Digital Villages Initiative? etc.
Thank you | Merci | Shukran