New Report: Investments in Scalable Technologies, Effective Data Governance, and Strengthened Institutional Capacity Will Accelerate Agrifood Systems Transformation across Africa

The Annual Trends and Outlook Report finds no shortage of promising agricultural technologies, but highlights greater opportunities for integration, interoperability, and adaptation to African realities.

Highlights:

- New report reviews the use of emerging technologies in Africa's agrifood sector, including Artificial Intelligence (AI), geospatial tools, biotechnology, mechanization, irrigation, livestock, insect-based systems, and aquaponics.
- First-of-its-kind Untapped Potential Index (UPI) ranks African countries' opportunities to scale AI and geospatial technologies in agrifood systems based on their readiness, needs, enabling conditions, and current adoption levels.
- Report identifies five strategic priorities essential to delivering Africa's agrifood system transformation and achieving the goals of the Kampala Declaration.

JANUARY 20, KIGALI — Accelerating progress toward unlocking sustained productivity growth and food security in Africa requires coordinated interventions to strengthen the system-wide application of existing technologies and enable their widespread, efficient use, a new flagship report finds.

The 2025 Annual Trends and Outlook Report (ATOR 2025), titled **"Moving the Technology Frontiers in African Agrifood Systems,"** identifies hundreds of digital tools with immediate and long-term potential for transforming agrifood systems. Digital farming, precision agriculture, remote sensing, AI, biotechnology, and organizational innovations can not only reduce transaction costs, strengthen efficiency, and support climate-smart productivity gains, but also enable innovative complementary institutions and governmental processes.

Published by AKADEMIYA2063 through the Regional Strategic Analysis and Knowledge Support System (ReSAKSS), the report concludes that Africa's agrifood future will be shaped not only by the technologies that exist, but also by how effectively they are governed, financed, adapted, and embedded in inclusive institutions**.** With strategic investment in science and digital infrastructure, empowered producer organizations, climate-resilient innovation pathways, and strong accountability systems, Africa can move beyond technology adoption toward technology leadership, helping shape global responses to climate change, food insecurity, and sustainable development.

Successful adoption and scaling depend on supportive institutions, coherent regulatory frameworks, predictable policy environments, and well-organized diffusion pathways.

These efforts, alongside strengthened Comprehensive Africa Agriculture Development Programme (CAADP) monitoring and data systems, will support implementation of the Kampala Declaration, which entered into force on January 1, 2026.

"The Kampala ambitions can be achieved through sustainably raising productivity, cutting costs, and boosting capacity for product and process innovation along agrifood system chains," said **Dr. Ousmane Badiane,** Executive Chairperson of AKADEMIYA2063. "The latest Annual Trends and Outlook Report demonstrates that the 'technology frontier' is not a single breakthrough, but rather the integration of biological, digital, engineering, ecological, and institutional innovations within a supportive political economy."

Launched at the three-day ReSAKSS Annual Conference, the report finds that Africa's agrifood transformation depends on apprehending technology as part of an integrated system, rather than a standalone solution. The analytical framework highlights three complementary pathways – technological progress, improvements in technical efficiency, and reductions in transaction costs – and shows that productivity gains have been constrained less by the absence of innovations than by weak institutions and barriers to widespread adoption.

Reviewing a wide range of underused emerging technologies, including AI and geospatial tools, biotechnology, digital agriculture, mechanization, value addition, irrigation, livestock, insect-based systems, and aquaponics, and experiences from Europe, China, and Latin America, the report finds that impact depends on governance, financing, and inclusive diffusion, combined with sustained R&D investment, coherent regulatory frameworks, empowered producer organizations, and effective public–private partnerships.

This 17th edition of the ATOR includes two new indices: one measuring the untapped potential of African countries for using AI in agrifood systems, and a second measuring countries' capacity for agricultural research and development beyond spending alone.

A first-of-its-kind "Untapped Potential Index (UPI)" identifies the African countries with the greatest opportunity to scale AI- and geospatial-enabled transformation in agrifood systems. South Africa and Botswana lead in AI and geospatial technology deployment within the agrifood sector, while Kenya, Egypt, Ghana, and Mali are approaching readiness. South Sudan, Niger, and Zambia have the highest UPI values, reflecting high transformation needs and adequate enabling conditions combined with low current adoption of AI and geospatial tools, significant yield gaps, and high hunger levels; these countries possess decent readiness infrastructure, but low current adoption of AI and geospatial tools.

A new ranking in the report, the Agricultural R&D System Capacity Index (ARDSCI), proposes a novel approach to highlight where investments are translating into real research capabilities and scientific outcomes. An application of the index using data from selected West African countries shows significant strides for Ghana, reflecting a high proportion of PhD-qualified researchers, substantial investment per researcher, and sustained growth in research intensity.

The report also highlights opportunities for broader use of small-scale irrigation, water harvesting, and resource-efficient technologies, with innovations such as insect farming, circular-economy solutions, aquaponics, organic-waste valorization, and integrated nutrient management reshaping resource-use and production systems, while creating new economic opportunities, especially for youth and small enterprises.

The report concludes by presenting five strategic priorities to guide Africa's next decade of innovation-driven transformation under the Kampala CAADP Agenda:

- **Strengthen innovation ecosystems and science institutions.** Long-term investments in research, regulatory coherence, and sustainable financing are central to unlocking scientific and technological potential. Increasing and stabilizing funding, supporting regional collaboration, investing in next-generation research talent, linking R&D to wider agrifood innovation systems, and improving performance metrics can help reposition agricultural R&D as a driver of Africa's inclusive and climate-resilient development.
- **Promote inclusive mechanisms for technology dissemination.** Empowering producer organizations, SMEs, digital innovators, and youth-led enterprises will broaden access and deepen the impact of emerging technologies.
- **Expand digital and climate intelligence infrastructure.** Investing in geospatial tools, digital twins, AI-driven analytics, and real-time data systems will be essential for managing climate risks, improving planning, and optimizing resource use.
- **Prioritize climate adaptation and resilience in technological agendas.** Climate-smart technologies across crops, livestock, water systems, and circular economy domains will remain essential for safeguarding productivity under changing conditions.
- **Strengthen governance, coordination, and accountability mechanisms.** The CAADP monitoring architecture will continue to anchor the continent's agricultural transformation and must evolve to reflect broader agrifood system objectives.

The report arrives at a critical policy moment, coinciding with the implementation phase of the Kampala Declaration and the associated CAADP Strategy and Action Plan (2026–2035), which set ambitious targets for agrifood output, value addition, trade, investment, and innovation.

"The Kampala Declaration recognizes the role of science and innovation in Africa's agrifood system transformation," said **H.E. Moses Vilakati,** Commissioner for Agriculture, Rural Development, Blue Economy, and Sustainable Environment, African Union Commission (AUC-DARBE). "This edition of the Annual Trends and Outlook Report provides timely evidence on how frontier technologies can be governed and scaled to deliver food security, inclusive growth, and climate adaptation across the continent. It is our hope that the report will serve as a strategic reference for policymakers, planners, investors, researchers, and practitioners, and contribute meaningfully to building more productive, resilient, and equitable agrifood systems across Africa."

About ReSAKSS

Established in 2006 under the Comprehensive Africa Agriculture Development Programme (CAADP), the Regional Strategic Analysis and Knowledge Support System (ReSAKSS) supports efforts to promote evidence and outcome-based policy planning and implementation. In particular, ReSAKSS provides data and related analytical and knowledge products to facilitate CAADP benchmarking, review, and mutual accountability processes.

AKADEMIYA2063 leads the work of ReSAKSS in partnership with the African Union Commission (AUC), the African Union Development Agency-New Partnership for Africa's Development (AUDA-NEPAD), and leading regional economic communities (RECs). The mission of AKADEMIYA2063 is to provide data, policy analysis, and capacity-strengthening support to enable African Union (AU) Member States to achieve economic transformation and shared prosperity in support of the AU's Agenda 2063. As the main platform for monitoring CAADP implementation, ReSAKSS tracks the progress of core CAADP indicators through an interactive website and a flagship Annual Trends and Outlook Report (ATOR), the official CAADP monitoring and evaluation (M&E) report. In addition to tracking progress on CAADP core indicators, the ATOR presents analysis on a feature topic of strategic importance to the CAADP agenda each year. For more information, visit: https://conference.resakss.org/; www.akademiya2063.org.

Media Inquiries

Dr. Layih Butake
Director, Communication & Outreach, AKADEMIYA2063
Lbutake@akademiya2063.org