AFRICA

SUSTAINABILITY MAGAZINE

SEPT. 2026 I ISSUE 08

MORE THAN ENOUGH FOOD

LEADERS' PERSPECTIVES
CGIAR • IITA • EY • CIF • SASINI

AFRICA'S FOOD MARKETS
Who controls the system?

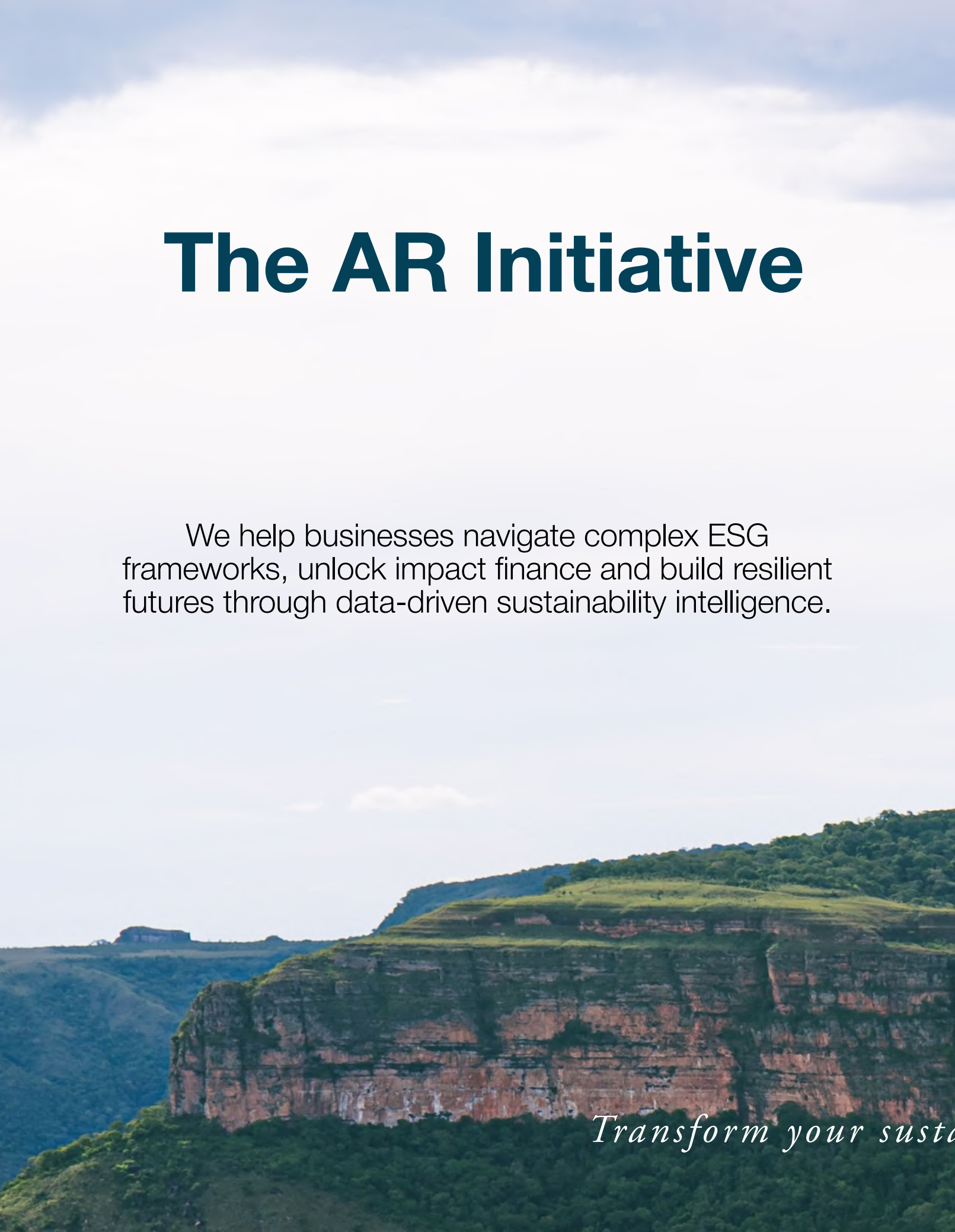
INVESTIGATION
Nigeria's Agricultural Map Is Being Redrawn by Climate Change

PLUS
Food security • Trade • Technology • Resilience

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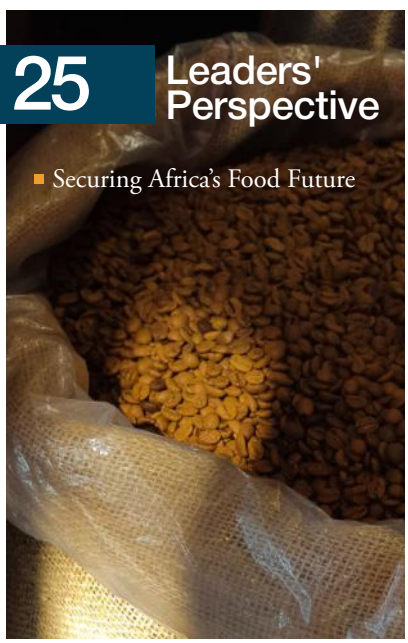
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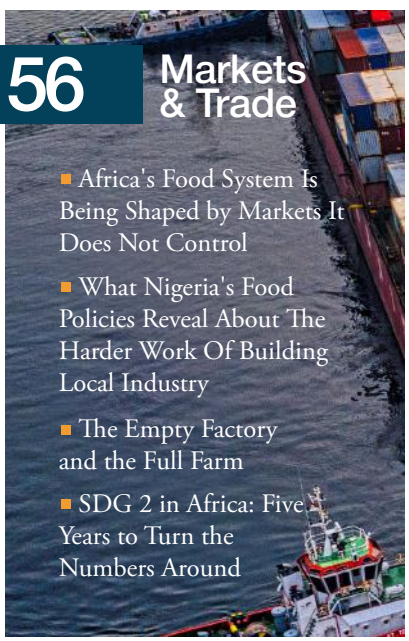
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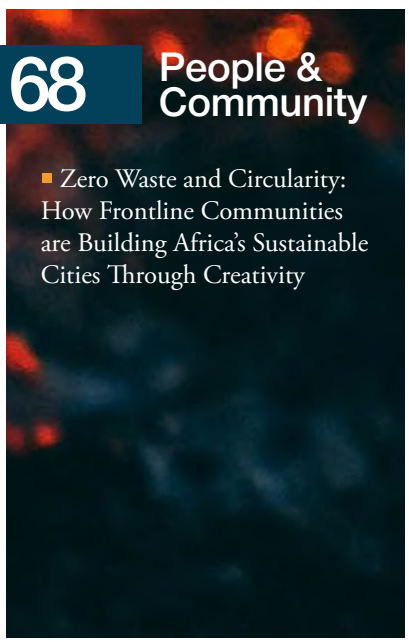
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LETTER FROM THE EDITOR

There has been something particularly satisfying about working on this issue.Perhaps because food is one of those subjects that touches almost everything. Climate change. Trade. Finance. Politics. Technology. Land. Culture. Infrastructure. And, ultimately, people. Africa's relationship with food is also full of contradictions.The continent has vast agricultural potential, yet remains home to a growing share of the world's food-insecure population. It has the land, labour and knowledge to feed itself, yet spends billions importing food and agricultural inputs. Governments across the continent increasingly speak about food sovereignty and self-sufficiency, while farmers continue to face some of the greatest barriers to finance, infrastructure, markets and technology.So what does food sovereignty really mean for a continent still grappling with food insecurity?

That question sits at the heart of Issue VIII.

Food security is generally concerned with whether people have access to enough safe and nutritious food. Food sovereignty asks a broader question: who has the power to shape the food system in the first place?

Who decides what is grown? Who owns and controls the inputs needed to grow it? Where does the finance go? Who processes Africa's agricultural commodities? Who captures the value? And when global markets, conflicts or climate shocks disrupt supply chains, how much control does the continent have over its own ability to feed itself?

These are not abstract questions. They are increasingly central to Africa's economic and political future.

In this issue, we examine the systems behind the food on our plates. From the growing pressure climate change is placing on agricultural production to the trade disruptions reshaping global food markets, the evidence points to a food system under increasing strain, but also to a continent with significant opportunities to rethink how that system works.

Our inaugural Leaders' Perspectives feature brings together senior voices working across research, business, finance and development to explore what securing Africa's food future might require. Dr Ismahane Elouafi of CGIAR and Dr Simeon Ehui of IITA make the case for strengthening Africa's productive capacity and reducing vulnerability to imported agricultural inputs. Martin R. Ochien'g, Group Managing Director of Sasini PLC, reflects on what it means to build agricultural resilience over the long term. EY examines the challenge of designing agriculture for a changing climate, while the Climate Investment Funds considers why resilience must extend far beyond the farm itself.

Elsewhere, we look at the harder work behind industrial policy through Nigeria's shea sector, explore the role of markets and trade in shaping African food systems, and examine the continent's progress towards its agricultural and food security ambitions under the Sustainable Development Goals.

There are no simple answers in this issue, and perhaps that is the point.

Food sovereignty cannot simply mean closing borders or producing everything domestically. Nor can food security be reduced to producing more calories. Africa's food future will depend on building systems that are productive enough to feed a growing population, resilient enough to withstand climate and economic shocks, and inclusive enough to ensure that the people producing the food can benefit from the transformation.

That requires looking beyond the farm.

It means thinking about roads and storage alongside seeds and fertiliser. About finance alongside production. About trade policy alongside local markets. About technology alongside indigenous knowledge. And about the millions of farmers, workers, traders and entrepreneurs whose decisions and livelihoods make up Africa's food system every day.

This has been one of our most enjoyable issues to put together because the conversation around food is ultimately a conversation about Africa's future.



Labake Ajiboye-Richard

Editor-in-Chief
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Quarterly Brief

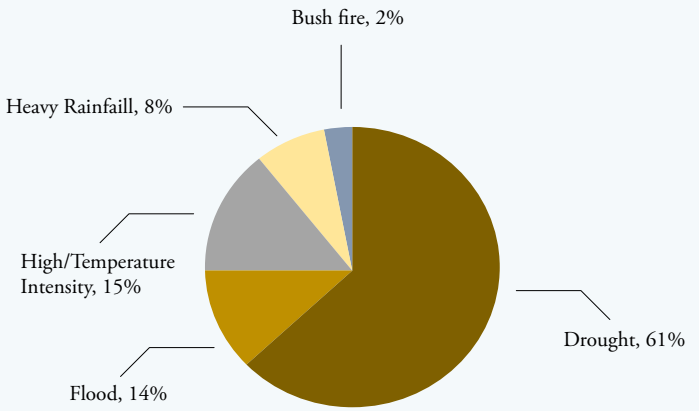
Floods, Droughts and New **Agricultural Reality**

Floods and droughts are becoming more frequent across Africa, making agricultural production increasingly unpredictable for farmers who depend largely on rain-fed systems.

Climate projections point to substantial warming across East and West Africa, alongside shifting rainfall patterns. Parts of East Africa, including Ethiopia, Uganda, Kenya and Tanzania, are expected to see increased rainfall and greater flood risks, while parts of West Africa, including Mali, Senegal and Guinea-Bissau, could face drier conditions. The consequences for agricultural productivity could be significant: wheat yields in East Africa could decline by up to 72%, while maize yields could fall by around 40%, particularly across West Africa and the Sahel.

For many farmers, these changes are already being felt. In East Africa, droughts that once occurred every five to six years now occur every two to three years. In the Sahel, recurring droughts, delayed rainfall and shorter growing seasons contributed to a 7% decline in cereal production in 2022 compared with the previous five-year average.

Climate change is also reshaping what farmers can grow. Maize, teff, coffee and tea face increasing pressure in East Africa from heat, changing rainfall, pests and diseases. In West Africa, drought accounts for 61% of reported impacts on crop production, affecting crops including maize, cassava, millet and yam.

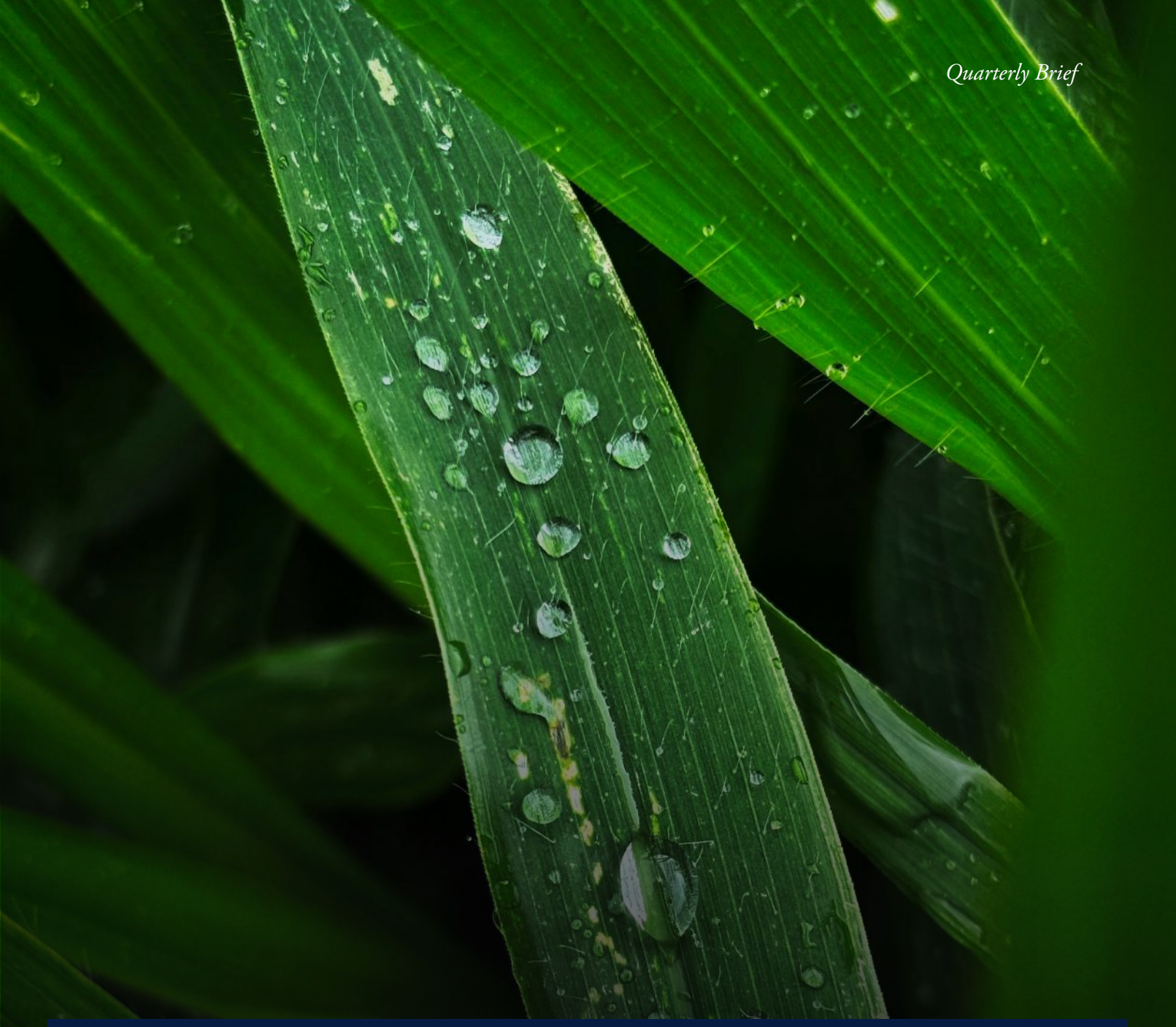


Extreme climatic factors affecting respondents' crops.

Farmers are responding, but adaptation is uneven. Crop diversification, multiple-cropping systems and climate-resilient varieties are used to manage risk. Sorghum and millet, for example, are being promoted as alternatives to maize in parts of East Africa, while research organisations and seed companies are developing improved varieties for crops such as rice. Climate-resilient rice varieties, developed by the International Rice Research Institute, have been introduced in Burkina Faso, Ghana, Mali and Senegal.

The bigger constraint, however, is access. Many smallholder farmers still lack the seeds, credit, extension services, and markets needed to adopt climate-resilient practices at scale. Climate finance is similarly failing to reach the farmers most exposed to climate risk. Of the more than $2.41 billion committed to climate adaptation in East Africa since 2009, only 52.7% was disbursed between 2009 and 2018. Globally, small-scale agrifood systems received just US$5.53 billion of the US$660.2 billion in global climate finance, 0.8% of the total.

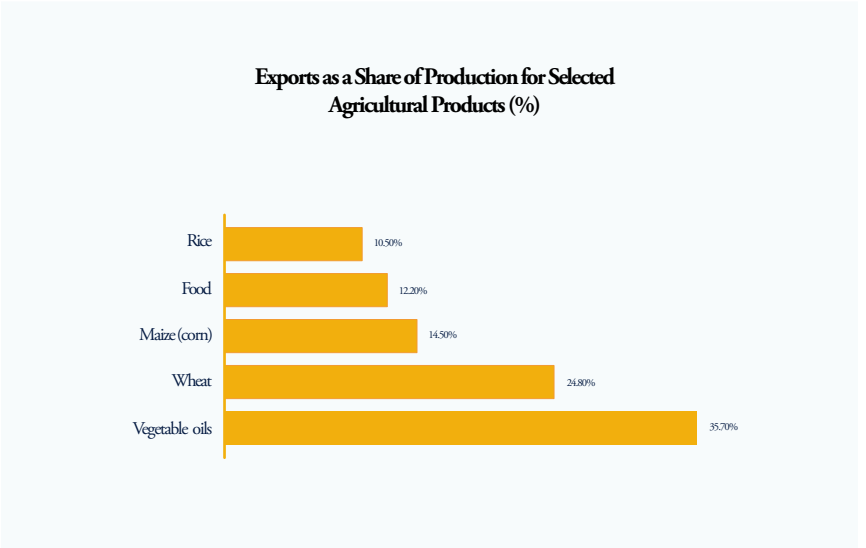
Africa's farmers are already adapting to climate change. The challenge is making sure the finance, agricultural policy and support systems adapt quickly enough with them.



The New Trade Wars Are Reshaping Africa's Food System

The latest wave of global trade tensions is creating new risks for Africa's food system, exposing the continent's dependence on imported food and agricultural inputs while raising a broader question: can Africa build more resilient regional markets before the next global disruption?

International trade is central to the global food system. Around 25% of the world's wheat, 14% of maize, 10% of rice and 37% of vegetable oils are traded across borders each year. Several African countries rely heavily on imports, particularly for wheat and edible oils, often sourcing from a relatively small number of suppliers.



The Russia–Ukraine war demonstrated the vulnerability this creates. Before the conflict, Egypt sourced around 80% of its wheat imports from Russia and Ukraine. Disruptions to Black Sea exports pushed food prices higher across Africa, illustrating how quickly a shock in one part of the global food system can reach African consumers.

Recent trade tensions have added another layer of uncertainty. Between January and April 2025, the United States increased its average trade-weighted tariff from about 2% to an estimated 24%, the highest level in more than a century. While African countries are not the primary targets, they can still be affected through higher import costs, shipping disruptions and changes in global supply chains.

The vulnerability extends beyond food. Fertiliser remains one of Africa's major agricultural constraints, with more than 60% of fertilisers used on the continent still imported despite increases in local production. African farmers apply an average of about 23 kg of fertiliser per hectare, compared with the global average of 186 kg. Low input use contributes to weak productivity, while high fertiliser prices continue to raise production costs.

This dependence makes regional trade increasingly important. The African Continental Free Trade Area (AfCFTA) aims to reduce tariffs, improve market access and simplify the movement of goods across borders. A stronger regional market could reduce reliance on distant suppliers, move food more efficiently between surplus and deficit regions, and create larger markets for African producers.

But Africa still faces significant barriers to making this work. High transport costs, inadequate storage infrastructure, border delays, inconsistent regulations and non-tariff barriers continue to make it difficult to move food efficiently across the continent.

West Africa offers a glimpse of what stronger regional markets could achieve. Countries including Benin, Burkina Faso, Ghana, Nigeria and Côte d'Ivoire have expanded production to meet growing regional demand. Better-connected markets could help move food from surplus areas to regions facing shortages while creating opportunities for investment in agriculture, storage, logistics and food processing.

Global trade disruption could also create opportunities for some African exporters. As higher tariffs encourage buyers to diversify their suppliers, countries with established agricultural export sectors could gain new markets. Ethiopia, Kenya and Tanzania are projected to see some of the strongest gains in Sub-Saharan Africa, alongside Ghana, Nigeria and South Africa.

The opportunities vary by country. Ethiopia could benefit from coffee, sesame, and pulses; Kenya from tea, coffee, cut flowers, and fresh vegetables; Tanzania from coffee, tea, cashew nuts, and horticultural products; and South Africa from citrus, grapes, wine, maize, and other fruit exports.



however, projected gains are expected to come primarily through increased oil and gas exports rather than agriculture.

These gains are likely to be modest. But the broader lesson is more significant: global trade disruptions are exposing the cost of Africa's external dependencies while highlighting the value of stronger regional food systems.

Data

The Numbers Shaping Africa's Agricultural Future

From investment and public spending to farmer incomes, market growth and agricultural technology, the numbers reveal both the scale of Africa's agricultural opportunity—and the gaps that could hold it back.

4%

Agriculture Attracts Just 4% of Investment in Africa

Agriculture accounts for about 4% of total investment in Africa, while only 3% of global development funding reaches the sector. An estimated $200 billion funding gap remains—highlighting the distance between the capital flowing into agriculture today and what the sector needs to realise its potential.

10%

Public Spending on Agriculture Remains Well Below Africa's 10% Target

African governments spent about $16 billion on agriculture, equivalent to just 3% of total public spending. That is less than one-third of the African Union's target of at least 10%. Only Malawi and Ethiopia consistently met this 10% target between 2008 and 2022.

47.3%

Africa Receives 47.3% of Global Agricultural Development Funding

Africa received $8.2 billion in development funding for agriculture, a 56% increase from the previous year. That represented 47.3% of global development flows to agriculture—the largest share received by any region. The scale of these flows reflects both the importance of African agriculture and the size of the development challenge.



$930

Agricultural Workers in Sub-Saharan Africa Earn About $930 a Year

Agricultural workers in low-income regions of sub-Saharan Africa currently earn an average of $930 per year, compared with the global average of about $3,800. Their average earnings are projected to rise only modestly, reaching around $1,100 over the next decade.



Africa's Agriculture Generated About $457 Billion in Value

$457

Africa's agriculture, forestry and fishing sector generated about $457 billion in value, up 169% from $170 billion in 2000. Globally, the sector generated about $4.0 trillion in 2023, meaning Africa accounted for roughly 11% of the global total.

$280



Africa's Food and Agriculture Market is Already Worth About $280 Billion

Africa's food and agriculture market was valued at about $280 billion. The African Development Bank estimates that it could grow to around $1 trillion by 2030.



African Agtech Investment Fell to About $170 Million

$170

Investment in African agricultural technology fell to just under $170 million, down from $200 million the previous year. Funding remains concentrated: just 12 companies have accounted for more than half of all agtech funding raised since 2016. Kenya, Egypt and Nigeria have attracted the largest share over this period, while investment is increasingly spreading to Ghana, South Africa and Tunisia.



Investigation

The Climate Crisis is Redrawing Nigeria's **Agricultural Map**

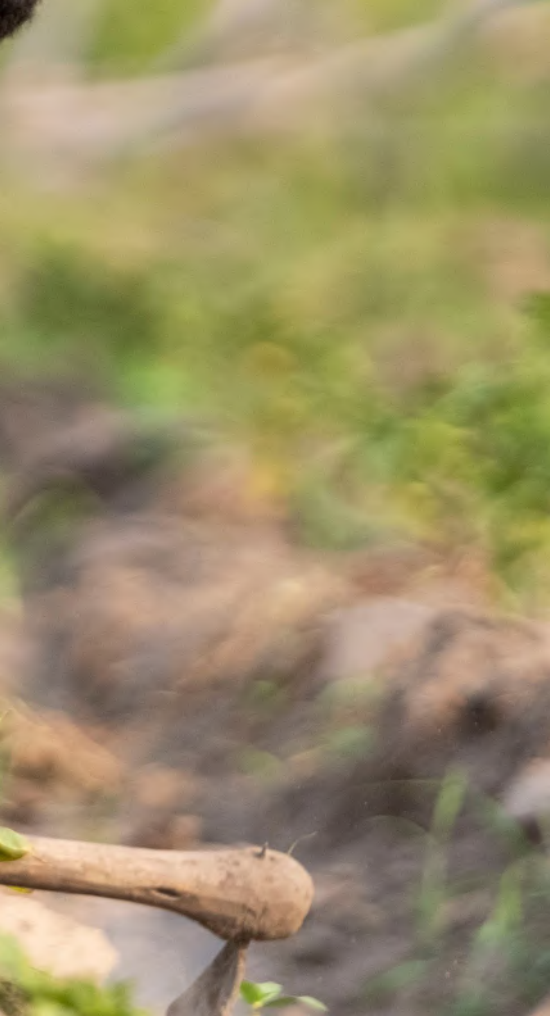
Lidadi Oyakilohme Oriarewo

"Rainfall is shifting, the land is thinning, and the money isn't following the risk. Nigerian farmers are redrawing the map themselves, long before anyone in power catches up".

A farmer in Ringim, Jigawa State, put it to Luna Bawa in one line last season: "We plant with hope now, not with certainty." The rainy season that used to arrive on schedule and last long enough to plan a whole farming year around no longer does so reliably. The effect is already visible in smaller harvests, shrinking farmland in the north, and farmers changing what they plant and when, just to keep up.

For generations, farmers across Nigeria's northern belt built their year around a rhythm they could trust: the first rains landing between late May and early June and typically continuing until the season closed out around late September or October, a planting window wide enough to plan around. That rhythm is breaking down. Bawa, co-founder of the agri-infrastructure company EveryFarmer, which builds mechanisation-hailing services and grain storage systems for smallholder cooperatives, has watched the shift unfold across Kebbi, Sokoto, Zamfara, Katsina, Kano, Bauchi and Gombe over the last five to seven years, based on his company's on-the-ground operations in those states.

Rain now arrives early in some seasons and stops abruptly, in her account. In others, it comes weeks late, then falls hard



enough to damage whatever's already been planted. Growing seasons that once offered farmers 120 to 140 dependable days now often deliver only 90 to 100 before the next dry spell sets in. In Dadin-Kowa, Gombe State, that compression forced rice farmers into premature harvests in 2023, and the yield paid for it.

The Sahel Moves South

Independent data backs the broad pattern, if not every local detail Bawa describes. Nigeria's rainfall trend is split along a north-south line: the southern and coastal regions have generally trended wetter, raising flood risk, while the north, closest to the advancing Sahel, has grown drier and less predictable on average. Even where average rainfall totals haven't collapsed outright, their timing and distribution have become erratic enough to undercut planning. Some studies find sharp variation even within the north itself, with rainfall rising in a few pockets and falling sharply in others nearby.

The starkest number is from land loss. Nigeria loses an estimated 350,000 to 400,000 hectares of land to desertification every year, with the Sahara's frontline advancing roughly 0.6 kilometres southward annually. In the worst-affected states, Sokoto, Kebbi, Katsina, Jigawa, Kano, Borno, Yobe and Zamfara, between 50% and 75% of arable land is now actively desertifying, threatening the livelihoods of more than 40 million Nigerians living across the northern belt.

Pests are on the move too. [23] Fall armyworm, barely a concern in northern Nigeria a decade ago, is now a recurring threat, one of several species completing their life cycles and breeding new generations faster as rising temperatures and humidity move into ranges it once couldn't tolerate. Beneath it all, soil is thinning faster than it can regenerate: shorter fallow periods, rising input costs, and more intense rain events are stripping topsoil at a pace many farmers feel with their hands but can't always afford to reverse.

Winners, Losers, and the Crops of 2050

The north's losses don't automatically create winners elsewhere, but they do sharpen the value of land that was already better positioned. The Jos Plateau and the Eastern Highlands along the Cameroon border sit above 1,200 metres, cooler and more temperate than the surrounding lowlands, and Jos has long been an agricultural hub on that basis, especially for potatoes and vegetables the hot lowlands can't easily support. What's changing isn't the Plateau's status so much as its relative weight: as heat stress and rainfall unpredictability worsen elsewhere, that existing edge could matter more to Nigeria's food system than it has. Nobody's built for it yet, though. No government programme or private investment push has staked a claim there, leaving an open question: will the Plateau's advantage get developed, or will it just sit there while the land around it declines?

The crops most exposed to climate stress are among Nigeria's most important for food security. Research assessing the country's major staples,

maize, cassava, sorghum, rice, millet, soybean and yam, consistently ranks drought as the single most damaging stressor, and consistently finds cassava and yam holding up better than grain crops like maize and sorghum. That matters because maize sits at the centre of both direct diets and the animal feed chain; a harder adaptation road for maize has knock-on effects for poultry and livestock prices that reach well past farming households. Cassava's tolerance for poor soils and erratic rainfall is part of why the NextGen Cassava project, which released five new drought-resistant varieties in 2020, matters as more than a technical footnote. It may be positioning cassava for a much larger share of Nigeria's food system by mid-century.

Business is responding to this unevenness, though the evidence is still thin. Beyond EveryFarmer's mechanisation work in the north, the cold-chain company ColdHubs has expanded its solar-powered storage from 21 to 28 Nigerian states, going after the post-harvest losses that hit small farmers hardest once a crop survives to harvest. Two companies don't make a market trend, and neither claims a dominant share of the sector. What they show is that some private capital is flowing toward climate-relevant infrastructure instead of one-off subsidy programmes. Whether that scales is a separate question, and still an open one.

Planting With Hope, Not Certainty

To find out what farmers themselves make of all this, this reporting included separate interviews with two smallholders in different parts of the country. In Ologuneru, Ido Local Government Area of Oyo State, Dennis Chidi has farmed pineapples, fruits and vegetables for nine years. The rainy season has visibly shifted, he says, and crops that once grew reliably on his land, pawpaw, cucumber, and watermelon, are now struggling. Last year's harvest came in smaller than previous years before it. He's responded by switching crops more often and mulching with dried leaves to hold moisture, though rodents make the switching complicated. What would help most, he says, is irrigation, better information, and easier access to buyers. Training from research institutes and international organisations has been central to how he's adapted, a rare case of formal extension support actually reaching a smallholder.

Nearly a thousand kilometres away in Agudama-Epie, Bayelsa State, Ruth Ayebatari Forcebray has spent eight years farming vegetables and tree crops, and describes a different but related distortion: land turning bone-dry from January through early March, followed by a rainy season so intense that plants fruit prematurely, leaving stunted growth and poor yield. Her fix has been to plant deliberately in November and December, ahead of the dry season, and irrigate using water from her fishpond rather than gamble on rainfall timing.

> **"During harvest, I smiled because the fruit was weighty, the colour looked fresh and inviting, and it was juicy. On about 400 square metres of land, I realised more than three hundred thousand naira in one production cycle, without spending up to one hundred thousand naira in production."**
>
> *— Ruth Ayebatari Forcebray, farmer, Bayelsa State*

Forcebray's cucumber harvest this past February and March is a rare, concrete bright spot inside a much harder picture, proof that with irrigation, careful cultivation, and the right seed, a smallholder can still turn a strong margin even as the climate around her grows less predictable.

Where The Money Goes Instead

If the land is changing faster than farmers can plan for, the harder question is whether capital is moving with it or against it. The continental numbers say against it, though they cover Africa broadly rather than Nigeria alone, so what follows is regional context, not a Nigeria-specific accounting.

Africa faces an estimated $365 billion climate adaptation financing gap through 2035. The continent currently receives around $195 billion in adaptation finance against an estimated need of more than $1.6 trillion by that date. Agriculture, despite employing hundreds of millions of Africans and sitting among the most climate-exposed sectors on the continent, receives only about 26% of available adaptation funding, roughly $3.4 billion a year. Of what does flow, African governments contribute the largest domestic share themselves, around 19%, while private capital accounts for barely 3%.

Bawa has his own read on why, drawn from his own fundraising and partnership experience rather than sector-wide data: investors gravitate toward one-time input subsidy programmes that photograph well but don't survive an unpredictable rainy season, and toward pilot projects that never get the transition funding to scale. Technology gets funded for its own sake, he says, pointing to drone networks dropped into regions with no agronomists on the ground to interpret what the imagery even shows.

> **"You can't really "pivot" to climate change with only a hoe or a good attitude, unfortunately."**
>
> *— Luna Bawa, Co-Founder, EveryFarmer*

Independent funding data backs up the shape of his complaint, if not every specific example. Across African tech investment broadly, fintech captured 56 to 60% of all equity funding in 2024 and 2025, while agritech, the category covering both digital marketplaces and physical infrastructure like mechanisation and storage, took in only about 4% of total equity funding in 2024, roughly $89 million, falling further to around $80 million in equity by 2025 even as debt and blended finance began filling some of the gap. Analysts tracking the sector attribute agritech's weak equity appeal directly to what Bawa describes: agritech businesses are "asset-heavy," require "working capital rather than just growth capital," and demand "upfront infrastructure investments and longer payback periods" that make them a poor fit for typical venture capital, which is part of why commercial investors have shifted toward structured debt and blended finance instead of equity for agricultural infrastructure specifically. That's a broader, independently reported pattern across African agritech as a category, not a confirmation of Bawa's more specific claim that money is flowing to digital marketplaces within agritech over physical infrastructure within it; on that narrower point, his account remains the most direct evidence available here.

What's underfunded, in his account, is the unglamorous physical backbone: mechanisation and equipment, which is capital-heavy and slow to pay back; storage and logistics, even as Nigeria loses an estimated 40 to 60% of certain crops annually to post-harvest losses; and climate-resilient seed research, which typically needs seven to ten years of patient capital against the three-to-five-year horizons most investors want. There are signs of movement. Development finance institutions like the IFC and AfDB are experimenting with blended finance, mixing grants, concessional loans and commercial capital. But Bawa's own read is that agritech capital in Africa remains disproportionately tilted toward digital marketplaces and fintech

products rather than physical infrastructure specifically.

The Gap Between Abuja And Katsina

Nigeria isn't without a formal answer to this shift. The National Agricultural Technology and Innovation Policy (NATIP), launched by the Federal Ministry of Agriculture and Rural Development in August 2022 and running through 2027, names climate-smart agriculture as a priority: digital data systems, early warning tools, agricultural insurance, and irrigation infrastructure all appear in its text.

There's also real movement behind the paper. The Federal Ministry of Agriculture and Rural Development was rebranded in 2025 to the Federal Ministry of Agriculture and Food Security (FMAFS), with the 2025 budget explicitly prioritising climate-resilient practices aligned to NATIP's goals. In August 2025, FMAFS and the FAO jointly launched Nigeria's Food and Agriculture Policy Monitoring Review, an evidence-based mechanism assessing government spending and price incentives against those goals, meant to steer future budget allocation toward what's actually working. In July 2026, Nigeria and IFAD launched a climate-smart partnership expanding Climate Information Services, giving farmers timely forecasts and location-specific advisories through the Nigerian Meteorological Agency, alongside existing initiatives like the Presidential Food Security Initiative and the Special Agro-Industrial Processing Zones Programme. A third National Agriculture Investment Plan, running 2026 to 2035, is also in development, explicitly built around a more resilient, climate-adapted food system.

So there's real institutional motion, not none. But the gap between what launches in Abuja and what reaches a farmer in Katsina or Bayelsa is still wide. Analysts point to weak coordination between agencies, fragmented funding streams, and thin monitoring as the drag on NATIP's climate ambitions. On the ground, that becomes concrete fast: bad rural roads, unreliable electricity, and not enough storage all blunt whatever a well-designed policy document promises to deliver.

The Tools Already Exist

Not every part of this picture is bleak. Nigerian and regional research institutions have produced genuine, field-tested tools for the shift already underway. The International Institute of Tropical Agriculture (IITA), working with national partners, has released more than 200 improved crop varieties in Nigeria. Its Drought Tolerant Maize for Africa programme, developed with CIMMYT (the International Maize and Wheat Improvement Centre) and funded by the Bill & Melinda Gates Foundation, has produced over 50 new maize varieties. In Kano State field trials, the drought-tolerant varieties delivered 20 to 30% higher yields under moderate drought than conventional maize.

EveryFarmer's own interventions sit closer to the ground. Its tractor-hailing platform, dial-in, USSD-based, no smartphone or data plan required, compresses land preparation from roughly two weeks of manual labour to two days, which matters enormously when a planting window has shrunk from weeks to days. Its warehouse receipt system lets farmers store grain safely and borrow against it instead of being forced to sell immediately into a post-harvest price crash, turning, in Bawa's words, "a survival activity into a real business decision."

> **"The best drone in the world is useless if there's no one to fly it, no power to charge it, and no trust in the value it promises."**
>
> *— Luna Bawa, Co-Founder, EveryFarmer*

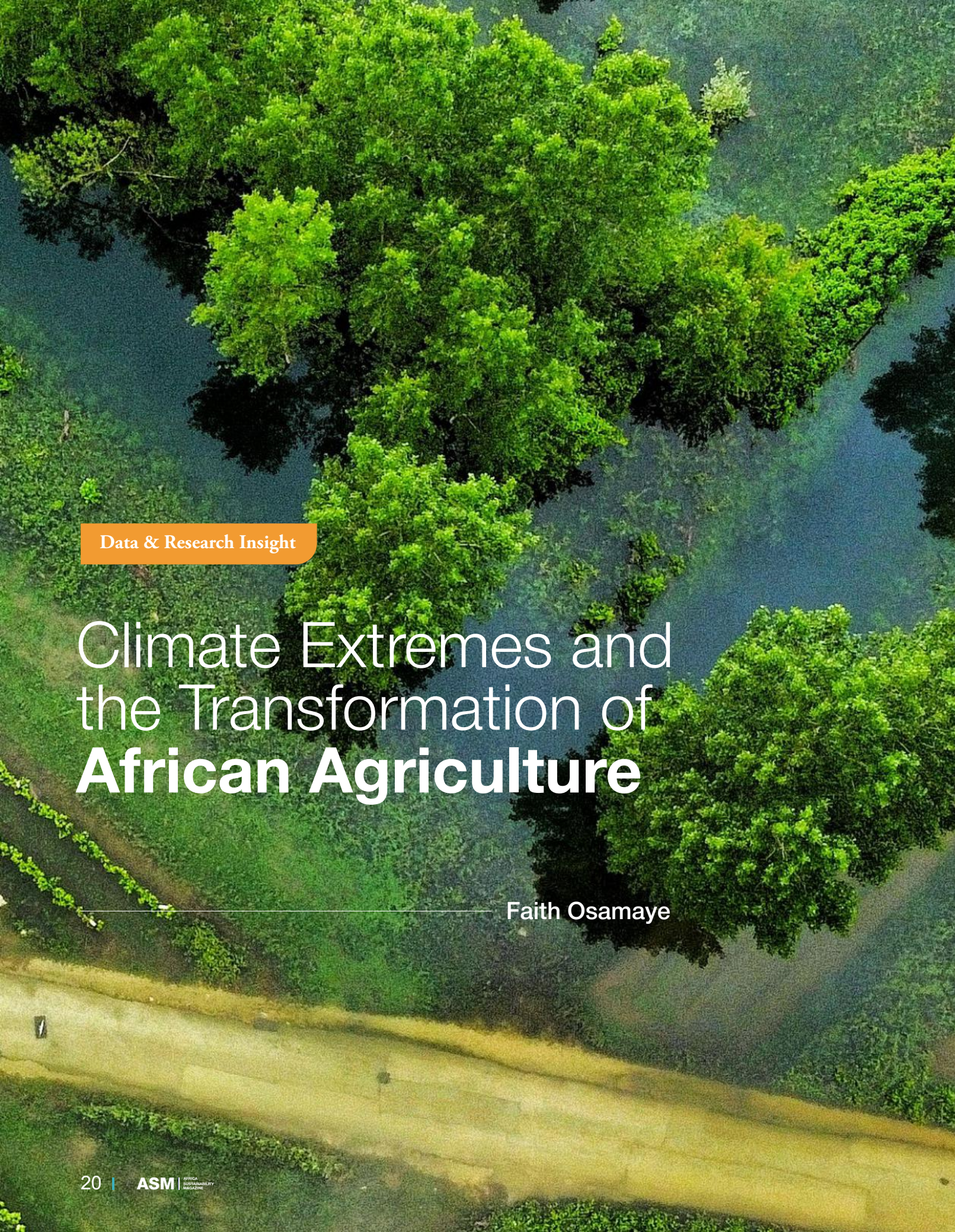


Who Bears The Cost Of Waiting

Pull the threads together and the picture is this: Nigeria's land is shifting measurably and unevenly; a handful of research institutions and a recent wave of federal policy are producing real tools to meet that shift; but the reach of private capital and the pace of policy implementation are too slow and too narrow to keep up with farmers who are already adapting on their own. Women, who make up a large part of Nigeria's agricultural workforce but own less than 15% of farmland under customary law, are especially exposed, locked out of the credit and collateral that might otherwise help them adapt.

What Chidi and Forcebray show, in their own separate corners of the country, is that farmers aren't waiting for that support to arrive. They're adapting in real time: switching crops, shifting planting calendars by months, drawing on whatever water source is at hand, often without the infrastructure that could make those adaptations less costly and more durable. The tools exist in the form of IITA's drought-tolerant varieties, EveryFarmer's mechanisation and storage systems in the north, the irrigation workarounds farmers like Forcebray are already improvising with fishponds and mulch, and a genuine, if uneven, wave of federal policy activity through NATIP, FMAFS, and the IFAD partnership. What's still missing is the connective tissue: financing that reaches beyond pilot scale, policy follow-through that survives contact with rural infrastructure gaps, and last-mile distribution that gets these tools to farmers systematically, rather than by the accident of who happens to hear about a training programme or stumble onto the right NGO.

Nigeria's next agricultural map is already being drawn. Right now, it's being drawn mostly by the people with the least room to get it wrong, one planting season, one improvised irrigation trick, one switched crop at a time, while government and private capital work, unevenly and not yet fast enough, to catch up to where the farmers already are.



Data & Research Insight

Climate Extremes and the Transformation of **African Agriculture**

Faith Osamaye

Introduction

Climate change poses a serious threat to Africa: roughly 95% of agricultural production in Sub-Saharan Africa is rain-fed, leaving millions of smallholder farmers exposed to shifting weather patterns with little financial or technological cushion to adapt.

Rising temperatures, erratic rainfall, droughts, and floods are making production increasingly unpredictable, bringing lower harvests, greater risk, and rising food insecurity. The stakes are high; agriculture employs more than 60% of Sub-Saharan Africa's workforce and remains central to food security, livelihoods, and income.

Among these threats, declining crop yields stand out; reducing output, undermining rural livelihoods, and straining food systems. Understanding what drives that decline is where this begins.

Climate Extremes And Declining Crop Yields

Crop production depends on stable weather across the growing season. Across Africa, flood frequency is rising significantly, with some regions now recording 0.50–0.60 more flood events per year. Together with drought and erratic rainfall, these disruptions are cutting yields and, in severe cases, causing complete harvest failure.

Flooding

Floods are among the most destructive climate extremes for agriculture. Excess water logs the soil and starves plant roots of oxygen, causing crops to wilt, rot, and die. It also washes away fertile topsoil, damages irrigation systems, and delays planting and harvesting.

The losses have been substantial. In 2024, severe flooding hit Burundi, Kenya, Somalia, Tanzania, Sudan, and Nigeria. Sudan recorded flooding across 15 of its 18 states, affecting more than four million hectares, while Nigeria lost roughly 260,000 hectares of cropland.

Drought

Where floods destroy crops through excess, drought does the opposite. Insufficient rainfall dries the soil, shortens growing seasons, and raises water stress, stunting crop growth. Because much of Sub-Saharan Africa is rain-fed, prolonged droughts drives food insecurity and falling productivity. Severe droughts have reduced maize and sorghum yields in South Africa's Free State Province, with similar losses in Kenya, Malawi, Mozambique, and Niger — where extreme drought years have caused millet losses of up to 390,000 metric tonnes.

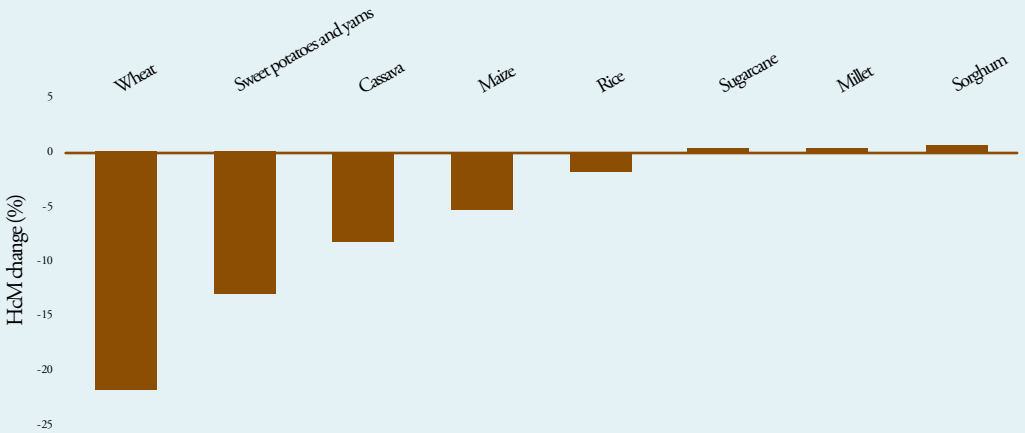
Erratic Rainfall

Erratic rainfall is a major driver of declining yields. Shorter seasons, prolonged dry spells, delayed rains, and sudden downpours make it harder to know when to plant and harvest.

Kenya's illustrates a challenge common across the continent. Its two rainy seasons, March to May and October to December, have grown increasingly unpredictable. In some years, rains arrive late or fail altogether; in others, heavy downpours flood fields and damage crops.

The losses are already significant. A survey of nearly 120,000 farm plots across Ethiopia, Malawi, Mali, Niger, Nigeria, and Tanzania found 36% suffered climate-related crop losses. On affected plots, farmers lost an average of 53% of their harvest, and adverse conditions reduced potential harvest values by 29%.

Increasingly, communities face more than one extreme at once. A season that opens with drought can close with heavy rain and flooding, exposing crops to repeated stress, raising the odds of harvest failure and deepening pressure on farming households.



Projected changes in Sub-Saharan African crop yields due to climate change, 2050

The Impact Of Declining Crop Yields

Falling yields are straining Africa's food systems. The continent already has the world's highest prevalence of undernourishment, and its population is projected to reach 2.5 billion by 2050, pushing food demand higher even as the number of malnourished children in Sub-Saharan Africa could reach 52 million.

Low productivity makes that demand harder to meet. Since 1990, cereal yields have risen 164% in Brazil, 81% in Uruguay, and 43% in Malaysia; across Africa, the increase is under 40%. Africa's average cereal yield is just 56% of the global average, and climate change could widen the gap, with Sub-Saharan cereal production growth projected to fall 3.2% and overall yield growth 4.6% by 2050.

Lower yields also mean less food and higher prices, putting nutritious diets out of reach. Staple prices could rise 4% for maize, 7% for rice, and 15% for wheat. Rising atmospheric carbon dioxide compounds the problem, lowering the protein, iron, and zinc content of staple crops and raising the risk of undernutrition, especially among children and other vulnerable groups.

The damage extends beyond food. Lower harvests cut farmers' incomes, weaken agricultural value chains and deepen rural poverty. In Malawi, where more than 70% of the population depend on rain-fed smallholder farming, the 2024 El Niño-induced drought destroyed about 70% of the country's maize harvest, hitting household incomes and food supplies hard.

As domestic food production falls, many Sub-Saharan African countries lean harder on imports of wheat, rice, and maize; increasing their exposure to global supply shocks and price spikes. On current trends, Africa's agricultural import bill could climb from US$114 billion in 2019 to US$510 billion by 2043.

Nigeria shows how quickly crop losses translate into food crises. In 2019, flooding across 32 of the country's 36 states caused widespread damage and helped trigger a major crisis. By 2024, flooding had destroyed an estimated 855,629 metric tonnes of crops, enough to feed roughly 8.5 million people for six months, while 31.8 million Nigerians were projected to face acute food insecurity.

Climate Change As The Driver Of

Declining Crop Yields

Africa is warming and its rainfall growing more variable. Global temperatures have risen about 0.75°C over the past century, with warming accelerating in recent decades. Eastern Africa could see increases of 1.4°C to 5.5°C by the end of the century, alongside greater rainfall variability, changes Kenya already experiences through its increasingly unreliable rainy seasons.

The challenge is sharper in Africa because irrigation is scarce. Only 6% of Africa's cultivated land is equipped for irrigation, against 70% in Asia, 14% in Latin America, and about 2% globally. Farmers therefore depend heavily on rainfall, leaving production exposed to any shift in precipitation and water availability.

Heat adds further strain. Higher temperatures increase evaporation, reduce soil moisture, and raise crop water requirements; while prolonged heat stress disrupts growth, reduces pollination, and limits grain development. Maize yields across much of Africa could fall 3% to 20% by century's end; in Sub-Saharan Africa, every 1°C of warming is linked to an estimated 0.8% decline in maize yields, with similar effects on sorghum and groundnuts.

As these pressures mount, farming systems must adapt, and better water management and climate-resilient practices can blunt the impact.

Current Responses And Adaptation Efforts

African farmers have long drawn on local knowledge to manage climate variability. Crop rotation, intercropping, organic manure, and adjusting planting dates all help conserve soil, manage water, and limit losses. Many farmers also rely on radio broadcasts, extension workers, community discussions, and peer networks for forecasts and advice, though reliable climate information remains scarce in many rural areas.

Increasingly, farmers are pairing these traditions with Climate-Smart Agriculture (CSA): improved crop varieties, conservation agriculture, agroforestry, efficient water management, and climate information services. The results are promising. In North Africa, water-saving technologies and improved irrigation have raised productivity in water-limited areas, while conservation practices such as zero tillage and crop rotation have improved soil health and farm performance. Nigeria has introduced drought-tolerant varieties, mixed cropping,



mulching, water harvesting, and better irrigation; its Transforming Irrigation Management in Nigeria (TRIMING) project has expanded irrigation across 43,400 hectares, producing enough food for an estimated one million people.

Still, adaptation is constrained by limited financing, weak extension services, inadequate infrastructure, and unequal access to technology. Expanding both local practices and climate-smart innovation will be critical to strengthening Africa's agricultural resilience.

Building Climate-Resilient Agriculture

Adaptation has helped farmers respond, but climate risk keeps growing. The task now is to move from coping with these challenges to building systems that stay productive despite a changing climate.

Digital technology is increasingly central to that shift. A joint FAO and ITU assessment of 47 sub-Saharan African countries found that accelerating digital transformation in agriculture could improve the livelihoods of some 250 million smallholder farmers and help lift more than 400 million people out of extreme poverty.

Tools such as IoT, drones, artificial intelligence, remote sensing, and weather stations can sharpen crop monitoring, irrigation, pest detection, and fertiliser use. Rwanda uses drones and remote sensing for precision agriculture, while South Africa uses AI- and IoT-based systems for irrigation and fertiliser management. High costs, weak digital infrastructure, and low digital literacy still limit adoption.

Research and extension systems matter just as much. Digital advisory platforms, mobile applications, radio programmes, and WhatsApp-based extension services already deliver weather forecasts, pest advice, and climate-smart guidance to farmers in Uganda, Ethiopia, Mali, and Nigeria. Expanding these services can speed up the uptake of better practices in rural communities.

Investment must follow. Agriculture, forestry, other land uses, and fisheries drew 27% of Africa's adaptation finance in 2021–2022, the second-largest sectoral share. Scaling up drought-tolerant crop varieties, efficient irrigation systems, sustainable soil management, and farmer training can sustain productivity as conditions worsen, as the African Development Bank's Technologies for African Agricultural Transformation (TAAT) programme shows through improved seed systems and climate-smart technology.

However, finance remains the central barrier. Africa needs an estimated US$124 billion a year to adapt to climate change, yet receives only about US$30 billion in climate finance annually, with just 39% directed towards adaptation. Closing that gap, and attracting private sector investment, will be critical to strengthening innovation, extension services, and support for smallholder farmers. So too will stronger governance and coordination among governments, research institutions, development partners, and the private sector, which can scale successful programmes and turn research into practice.

Conclusion

Africa cannot meet the climate challenge with short-term responses alone. The scale of the threat demands stronger systems that can withstand shocks and sustain food production over time, which means greater investment in irrigation, agricultural research, improved crop varieties, extension services, climate information, and climate finance. Much of this is already underway; building on it through sustained investment, stronger institutions, and wider access to practical adaptation measures can help protect food security, livelihoods, and sustainable development across the continent.



Leaders' Perspective

Securing Africa's **Food Future**

Editorial Feature

How can Africa build food systems that are productive, resilient and sovereign in the decades ahead?

About The Feature

Leaders' Perspectives is a recurring Africa Sustainability Magazine feature that convenes senior leaders from business, government, research, finance and development to examine the decisions shaping the future of sustainability across the continent.

For each issue, we ask leaders to respond to a few questions connected to the edition's central theme. The aim is to bring different perspectives into the same conversation, highlighting where there is consensus, where difficult choices remain, and what needs to change.

In this edition, we ask: How can Africa secure its food future? With climate change altering growing conditions, geopolitical shocks exposing dependence on imported inputs, and a rapidly growing population increasing demand; the choices made now will shape whether African food systems become more productive, resilient and sovereign.

We invited senior leaders from CGIAR and IITA, EY, the Climate Investment Funds (CIF) and Sasini PLC to consider what that future requires.



01 Building Food Sovereignty

Africa's exposure to global markets is not inherently a weakness. Trade provides access to food, inputs, technology and markets that cannot all be supplied domestically. The vulnerability emerges when essential parts of the food system depend too heavily on external supply chains, leaving farmers and consumers exposed when geopolitical or market disruptions occur.

For Dr Ismahane Elouafi, Executive Managing Director of CGIAR, and Dr Simeon Ehui, Director General of IITA and CIGAR Continental Champion for Africa, the answer begins with strengthening what Africa can produce itself.

Africa's Food Sovereignty Starts With What Africa Can Grow

One of the most important decisions African governments and the private sector can make is to build the continent's own productive capacity: investing in African crop breeding and

seed systems, healthier soils, efficient nutrient use, and markets that make locally adapted crops competitive at scale. Food sovereignty does not mean isolation from global markets, nor does it mean producing everything at home. It means building enough productive capacity to give African countries greater choice over how they feed their people, particularly when global markets are disrupted.

Recent geopolitical shocks have exposed the risks of depending heavily on imported fertiliser, wheat, fuel, and other agricultural inputs. Yet Africa's vulnerability should not obscure its strengths: extraordinary crop diversity, a large and young agricultural workforce, expanding food markets, and decades of research that can transform the productivity of crops central to African diets.The evidence shows this can work.

Through partnerships involving CGIAR, IITA, CIMMYT, national research systems, and African seed companies, more than 200 climate-resilient maize varieties have been developed and released across 13 countries in sub-Saharan Africa. Under drought-prone conditions, these varieties can yield at least 25–30% more than conventional varieties. This is food sovereignty in practice: farmers gain seed designed for the stresses they face, while African seed enterprises build markets around it. Consider yam. Africa grows most of the world's supply. IITA trials in Nigeria have demonstrated improved varieties capable of substantially higher yields than traditional varieties. But better genetics alone is insufficient. Without strong seed multiplication, distribution, processing, and market systems, superior varieties cannot reach farmers at the scale required.

The same principle applies to fertilisers. Africa will continue to need mineral fertilisers. The choice is not between mineral and organic nutrients, but between vulnerability to concentrated supply chains and a smarter approach to soil fertility. CGIAR and IITA research on soil health, agronomy, and integrated soil fertility management points toward that approach: healthier soils, improved varieties, locally appropriate nutrient sources, and precise application where and when crops need them. Better nutrient-use efficiency lets farmers produce more from every kilogram of fertiliser, reducing costs and exposure to global price shocks.



This requires policy to connect investments too often treated separately. Governments should align agricultural research, seed systems, soil health strategies, procurement, and infrastructure. The private sector must invest across the value chain, from seed and fertiliser solutions to mechanisation, processing, and storage.

The message is clear. Africa builds resilience by building its own productive capacity: better seeds, healthier soils, smarter nutrient use, stronger enterprises, and competitive markets. The same capacity that reduces Africa's vulnerability to external shocks can position the continent to become a more competitive agricultural producer and an increasingly important contributor to global food security.

By Dr Ismahane Elouafi and Dr Simeon Ehui

02 Building Resilience for the Long Term

For African agriculture, climate resilience is increasingly a question of long-term choices: how land is managed, how risk is measured, and how businesses prepare for changing conditions.

Sasini
ESTD 1952

For Martin R. Ochien'g, Group Managing Director of Sasini PLC, decades of farming experience have reinforced a simple lesson: the decisions made today will shape the productivity and resilience of the land for generations to come.

What 8 Decades of Farming Has Taught Us About Climate Risk

After enough seasons on Kenyan farms, you stop thinking of climate change as a future risk. You see it in the rains that arrive weeks late and in soils that demand more care to produce the same harvest. We have learned that resilience is built long before a shock arrives, in the everyday decisions about what we plant, how we restore land, and how



honestly we measure our impact. Our starting point has been to treat carbon accounting as a management tool, not a compliance exercise. When we assessed our full emissions profile using the Science Based Targets initiative's FLAG framework, we found that our land use activities sequester significantly more carbon than our operations emit, placing Sasini in a net-negative position. That number did not happen by accident. It reflects decades of tree cover on our estates, and it is now guiding where we invest further, from mangrove restoration along the Kenyan coast to large-scale tree planting inland and biochar trials that turn agricultural waste into a soil-enriching, carbon-storing input. Resilience also means preparing our reporting and governance to match the standards the world is converging on. We are moving toward IFRS S1 and S2 alongside our GRI-aligned disclosure, work that forces a level of rigour most agribusinesses have not historically applied to climate risk. It is uncomfortable in places. It is also clarifying. When you have to quantify the financial exposure of a delayed rainy season or a shifting pest range, you plan differently, and you invest differently. None of this works if it stays confined to a sustainability department. Resilience has to be built into how we procure, how we support the smallholder farmers in our supply chains, and how we develop the next generation of agribusiness talent who will inherit these estates. It has to be visible to our suppliers and demanded of them too, through clear expectations on deforestation-free sourcing and responsible land use.

Africa's agribusinesses are uniquely positioned to lead on climate resilience, not because we face fewer risks, but because we face them earlier and more directly than most industries. Farming teaches patience, but it also teaches accountability. Every season reflects the decisions made years before. Climate resilience is no different. The choices we make today will determine not only the harvests of the next decade, but whether future generations inherit land that is more productive than the one entrusted to us.

By Martin R. Ochien'g, Group Managing Director, Sasini PLC



Designing Agriculture for Tomorrow's Climate 03



Climate change is already altering the conditions under which African agriculture operates, from rainfall and water availability to soil health and productivity.

For Charlotte Weston, Sustainability, Clients and Markets Leader, Global Public Policy, EY, and Duane Newman, Africa Leader, Climate Change & Sustainability Services, EY, adapting to these changes will require agricultural policies, investment and innovation to move beyond historical assumptions and prepare for the climate ahead.

Building A Food System For Tomorrow's Climate

Around the world, governments are grappling with the implications of a changing climate, drought, floods, soil and land degradation and nature loss. While climate impacts vary across the African continent, common trends exist: North Africa faces increasing water stress and drought risk; East Africa has experienced more frequent drought-flood cycles; Southern Africa remains highly exposed to rainfall variability and heat stress; while in West Africa, rising temperatures and shifting rainfall patterns are placing growing pressure on agricultural production systems.

African agriculture has long operated on the front line of climate variability, impacting food production, quality and security, while driving innovation in adaptation and resilience solutions. Land degradation alone is estimated to affect nearly half of Africa's productive land and more than 650 million people. Together, climate change, population growth and declining land productivity are converging at unprecedented speed on food systems.

The challenge is not only producing enough food, but producing it reliably, profitably and sustainably in a more volatile climate. This raises an important question: are agricultural policies still designed for historical climate conditions rather than future climate realities? In many cases, policy frameworks continue to prioritise productivity, when resilience, soil health, water security and sustainable land management are equally critical

to long-term food security.

Agriculture remains central to Africa's economy, employing approximately half of the population. Smallholder farmers form the backbone of the food sector, and are highly exposed to changing weather patterns, market and supply chain shocks. For many households, a failed harvest is not merely a productivity challenge but a direct threat to income and wellbeing. More resilient farming systems can strengthen food security, livelihoods and rural economies while helping communities withstand future shocks.

Three priorities stand out.

- First, closing the finance gap. Although food systems account for around one-third of global greenhouse gas emissions, they received only 2.5% of global public climate finance between 2017 and 2022. Adopting resilient farming practices often requires investment in training, irrigation, improved seeds and new technologies. Governments can help unlock this transition through blended finance, climate insurance, concessional lending and targeted incentives that reduce the risks of adopting more resilient practices.

- Second, scaling innovation. Digital advisory services, weather forecasting, Artificial Intelligence (AI) and other climate-smart technologies can help farmers manage climate risks, improve productivity and increase access to finance. As explored in EY's 'Growing Smarter' report, solutions are already emerging across the continent. Kenya's Pepea Capital uses AI-driven soil and weather analytics to support farmers, while Ghana's Farmerline combines AI-enabled advisory services and access to finance. EY's recent research has also highlighted AI's potential to strengthen freshwater management. The challenge is often not identifying new solutions but scaling those already delivering results.

- Third, creating the right policy environment. Public policy can accelerate adoption through farmer education, supportive regulation, financial incentives and partnerships between governments, businesses and communities. EY's work on inclusive finance highlights the importance of ecosystems that bring together policy, capital and local innovation. Equally important is attracting the next generation into agriculture. With one of the world's youngest and fastest-growing populations, there is a key opportunity to position agriculture as a source of innovation, entrepreneurship and economic opportunity.

Looking ahead to 2050, food security must also be considered alongside food sovereignty. Africa exports globally important commodities such as cocoa from Côte d'Ivoire, coffee from Kenya, and cotton from Benin. However, many countries continue to rely on imports of staple foods. As climate risks intensify and global supply chains become more volatile, food sovereignty does not mean withdrawing from global trade. Instead, it means strengthening regional food systems, diversifying production and improving access to nutritious food. This agenda is increasingly reflected in international discussions, including the United Nations Convention to Combat Desertification (UNCCD), which has 197 Parties signed up worldwide, including all 54 African Union member states. Land restoration, drought resilience and sustainable land management are now recognised as central components to food security and are likely to feature prominently in COP17.

Africa's agricultural future will depend on whether policy, investment and innovation can keep pace with the scale of change already underway. The opportunity is not simply to adapt agriculture to a changing climate, but to build a more productive, resilient and sovereign food system designed for tomorrow's realities rather than yesterday's climate.

By Charlotte Weston and Duane Newman

04 Resilience Beyond the Farm



Climate resilience cannot be built on the farm alone. Roads, water systems, storage, energy, finance and markets can determine whether agricultural communities are able to withstand a shock just as much as farming practices themselves.

> For Chitembo Chunga, Head of the Resilience Portfolio at the Climate Investment Funds, building resilient food systems means investing across the wider infrastructure and systems on which farmers depend.

Building Resilience Across The Food System

Africa has the chance to build a food future where growth and climate resilience reinforce each other. The continent's population is projected to grow by roughly two-thirds to reach 2.5 billion by 2050. But the IPCC's Sixth Assessment Report finds that climate change has already cut Africa's agricultural productivity growth by 34 per cent since 1961, a larger slowdown than any other region in the world. The IPCC further warns that global warming above 2°C would reduce yields for staple crops across most of the continent. Africa's opportunity is to build food systems that are productive precisely because they are resilient.

At CIF, a $14 billion multilateral climate fund dedicated to resilience, nature-based solutions, and energy systems transformation, we have been investing in adaptation, including in agriculture, since 2008.

Here's what we have seen through our investments in partner countries.

- First, for this transition to happen, climate resilience policies need to move beyond the farm plot to encompass the entire food system. Resilient seeds and farming practices will not be adequate if feeder roads wash away, irrigation systems fail, storage facilities cannot withstand extreme heat, or farmers lack reliable access to profitable markets. The most effective investments are those that integrate soil fertility, healthy landscapes, water management, resilient infrastructure, storage, processing, energy and regional trade into a single approach.

- Second, climate risk must sit at the core of agricultural policy. Climate information can guide decisions on what is grown, where it is grown, and

which infrastructure is built. Forecasts and long-term climate projections can be translated into practical services for farmers, businesses, lenders and insurers. Policy should be designed around the climates of 2030, 2040 and 2050 and not historical data that informed yesterday's thinking.

Third, smallholder farmers are already driving innovation in the face of climate change. In Africa, 250 million smallholder farmers produce 70 per cent of the continent's food supply. Most of them are women and youth, and remain the most exposed to climate impacts and face disproportionate barriers to finance, land and decision-making. Strengthening their access to finance, technology, extension services, markets and risk management tools is central to building a resilient and productive food system.

Zambia shows what this looks like in practice. Through integrated resilience support in the Kafue and Barotse sub-basins, CIF-backed investment reached over 850,000 people in farming communities, funded solar-powered water points and cold storage facilities enabling year-round production and trade, and rehabilitated nearly 250 kilometres of farm-to-market roads. The result was a shift from monoculture to horticulture, with 54 per cent of beneficiaries being women, and more than 50 enterprises now creating market linkages and jobs.This is precisely the approach CIF's new ARISE program is built to scale, harnessing our 16-year track record. ARISE mainstreams resilience into national economic planning, using catalytic finance to crowd in investment from multilateral development banks, other climate funds, and the private sector.

Building that future will take sustained investment and partnership, but the evidence from trailblazing communities across Africa shows it is within reach.

By Chitembo Chunga, Head of Resilience Portfolio, Climate Investment Funds

What The Perspectives Tell Us

Taken together, these perspectives show that securing Africa's food future will require more than increasing agricultural production. It will require stronger productive capacity, long-term investment in land and climate resilience, better infrastructure and markets, and policies that connect these pieces rather than treating them as separate challenges.

CGIAR and IITA emphasise productive capacity: better seeds, healthier soils, smarter use of inputs and stronger markets can reduce exposure to external shocks without closing Africa off from global trade.

Sasini brings the perspective of an agribusiness operating through successive seasons of climate risk, where resilience is built through land management, supply chains, governance and long-term investment.

EY argues for a shift in agricultural policy itself—towards systems designed for future climate conditions, supported by finance, innovation and the right incentives. And CIF extends the frame beyond the farm, highlighting the roads, water systems, storage, energy and markets that determine whether agricultural resilience can hold when shocks arrive.

The perspectives differ in emphasis, but they converge on one point: Africa's food future will depend on the strength of the system surrounding the farmer. Production, infrastructure, finance, technology, markets and natural resources cannot be treated as separate agendas if the continent is to build food systems capable of feeding a growing population under increasingly uncertain conditions.

That, ultimately, is the challenge of food sovereignty; not simply producing more at home, but building the capacity to produce, adapt, trade and prosper on better terms.



The Earthshot Prize Announces Two African 2026 **Finalists** Helping To Solve Global Environmental Challenges

Two African-led organisations unveiled as 2026 Finalists of The Earthshot Prize are showing how practical solutions to climate risk and air pollution can help unlock wider environmental transformation.

Founded by HRH Prince William in 2020, The Earthshot Prize is the world's most prestigious environmental prize. The Prize recognises solutions from different geographies, sectors and stages in their life cycle, dedicated to solving our planet's greatest environmental challenges. This year's 15 Finalists include Indigenous leaders, female changemakers, and transformative new technologies and business models from around the world.

Pula, operating across Africa, has been recognised in the Fix Our Climate Earthshot category for radically transforming climate-risk insurance for the world's 500 million smallholder farmers.

Uganda's AirQo is recognised in the Clean Our Air Earthshot



2026 FINALISTS



Credit: The Earthshot Prize

category for building African-designed air quality data infrastructure that helps cities and communities act on pollution.

Both are already delivering impact at scale, while addressing the systems and infrastructure needed to make environmental progress faster and more durable.

Prince William, President and Founder of The Earthshot Prize, said:

"Every year, our Finalists give me renewed optimism. They show us that, even as the environmental challenges remain urgent, extraordinary people around the world are already proving that progress is possible. Seeing solutions work gives us all confidence to act. When they succeed, they inspire others and accelerate change. I'm proud to welcome these 15 Finalists to the Earthshot Prize community and look forward to celebrating their stories in Mumbai this November."

Earthshot Finalists Help Trigger Positive Climate Tipping Points

For The Earthshot Prize, the broader significance of both these solutions lies in how they could contribute to wider positive climate tipping points over the coming years.

New research from The Earthshot Prize and the University of Exeter's Green Futures Solutions team identified 51 environmental solution areas with the potential to trigger transformative change for our planet by 2030. The research advances Professor Tim Lenton's positive tipping-point science through its first systematic application across all five Earthshot categories, covering climate, nature, air, oceans and waste. A positive tipping point is a threshold in a system beyond which change becomes rapid and self-reinforcing, creating a cascade effect of progress.

Pula and AirQo illustrate that principle clearly, showing how African-designed solutions can move beyond addressing individual problems to creating the conditions for change to scale.

Kenyan Finalist Transforming Climate Risk Protections for Smallholder Farmers

Pula addresses a defining climate challenge. Across Africa, one failed season can erase a smallholder farmer's income, leave them unable to repay loans, replant or feed their own families, and deepen food insecurity across communities and markets. At the heart of Pula's model is its Area Yield Index Insurance. This compares a current harvest to its historical average using trained field teams, field data and satellite insights. If the average harvest falls below an agreed threshold because of drought, flood or another covered risk, payouts are triggered for insured farmers across that area without requiring each farmer to prove an individual loss. The aim is to help families recover, replant and continue investing in their farms rather than waiting months for aid or falling into debt.



Credit: The Earthshot Prize

Working with eight African governments and more than 100 distribution partners, Pula has reached 24 million farmers across the continent. It has provided cover for more than US$2.8 billion in farming investment and paid out US$136.5 million directly to farmers.

Pula is helping advance a future in which anticipatory adaptation finance becomes more widely embedded in agricultural systems. It is contributing to a positive global tipping point whereby 80 countries have forecast-triggered funding covering at least half their at-risk smallholder farmer population by 2030, up from around 40 today.

Thomas Njeru, Co-Founder and CEO of Pula, said:
"Smallholder farmers are feeding communities and economies while

carrying climate risks they did not create. Being selected as an Earthshot Prize Finalist is recognition of their resilience, and of the need to make financial protection a normal part of agriculture. The Earthshot Prize can help us build the government, insurance and finance partnerships required to reach 100 million farmers by 2030, so a drought or flood is a setback

Uganda's AirQo Enabling Action On Dangerous Air Pollution

AirQo is tackling another urgent but often less visible challenge. In 2019, air pollution was the second-leading risk factor for death across Africa and contributed to an estimated 1.1 million deaths in a single year. Rapid urbanisation is increasing emissions from transport, industry and waste, yet many cities still lack reliable, locally relevant information showing where pollution is concentrated, when it spikes and whether measures to reduce it are working.

Founded at Makerere University in 2015, AirQo set out to close that data gap. Its low-cost monitors are built for African operating conditions, including dust, power interruptions and limited internet connectivity. AirQo now operates more than 500 monitors across over 16 cities across Africa.

Its solution is contributing to a positive global tipping point where widespread, publicly visible air-quality monitoring makes pollution impossible to ignore. Its work is especially significant given that 500 major cities need proper air-quality monitoring in place by 2030, giving governments and communities the information they need to act on pollution.

Prof. Engineer Bainomugisha, Founder and Lead of AirQo and Professor of Computer Science at Makerere University, said: "Air pollution has remained invisible across too many African cities because the data needed to understand it has been scarce. AirQo was built in Africa for the realities of African cities, bringing together locally designed monitors, open data and artificial intelligence so that evidence can move from the street into public decisions. Being named an Earthshot Prize Finalist will help us scale this infrastructure, equip more African technologists and city leaders, and make reliable air quality data a public good. As a non-profit, the funding and partnerships this recognition unlocks are vital to advancing our vision of clean air for everyone."



Credit: The Earthshot Prize



Industry & Innovation

Africa Does Not Necessarily Need to Produce More Food. **It Needs to Lose Less.**

Francis Nderitu
Founder & Managing Director,
Keep IT Cool

KeepITCool
Deliver while still fresh



The Food We Already Produce Matters

Africa rightly invests in agricultural productivity. Better seeds, irrigation, mechanisation and climate-smart farming can all increase output.

But production is only one part of a food system.

According to the Food and Agriculture Organisation of the United Nations, 23 per cent of food is lost along the supply chain in sub-Saharan Africa, compared with 13.3 per cent

globally. These losses occur between production and retail, including during handling, storage, transport, processing and wholesale.

A farmer can harvest more crops, but still lose income because there is nowhere to store them. A fisher can catch more fish but still remain poor if the catch cannot reach a market while fresh.This is why post-harvest loss is not simply a waste problem.It is a food-security, income and climate problem.

The land, water, energy and labour used to produce food that never reaches consumers are effectively wasted. FAO estimates that food loss and waste contribute 8–10 per cent of global greenhouse gas emissions.

Before asking how much more food we can produce, we should ask a more fundamental question: How much of what we already produce can we make count?

Cold Chain Is Productive Infrastructure

Cold-chain infrastructure is often treated as logistics. It should instead be recognised as productive food infrastructure. Reliable cooling allows fish, meat, dairy, fruit and vegetables to remain fresh for longer, travel further and reach higher-value markets. It can determine not only whether food survives the journey to market, but which market a producer can access.

Lake Turkana demonstrates this clearly. Moving from drying and salting towards chilled fresh fish was not simply a change in preservation technology. It created access to customers looking for fresh, higher-quality fish.That matters because reducing post-harvest loss can increase the value of food, not just its quantity.



Kenya's Lake Turkana Fisheries Management Plan recognises this opportunity. It sets a target to reduce post-harvest losses from 40 per cent to 10 per cent and identifies improved landing infrastructure, solar and wind-powered cold chains, better processing and stronger fish marketing as part of the solution.

Climate change makes the challenge more urgent.Climate change is putting pressure on food systems from both ends.

Extreme heat accelerates spoilage. Floods and changing rainfall patterns disrupt roads and markets. Rising water levels can damage landing sites and force communities to relocate. At the same time, unreliable electricity makes conventional refrigeration difficult and expensive in many rural areas. This is where the cold chain can become part of the climate solution.

FAO estimates that 526 million tonnes of food are lost or wasted each year globally because of inadequate refrigeration. Sustainable cold chains can therefore improve food security while also reducing the environmental cost of producing food that never reaches consumers.

The opportunity is to build cold chains powered by cleaner energy: solar-powered cold rooms, efficient refrigeration, digital temperature monitoring



and low-emission transport. Building the infrastructure to make food count.

At Keep IT Cool, we are putting this approach into practice through our new solar-powered facility in Karura, Nairobi.

The facility brings cold storage, fish and poultry processing, value addition and logistics together in one integrated operation. It has increased our fish processing capacity from approximately 10 tonnes to 70 tonnes per week, while adding capacity for up to 50 tonnes of poultry processing per week.

The goal is not simply to build bigger facilities. It is to demonstrate how Africa can build connected, commercially viable food infrastructure that can ultimately be replicated through decentralised hubs closer to producers.

A Different Definition Of Food Security

Africa will need to increase production in some areas as populations grow and diets change. But producing more cannot be our only strategy.

We need to reduce losses, protect producer incomes and make the infrastructure between the farm, lake and consumer more resilient.

The future of food security should therefore be measured not only by tonnes produced, but by tonnes that reach consumers, the quality at which they arrive and the income that reaches the people who produced them.

Lake Turkana taught us a simple lesson:

Cold chain does more than keep fish cold. It keeps value alive.

Africa's opportunity is not simply to produce more.

It is to waste less, preserve more, use cleaner energy and make more of what we already produce count.



Beyond Shea: Building More Inclusive Agricultural Value Chains

Mawuse Christina Gyisun
Co-founder and Chief Operations Officer, Vitara

VITARA

Across West Africa, shea sits at the intersection of agriculture, livelihoods, biodiversity and a global beauty industry worth hundreds of billions of dollars. Yet the women who produce much of the raw material remain largely excluded from the value created further along the chain.

For Vitara (Formerly Sommalife), changing that equation means looking beyond market access alone; to technology, traceability, climate resilience and the economic power of women producers. We spoke with Vitara's Co-founder and Chief Operations Officer, Christina Mawuse Gyisun, about why shea, why women, and what it takes to build agricultural value chains that work for the people and ecosystems at their foundation.

ASM: Many agricultural value chains face challenges around equity, market access and climate resilience. Why did you choose the shea sector as the place to tackle these issues, and why was a women-centred solution so important?

Gyisun: The shea sector sits at the intersection of some of the most pressing sustainability challenges in Africa. It is an industry largely driven by rural women, yet many of these women remain excluded from formal markets, financial services, technology and the information needed to improve their livelihoods. At the same time, the shea landscape is increasingly threatened by climate change, land degradation and unsustainable land-use practices, making it clear that social and environmental challenges must be addressed together. For us, the decision to begin with shea was also rooted in the realities of northern Ghana, where Vitara operates. Across many rural communities, women play a central role in supporting their households but often have limited access to land ownership. While male household members commonly control farmland, women traditionally hold the rights to harvest and benefit from the shea trees growing on those lands. As a result, shea becomes one of the few natural assets over which women have direct economic agency. The importance of shea extends far beyond its commercial value. The shea harvesting season coincides with the start of the farming season, a period often referred to as the lean season, when food stocks from the previous harvest have diminished, and household income is at its lowest. Income earned from shea enables women to pay for food, healthcare, children's education, farm inputs and other essential household expenses, helping families bridge this difficult period until the next harvest. Supporting women in the shea value chain therefore creates benefits that extend well beyond the individual collector, strengthening household resilience and community well-being. A women-centred approach was therefore fundamental to creating lasting impact. Women are the backbone of the shea economy, and by intentionally designing solutions around their needs, like improving market access, expanding financial inclusion, providing digital tools, strengthening producer organisations and building climate resilience, we help ensure that more of the value generated within the supply chain remains with the women whose work sustains it.

> *If shea gives women one of the few forms of economic agency in many rural communities, the next question is whether that value can extend beyond the harvest itself. Gyisun argues that the future of the sector depends on treating women not simply as producers, but as participants in an inclusive value chain.*

ASM: Climate change is already affecting agricultural production across West Africa. What changes are you seeing on the ground, and how are producers adapting?

Gyisun: In the communities now, we are seeing changing rainfall patterns, shorter and less predictable seasons, increasing pressure on natural resources, an increasingly confused farmer population and greater uncertainty for farmers whose livelihoods depend on agriculture.We are also seeing a shift in how producers engage with these challenges. Farmers are asking more questions about climate change and climate-smart practices when we engage. We are seeing greater willingness to invest in approaches that can improve their resilience, such as planting and protecting trees and buying drought-resistant seed varieties. At the same time, we have witnessed the devastating impact of climate shocks, particularly during periods of drought, when the effects on farmers and their livelihoods are irreversible. We support this transition by working with farmers to strengthen climate resilience through conservation

initiatives, training and access to better market information. We work with farmers as partners in the drive towards sustainability that protects both livelihoods and ecosystems.

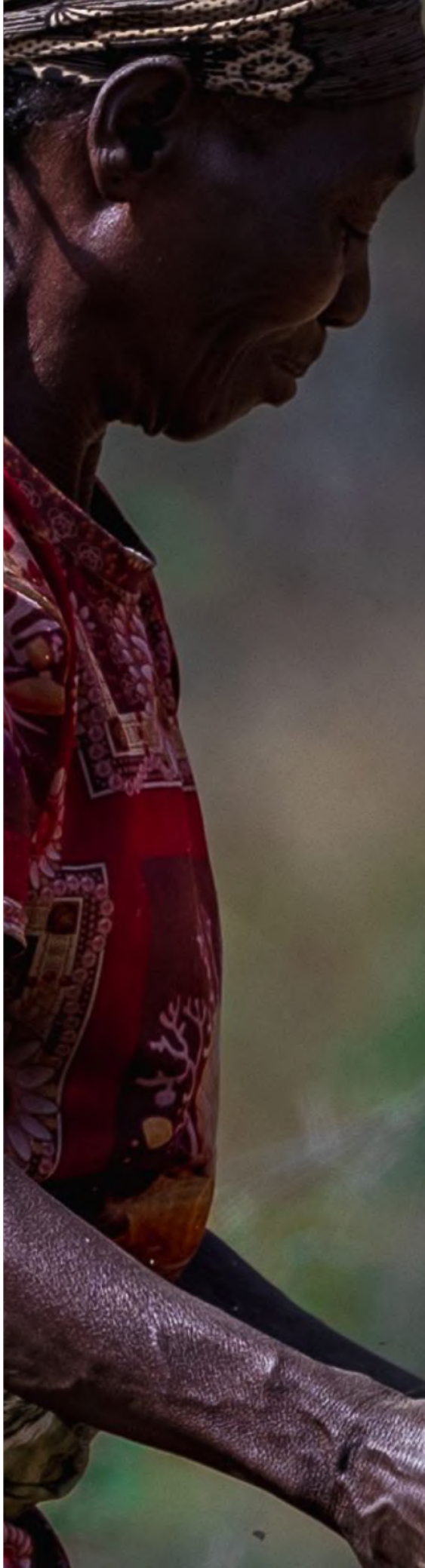
> *If shea gives women one of the few forms of economic agency in many rural communities, the next question is whether that value can extend beyond the harvest itself. Gyisun argues that the future of the sector depends on treating women not simply as producers, but as participants in an inclusive value chain.*

ASM: There is growing interest in regenerative agriculture and nature-based solutions. How can businesses create commercial value while protecting the ecosystems that agricultural production depends on?

Gyisun: You cannot create long-term commercial value in the agricultural value chain without protecting the systems that sustain it. This has always been Vitara's position, and we see this connection clearly within the shea sector. The women who power the shea value chain depend on healthy shea parklands for their livelihoods, making conservation essential to the future of the industry. For the 150,000+ farmers we work with, the loss of these ecosystems would mean the loss of a critical source of income, and for us as a business operating within the value chain, it would mean the collapse of the industry. Investments in farming systems that work are not separate from commercial success; it is a prerequisite for it. This recognition within an organisation is what is needed to create the commercial value.

Agriculture has always evolved alongside humanity, with cultivation models adapting to meet growing needs. Today, that evolution must include approaches that allow us to produce while protecting the natural resources that make production possible

Through regenerative practices, conservation initiatives and digital traceability, companies can build more resilient supply chains while contributing to the protection of the ecosystems that sustain them.





Technology is often presented as the future of African agriculture. Still, Gyisun believes the real opportunity lies in ensuring that digital tools reach the farmers who have historically been excluded from markets and information.

ASM: Digital technology is transforming agriculture, but adoption remains uneven. What role do digital platforms play in making agricultural markets more inclusive and resilient?

Gyisun: For me, digital technology in agriculture means tools that help farmers access information, manage their operations, and connect more effectively to markets and services. At the foundation of this is mobile phone access, which has become one of the most important entry points for farmers to participate in the global digital market.Mobile devices host weather information platforms that help farmers make better planting decisions; market price platforms that improve access to information and bargaining power; mobile advisory services; digital financial services that enable secure payments and savings; and farm management tools that help farmers keep records, plan activities and improve productivity.

Although these tools are becoming standard globally, many smallholder farmers still lack access to them. Digital technology can transform agriculture, but adoption begins with awareness. People cannot use what they do not know exists, and for many remote farming communities, this remains a lived reality.

“The communities that could benefit most from emerging technologies are often the least connected to information about them.

For organisations like ours that introduce digital platforms to rural communities, we bring access and awareness to the most critical tools to create an inclusive and resilient value chain.

ASM: Global companies increasingly talk about sustainable sourcing and traceability. What does meaningful partnership with African producers actually look like beyond certification and compliance?

Gyisun: For us, this means working with farmers as partners rather than simply suppliers. It means investing in the systems that enable them to thrive, including access to fair markets, digital tools, training, financial inclusion, and opportunities to capture greater value from their work. Traceability should not only be a mechanism for companies to understand where their products come from; it should also create visibility for the farmers behind those products and ensure that value flows back to the communities sustaining the supply chain.We constantly ask ourselves: how can we create additional value for farmers beyond the initial transaction? A farmer’s digital identity and participation within a connected ecosystem should open doors to more services, better market opportunities and greater value creation for their products. This is a mindset that more organisations operating within agricultural value chains should adopt.At Vitara, through our TreeSyt platform and field initiatives, we work to build transparent and inclusive value chains where producers are recognised as key stakeholders. We believe sustainable sourcing is strongest when businesses and farmers work together toward a shared future, one built on trust, resilience and mutual benefit.

The conversation around partnership ultimately leads to a broader question of investment. If Africa is to build more inclusive, resilient and productive agricultural systems, where should governments, investors and development institutions focus their resources?

ASM: If governments, investors and development partners could make three investments to strengthen Africa's agricultural future, what would you prioritise?

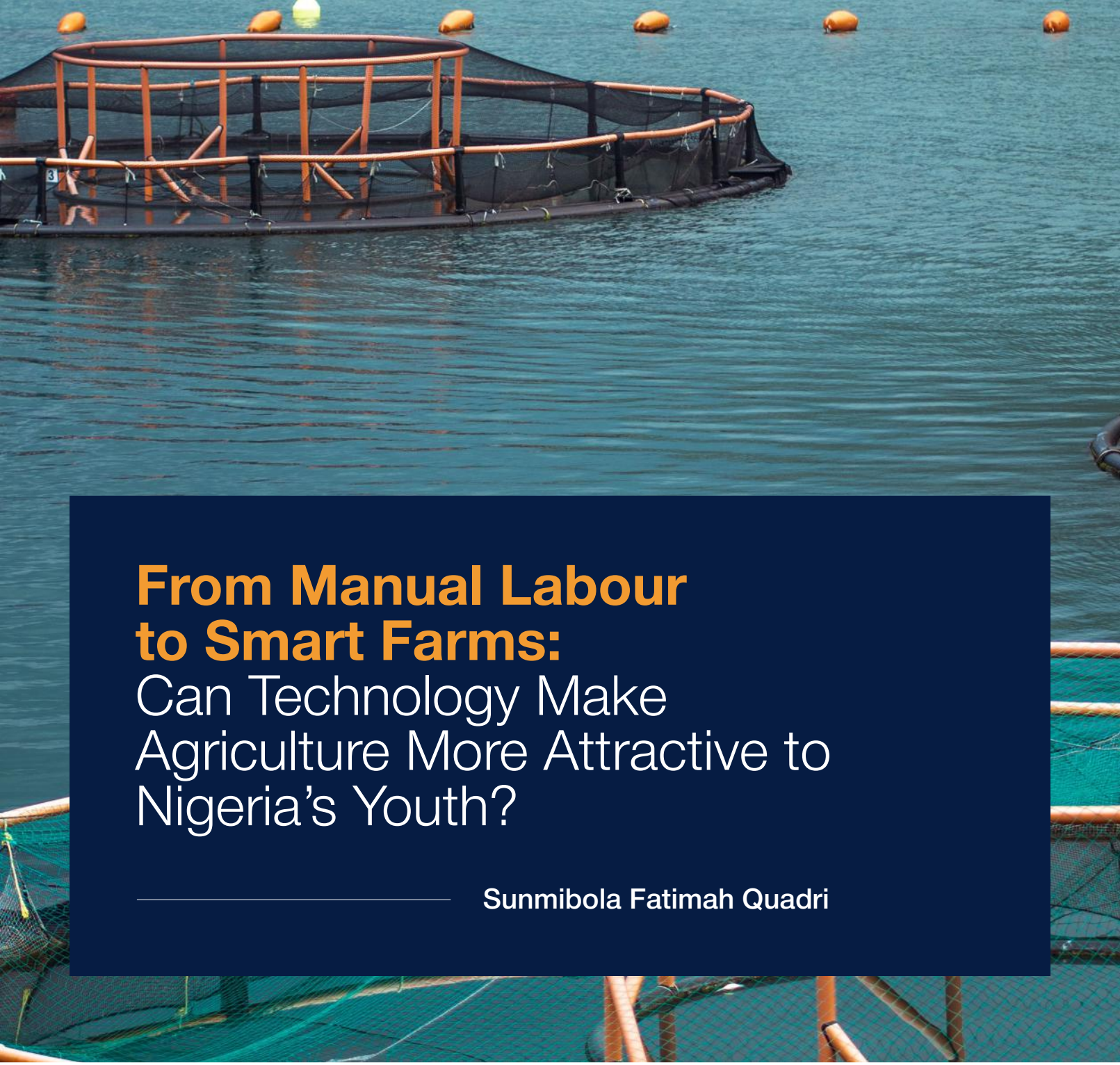
Gyisun: First is digital infrastructure and inclusion. Farmers cannot participate in modern agricultural systems if they remain invisible and disconnected from information, markets and services. Digital tools can create farmer identities, improve traceability and unlock access to opportunities that were previously out of reach.Second is stronger market systems and value addition. Increasing production alone is not enough; farmers must be connected to fair markets and supported to capture more value from what they produce. Investments should focus on building efficient supply chains, local processing and stronger links between producers and buyers. Third is climate resilience and sustainable resource management. The future of agriculture depends on protecting the ecosystems on which production relies. Supporting climate-smart practices, conservation and regenerative approaches will be essential to safeguarding both livelihoods and food systems. Africa's agricultural transformation will require investments that place farmers at the centre, combining technology, markets and sustainability to create resilient and inclusive value chains. Across the continent, locally led enterprises are developing effective responses to agricultural challenges with this in mind, but many face barriers to scale. Our recognition through the 2025 Schwab Foundation Awards highlights the role that platforms such as the Schwab Foundation for Social Entrepreneurship can play in bringing visibility to solutions like ours, helping us build the partnerships and support needed to increase our impact.

Throughout the discussion, three themes emerge repeatedly: inclusion, resilience and local innovation. Despite the challenges facing African agriculture, Gyisun believes there are reasons to be optimistic about the direction of travel.

ASM: What gives you the greatest optimism about the future of African agriculture

Gyisun: The reason I am optimistic about the future of African agriculture is a shift toward developing solutions that are better adapted to our own realities. Africa is working to close the gap with the rest of the world, but this progress is increasingly driven by approaches designed within our own context rather than by simply replicating models from elsewhere. Our continent is diverse, with different communities, ecosystems and agricultural systems, meaning there is no single solution that will address every challenge. In recent years, we have seen more institutions, innovators and communities working together to create approaches that are practical, inclusive and relevant. Then I know we are progressing more and more in the right direction.

Vitara, formerly known as Sommalife, is a Ghana-based agri-tech company that connects women smallholder farmers across West Africa to global food and cosmetics markets through digital traceability, market access and climate-resilient agricultural value chains.

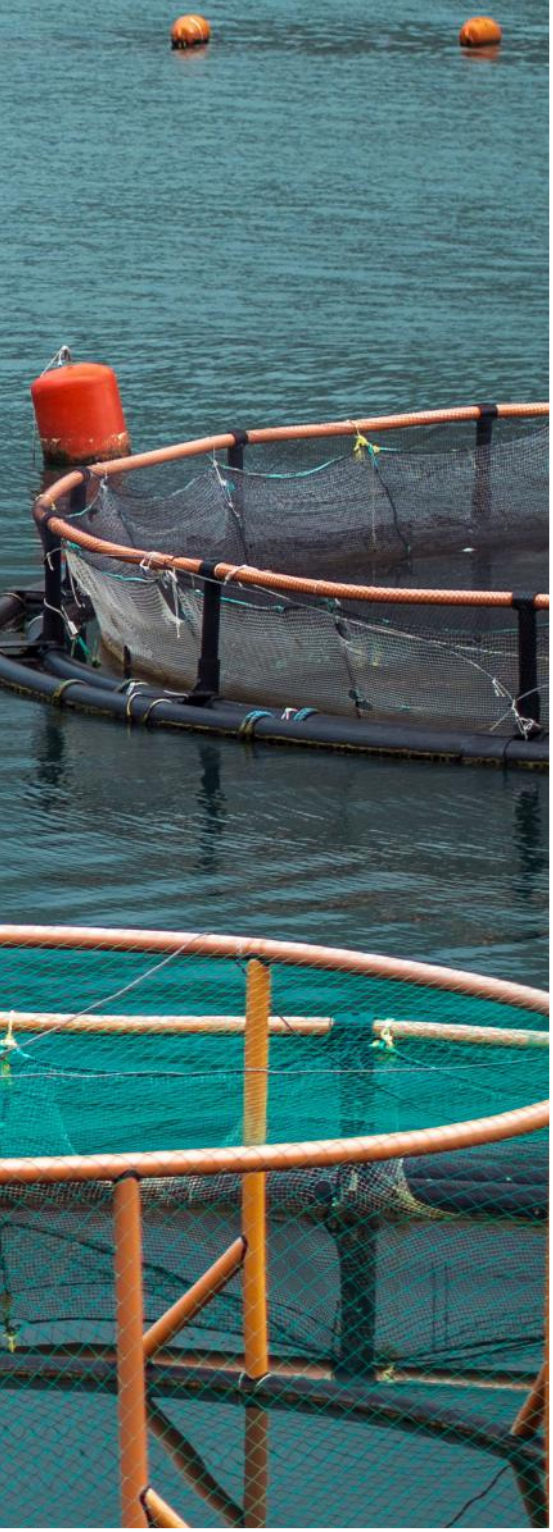


From Manual Labour to Smart Farms: Can Technology Make Agriculture More Attractive to Nigeria's Youth?

Sunmibola Fatimah Quadri

On a typical day, Khalifa Shu'aib does not rely solely on the traditional tools and methods that have defined agriculture for generations. From monitoring weather conditions to using a smartphone app to automate fish feeding, technology has become part of how he makes decisions on the farm. For a new generation of farmers like Khalifa, agriculture is no longer simply about getting into the field, planting seeds and waiting for harvest. It increasingly involves using technology to improve productivity, reduce losses and make farming more efficient.

Agriculture remains one of the most important sectors of Nigeria's economy, making this shift notable. Farming has historically been at the heart of the country's economic development, contributing more than 60 per cent of GDP



and 70 per cent of export earnings, and meeting about 95 per cent of food needs from the colonial period through the 1970s. Nigeria is also endowed with significant agricultural resources, including about 79 million hectares of arable land, abundant surface and groundwater, and more than 3 million hectares suitable for irrigation. Yet, despite this potential, the sector continues to face challenges ranging from climate change and rising input costs to limited access to finance, markets and modern farming equipment.

From Traditional Farming To Agriculture 4.0

Against this backdrop, a new generation of farmers is exploring how technology can change the way agriculture is practised in Nigeria. Smartphones, digital platforms, improved irrigation systems, greenhouses, weather applications, mechanised equipment, drones, and other innovations are increasingly finding their way onto farms, offering farmers new ways to make informed decisions and improve their yields.

As technology continues to evolve, so too has agriculture. From basic hand tools to tractors, automated irrigation systems and precision farming, the sector has undergone several transformations aimed at improving productivity and reducing the burden of manual labour. This evolution is often described in four key eras. Agriculture 1.0, the traditional era, relied largely on human and animal labour, using basic tools such as wooden ploughs and sickles. Agriculture 2.0, driven by industrialisation, introduced mechanisation, including the use of tractors, alongside chemical fertilisers and pesticides.

The emergence of Agriculture 3.0 brought precision farming, using technologies such as GPS and satellite imagery to enable farmers to apply water, seeds and fertilisers more efficiently. Today, Agriculture 4.0 is driving the sector forward through smart and digital technologies, including IoT sensors, drones, artificial intelligence and big data. These tools allow farmers to monitor crops, optimise resources and make data-driven decisions while reducing waste and environmental impact.

How Technology Is Changing The Farm

For Khalifa, a mechatronics engineer, this technological shift is not just about adopting new tools; it is about finding better ways to survive and succeed in an increasingly demanding industry. Beyond the debate over whether farming is lucrative, younger Nigerians are also increasingly concerned about its future, as many do not consider agriculture an attractive career. This raises an important question: who will carry the sector into the next generation, especially given the untapped economic opportunities within agriculture?



Water supply and distribution systems connected to the pond. Photo by: Khalifa Shuaib

An article by Babban Gona on Agriculture in Nigeria cited research showing that only 21.5% of youths surveyed were willing to participate in agriculture, while 68.5% were unwilling to attend seminars encouraging youth involvement. More than half of the respondents cited the perception of "making one dirty" as a reason for their reluctance. A sentiment Khalifa also shares. Despite this, agriculture remains a major source of employment in Nigeria. In 2019, the sector accounted for 36.38% of employment, its lowest contribution in 28 years, compared with a peak of 53.15% in 1992. The figures highlight both the sector's declining role as an employer and agriculture's potential to provide opportunities for a new generation. For today's farmers, these innovations are gradually changing not only how crops are produced, but also how farming itself is perceived: as a technology-driven business rather than solely a labour-intensive occupation.

For productivity, Khalifa identified remote monitoring and control as the most significant innovation on his farm. With this, he can monitor farm activities through an application and remotely perform tasks such as feeding the fish and changing the water as needed. He added that the automated feeding system has also improved profitability by reducing feed wastage. According to him, manual feeding can sometimes result in workers feeding the fish indiscriminately or at the wrong time, despite fish appetite being influenced by factors such as time of day and water conditions. The automated system, he explained, ensures fish are fed at the appropriate times and in the right quantities, to minimise waste. This is particularly important given the rising cost of fish feed, with a 15kg bag currently costing about ₦32,000, according to Khalifa.

The Cost Of Farming Smarter

While technology has significantly improved farm management efficiency for these farmers, adopting smart farming solutions in Nigeria is not without its challenges. The main barriers include the high cost of technology, ongoing maintenance, inadequate infrastructure and security concerns.

Olamide Adio, a poultry farmer in Abuja, had been using solar power for her day-to-day operations for nearly three years until her farm was robbed in 2023, and the solar unit was carted away along with other equipment and birds. Solar power in poultry farming is used to run critical daily operations such as automated ventilation fans, climate-controlled heating and brooding lamps, LED lighting schedules, automated feeding and watering lines, and egg-grading machinery, thereby

reducing high grid electricity costs and preventing losses from blackouts. Since then, Olamide has moved her poultry farm to her house and is practising it on a smaller scale. Robbery is one of the many challenges and drawbacks farmers face, which discourages them from investing heavily in agricultural technological innovations.

For Qossim Babaita, a vegetable farmer in Ilorin, Kwara State, adopting modern farming technology comes with significant challenges. The high cost of setting up and maintaining systems, unreliable electricity supply, poor road networks, and inadequate cold-chain infrastructure make it difficult to operate efficiently. A shortage of local technicians and high import duties on greenhouse components further increased the cost of operating his farm. Qossim's decision to move from open-field farming to greenhouse cultivation was driven by repeated losses to disease and unpredictable weather. The shift has since transformed the way he farms.

"Now, I farm with data. Sensors help me monitor and control temperature, humidity and feeding. I also use automated drip fertigation, which delivers precise amounts of water and nutrients to the crops. With these innovations, my bell pepper yields have tripled to 12kg per square metre, while my habanero yields have reached 4kg per square metre," Qossim said.

To address some of the initial challenges Qossim faced, he started small, relying on loans and gradually investing in upgrades as the business grew. He addressed limited technical expertise by training his staff through online courses and seeking guidance from agronomists when necessary.

In Khalifa's case, he identified three key challenges. The first is Nigeria's evolving technological landscape, where specialised components such as water-quality sensors and electronic parts are not yet widely available locally and often must be imported, making procurement costly and complicated. Despite this, most of the design, fabrication and assembly are done in-house in Nigeria, with components sourced locally where possible and from global partners when necessary.

"Our entry-level setup, which is the Feeder Kit Pro, is a setup that goes for about 1.2 million. The requirement of an internet connection also, for you to be able to monitor it from anywhere in the world, the device would need to be connected to the internet on the farm, and depending on the location of the farm, the network signal might be low, so it might affect your experience with the system," he said.

Despite these challenges, the benefits of adopting the technology far outweigh the drawbacks for farmers. As Khalifa explained, while he expected it to improve productivity, the improvement exceeded his expectations. The ability to remotely monitor the farm has also given him peace of mind, even when he is away, as he can keep track of operations from anywhere. He added that the technology has enabled him to expand his operations, recently increasing the number of ponds from four to eight, allowing him to manage more with fewer resources.

Building A New Generation Of Tech-Driven Farmers

While Nigeria is investing in digital skills and agricultural innovation through initiatives such as the 3 Million Technical Talent (3MTT) programme and other agricultural development schemes, significant structural barriers continue to limit the impact of these initiatives on smallholder farmers. In rural communities, unreliable electricity, poor road networks, inadequate storage facilities and limited access to irrigation make it difficult for farmers to adopt and sustain modern technologies. Climate shocks and insecurity further compound these challenges, disrupting farming activities

and reducing farmers' ability to recover from losses.

Beyond infrastructure, weaknesses in policy implementation and funding continue to hinder agricultural development. Limited investment in extension services, research and farmer training leaves many smallholders without the technical support needed to improve productivity, while bureaucratic hurdles can make it difficult to access credit and government-backed interventions. Concerns around the diversion of agricultural inputs and resources, weak monitoring, and inconsistent policies can also prevent support from reaching the farmers it is intended to serve. Addressing these gaps requires moving beyond short-term interventions towards stronger systems that farmers can rely on. This includes increasing funding for extension services and rural infrastructure, simplifying access to agricultural credit, improving transparency in inputs distribution, and strengthening monitoring mechanisms. The federal government can also expand digital farmer registries and advisory platforms to improve targeting and accountability, while partnerships with private-sector technology providers can help make modern farming tools more accessible and affordable for smallholders.

Recent initiatives such as the World Bank-backed AGROW project point in this direction by combining agricultural finance, research, extension services, digital advisory tools and stronger monitoring mechanisms. Beyond government interventions, farmers and agricultural organisations are also taking steps to support one another. Khalifa said his organisation is doing what it can to assist other farmers through community engagement initiatives and a loan scheme that provides financial support. He also encouraged individuals to develop an interest in technology-driven agriculture to improve productivity and strengthen the sector.

Ultimately, the success of technology-driven agriculture in Nigeria will depend on creating an environment where farmers can access and sustain these innovations. Reliable infrastructure, affordable financing, technical support and consistent policies are essential to ensuring technology moves beyond individual farms to strengthen Nigeria's agricultural sector.



Khalifa Shuaib and his team. Photo by: Khalifa Shu'aib



Data Is the New Fertiliser: Building Climate-Resilient Agriculture Through Data Intelligence

Rofiat Hassan

For centuries, the success of African agriculture depended on fertile soil, reliable rainfall, and farmers' experience. Today, those factors are breaking down. Rainfall patterns are increasingly unpredictable, droughts are intensifying, and growing seasons are shifting. Climate change is already transforming African agriculture, but can African farmers utilise data to anticipate and adapt to its effects?

Agriculture remains the backbone of Africa's economy. It contributes approximately 30% of the continent's GDP and supports more than 55% of Africa's labour force, making it one of the continent's most important economic sectors. Yet it is also one of the most climate-sensitive. Rising temperatures, erratic rainfall, prolonged droughts, flooding, and pest outbreaks reduce crop yields, disrupt food systems, and threaten the livelihoods of millions.

Climate Pressure Is Rewriting African Agriculture

Africa is warming faster than the global average. According to the World Meteorological Organisation (WMO), temperatures across the continent have increased by approximately 0.3°C per decade since 1991, compared with the global average of 0.2°C per decade. For a system that depends heavily on rainfall and predictable seasons, even little temperature changes can alter when farmers plant, how long crops remain in the field, and how much water they require. Higher temperatures can also intensify evaporation and soil moisture loss, while shifts in rainfall increase the likelihood of droughts and floods occurring at critical stages of the growing cycle. The result is not simply a warmer continent, but a farming environment in which decisions based on historical weather patterns are less reliable. This vulnerability is

particularly significant because Africa has contributed relatively little to the climate crisis while facing some of its most severe consequences. The continent accounts for less than 10% of global greenhouse gas emissions, yet its agriculture is highly exposed to climate variability, and many farmers have limited access to irrigation, insurance, technology and other tools that could help them absorb climate shocks.

The consequences are already being felt across Africa's agricultural systems. The Horn of Africa experienced its worst drought in four decades, while other regions have faced devastating floods and cyclones. These are not isolated environmental events; they translate directly into lost crops, damaged farmland, disrupted transport and markets and reduced household income. In 2022 alone, more than 110 million people across Africa were directly affected by weather, climate and water-related hazards, with more than US$8.5 billion in reported economic damages. Approximately 5,000 deaths were recorded, with droughts and floods accounting for the majority. Climate change has also reduced agricultural productivity growth in Africa by 34% since 1961, the largest decline experienced by any region globally.

For farmers, the greatest challenge is no longer poor soil or inadequate fertiliser; it is uncertainty. Planting calendars based on generations of experience are becoming less reliable. Fertiliser cannot compensate for crops destroyed by floods, and improved seeds cannot predict delayed rainfall or prolonged drought.

Why Traditional Agriculture Is No Longer Enough

Traditional farming practices remain essential, but they are no longer sufficient in a climate defined by unpredictability. Farmers have traditionally used knowledge of local seasons, rainfall patterns, soil conditions and observations from previous planting cycles to decide when to plant, which crops to grow and when to harvest. But when the onset of rains shifts, dry spells become longer, or rainfall arrives in intense bursts, a planting calendar based on previous seasons can become a poor guide. This is particularly difficult for smallholder farmers who depend heavily on rain-fed agriculture. Many still receive weather information through radio, extension officers, community networks or general forecasts, but these forecasts may be too broad, too technical or arrive too late to support a specific farm decision. Research in Tanzania, for example, found that fewer than 55% of surveyed farmers had access to weather forecasts through SMS, radio or television, and only about 40% of those who received them could interpret and use the information for agricultural decisions.

This is where technology changes the equation. Satellite imagery can monitor crop health in near real time. Internet of Things (IoT) sensors can measure soil moisture before crops begin to suffer. Artificial intelligence can combine weather forecasts, historical climate records, satellite observations, and soil data to predict droughts, pest outbreaks, and expected yields weeks or even months in advance. The value is not in giving farmers data to interpret, but in helping them turn that data into a decision. A farmer preparing to plant could receive a recommendation based on local conditions, for example, 'plant now, delay planting, or consider a more drought-tolerant seed variety'. Rather than replacing the knowledge farmers have built over generations, data gives them more insight to make better decisions in an increasingly unpredictable climate.

Fertiliser drives productivity, but data is making farming more precise. Precision agriculture combines field data with technologies to guide decisions on fertiliser, irrigation, planting, and crop monitoring, helping farmers use resources more efficiently while improving productivity.

The table below shows how data-driven intelligence can enhance and complement traditional farming inputs and experience.

Traditional Input	Data Intelligence
Fertiliser	Satellite imagery
Seeds	Weather forecasts
Irrigation	Soil sensors
Farmer experience	AI-powered predictions
Manual crop inspection	Computer vision

Across Africa, governments and agritech companies are embracing digital agriculture. In Tanzania, the iSAT advisory system combines seasonal forecasts, weather data, soil conditions and agronomic knowledge before sending farmers weekly recommendations in Kiswahili. In Kenya, an agro-weather initiative has delivered weather and agricultural information through mobile phones, computers and radio. The UNFCCC reports that the programme reached up to 5,000 farming households, providing daily and seasonal alerts intended to help farmers prepare for variable and extreme weather. In Rwanda, the Rwanda Climate Services for Agriculture (RCSA) project reached more than 111,000 farmers by delivering climate information. The project trained farmers to interpret climate information and incorporate it into decisions about crops, planting and how to prepare for potential climate risks. These innovations are not replacing farmers' knowledge; they give farmers a clearer picture of what is happening on their farms and in their surrounding environment, often early enough to act.

Droughts continue to cost African economies billions of dollars in agricultural losses, floods destroy harvests and transport infrastructure, while prolonged heatwaves reduce livestock productivity and crop yields. Investing in data systems and early warning technologies is therefore not simply a technological upgrade; it is an investment in economic resilience, food security, and rural livelihoods.

The Next Green Revolution Will Be Digital

Africa's next agricultural revolution will not be driven by fertiliser alone. It will be driven by the ability to transform climate data into actionable decisions. Governments should strengthen meteorological services, expand digital infrastructure in rural communities, invest in open agricultural data platforms, and support AI-powered early warning systems. At the same time, partnerships between researchers, agritech companies, and farming communities can ensure these technologies remain accessible to the smallholder farmers who produce most of Africa's food.

Climate change has made uncertainty the greatest threat to African agriculture. In this new reality, resilience will depend not only on better seeds or healthier soils, but on better information. Countries that treat data as a strategic agricultural input today will be best positioned to feed their populations tomorrow.



Markets & Trade

Africa's Food System Is Being Shaped By Markets It Does Not Control

Africa's need for trade is undeniable. But can it use that trade to build food systems that are more resilient and productive, rather than more exposed?

When wheat prices spiked after Russia invaded Ukraine, the cost reached African markets within weeks; in the price of bread, in the cost of fertiliser, in the import bills of countries from Cairo to Accra. The war was thousands of kilometres away. The exposure was immediate. That exposure is now the defining feature of Africa's food system. Global food markets have become more important to it, not less; and the strategic question is whether Africa can trade on terms that build resilience rather than deepen dependence.

Agriculture is increasingly global. Food, fertiliser, energy, shipping and finance move across borders, linking farmers in Africa to price movements and policy decisions made an ocean away. Between 2000 and 2024, global food and agricultural trade increased fivefold , drawing low- and middle-income countries deeper into international markets. That integration has created opportunities for African producers, but it has also increased their exposure to shocks beyond their control.

The Balance Africa Cannot Avoid

For Africa, this creates a difficult balance. Trade improves food availability, letting countries import when domestic production falls short. It gives farmers access to larger markets and creates incentives to invest in processing and production. But heavy dependence on external suppliers transmits global disruptions directly into domestic food prices and agricultural costs.

The past few years have made that vulnerability impossible to ignore. The Russia–Ukraine war exposed Africa's dependence on international markets for staple foods and inputs; more recent disruptions in energy and fertiliser markets have shown again how quickly a shock in one part of the global economy reaches farms and consumers elsewhere.

FAO's assessment describes global food markets as relatively favourable overall, with cereal production expected to remain historically high. But it also warns that the outlook remains highly dependent on weather, energy and fertiliser markets, and emerging geopolitical risks The point is not that Africa should withdraw from global markets. No major food system can be entirely self-sufficient. But, do African countries have enough domestic and regional capacity to absorb disruption when international markets become more expensive or less reliable.

That distinction is increasingly important as Africa's food import dependence persists.

The Regional Market Is The Missing Middle

Africa is a net importer of agricultural products, while intra-African agricultural trade remains relatively limited. The 2025 Africa Agriculture Trade Monitor argues that policies supporting regional self-sufficiency should be pursued more actively through the AfCFTA, alongside coordinated reforms and targeted investment.The opportunity is substantial. A stronger regional market could allow food to move from surplus-producing areas to deficit areas without depending as heavily on suppliers outside the continent. It could also give farmers access to a larger consumer base and create incentives for investment in processing, storage, logistics and food manufacturing.

But trade agreements alone will not create this market.

Africa's internal food trade is constrained by transport costs, fragmented markets, infrastructure gaps, inconsistent standards and other barriers that increase the cost of moving agricultural products across borders. The 2025 Africa Agrifood Systems Report notes that limited processing capacity, high logistics costs and fragmented domestic markets continue to push African food trade towards raw commodities rather than higher-value

processed products.

The result is a paradox: Africa has enormous agricultural resources and a large and growing consumer market, yet much of the value created within its food system is still captured outside it.

Trade Is Not Just About Imports

There is another side to the story. African producers are already participating in global markets for coffee, cocoa, tea, horticulture, oilseeds, fruit, livestock and other commodities. Global demand can provide valuable export earnings and encourage investment in production and processing.

The problem is not agricultural exports themselves. It is the structure of those exports and who captures the value. An economy that exports raw commodities while importing processed food remains exposed to external prices while capturing less of the value created along the supply chain. Moving from commodity exports towards processing, manufacturing and regional value chains therefore matters as much as increasing production. This is particularly relevant as global buyers increasingly seek diversified supply chains. Africa could benefit from this shift, but only where producers can meet international standards, deliver reliably and compete on cost.

The AfCFTA Can Change The Equation, But Only If Trade Becomes Easier

The African Continental Free Trade Area offers one of the continent's strongest tools for changing this dynamic. Its importance goes beyond reducing tariffs. A functioning continental market could help African businesses operate at greater scale, create more predictable demand and make investments in food processing and distribution more commercially viable.

The opportunity is already reflected in the African Union's current agricultural agenda. The 2026–2035 CAADP implementation framework includes targets to triple intra-African agrifood trade, increase the share of locally processed food to 35% of agrifood GDP and reduce post-harvest losses by 50%.

Those ambitions point to an important shift in thinking. Food security cannot simply mean producing more food within national borders. It also requires building markets capable of moving food efficiently between African countries.

From food security to market resilience

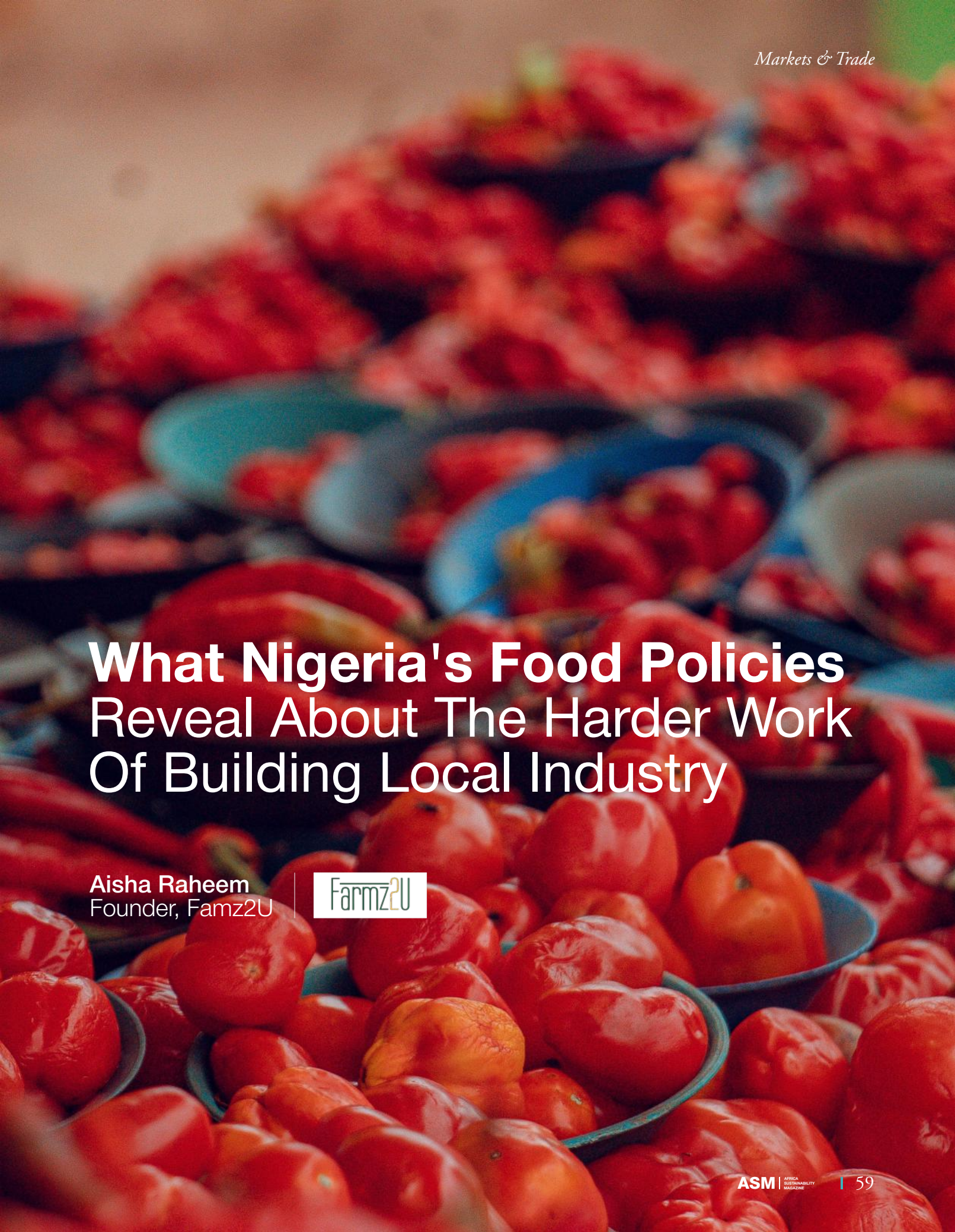
The next phase of Africa's agricultural transformation must treat trade policy, agricultural policy and industrial policy as one problem, not three.

That means investing in roads and storage alongside farms. Harmonising standards alongside trade agreements. Financing processors alongside producers. And building regional markets alongside export markets.

The objective should not be to isolate African food systems from the world. It should be to make them less vulnerable to shocks they cannot control and better positioned to benefit from markets they can access.

Global markets will continue to shape African agriculture. The strategic question is whether Africa remains primarily a price-taker within those markets—or builds the productive capacity, regional trade and value chains needed to become a more influential participant.

Africa does not need to choose between global trade and food sovereignty. The more important task is building the capacity to benefit from the first without sacrificing the second.



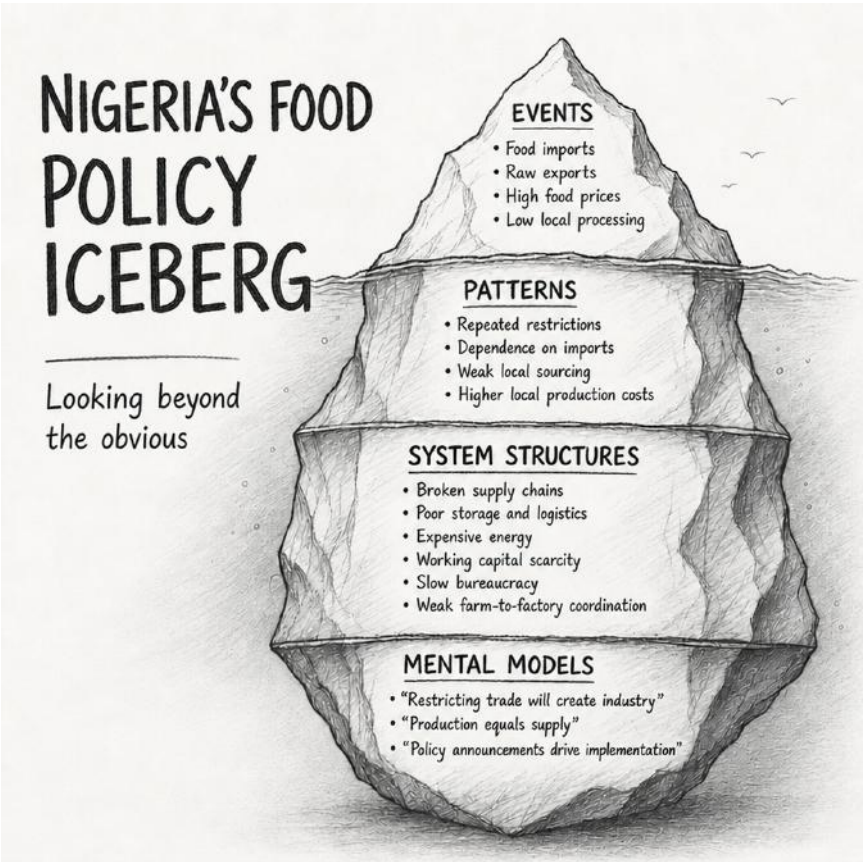
What Nigeria's Food Policies Reveal About The Harder Work Of Building Local Industry

Aisha Raheem
Founder, Famz2U

Nigeria has good reason to want to manufacture more of what it grows. Shea makes the opportunity particularly visible. Nigeria's government estimates that the country produces close to 40% of the global shea supply, yet captures less than 1% of a $6.5 billion global market. In August 2025, the government responded by temporarily restricting exports of raw shea nuts, arguing that more of the crop should be processed in Nigeria rather than leaving the country unprocessed. The restriction has since been extended to February 2027. The economic logic is difficult to dispute. But there is a harder question: what happens the morning after a restriction comes into force?

A border policy can change what enters or leaves Nigeria. It cannot, on its own, make electricity cheaper, finance a processor's next purchase order or ensure that the right quantity of shea nuts arrives at a factory when needed. The systems-thinking "iceberg" offers a useful way to understand the problem. Above the waterline are the events we readily observe.

Shea illustrates what sits immediately underneath. When the original restriction was announced, government figures suggested that Nigerian processors were operating at just 35–50% of the country's 160,000-tonne installed capacity. At first glance, that appears to present an obvious solution: retain those nuts and send them to Nigerian factories. But retaining a commodity is not the same thing as creating its industrial supply chain.



At Farmz2u, coordinating fragmented agricultural supply chains has given us a front-row seat to this less visible part of the iceberg. A manufacturer does not simply need to know that Nigeria produces shea. It needs the right quantity and specification, aggregated from often dispersed suppliers, delivered to the right place at the right time and at a commercially viable price. Between a shea collector and a processing factory sit aggregation, quality control, transport and finance. A restriction can increase the amount of raw material theoretically available domestically. These other functions determine whether a processor can use it.

Finance makes this coordination problem harder

The Central Bank of Nigeria acknowledges that less than 5% of bank credit goes to agriculture. Yet a single agricultural transaction can require financing at several stages. A farmer may need capital before planting. An aggregator needs cash to purchase from many dispersed suppliers. A processor may need

to acquire significant raw-material inventory long before receiving payment for its finished products. This is why Farmz2u's work has increasingly expanded beyond coordinating who buys what from whom. We see rural finance and trade finance as part of the supply-chain infrastructure itself.

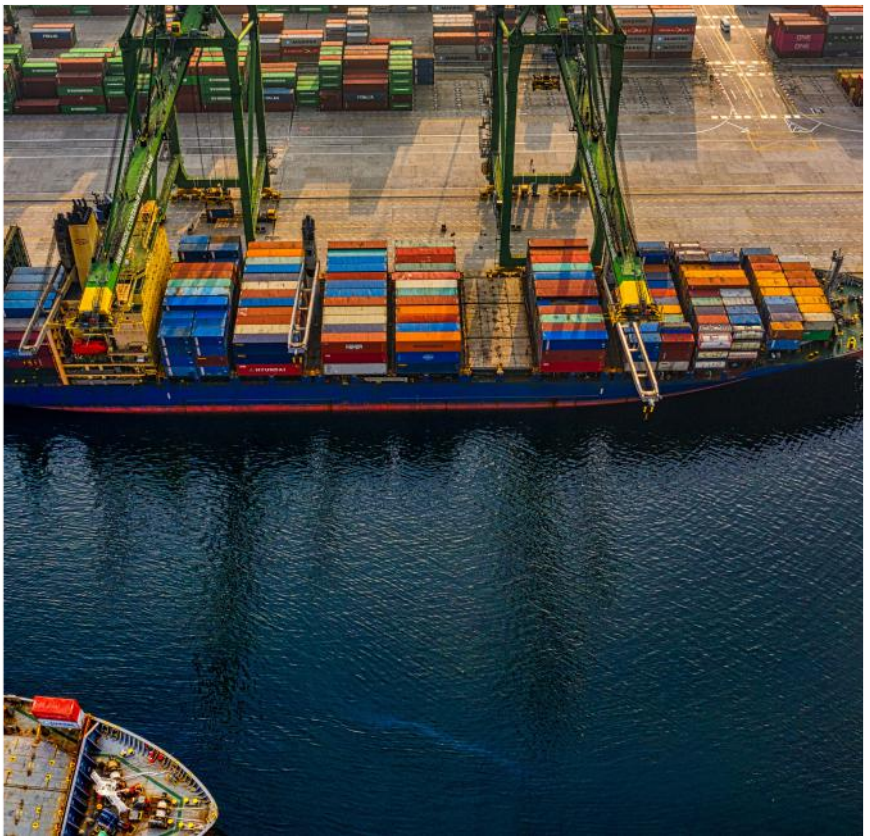
Shea again provides an interesting test. Having extended the restriction, the Federal Government has now directed the Ministry of Finance to provide access to a dedicated support window and authorised a pilot Livelihood Finance Mechanism intended to strengthen production and processing capacity. It has also called for a unified national framework spanning industrialisation, trade and investment across the shea value chain.

That is closer to the question Nigeria should be asking. Not simply: should raw shea leave the country? But: what would make processing that shea in Nigeria commercially compelling?

A restriction is the beginning, not the industrial strategy

If a government chooses to restrict raw commodity exports to encourage local value addition, the measure should activate a much wider response.

Can processors obtain affordable working capital to



purchase the retained supply? Can new manufacturers investing in processing capacity receive tax incentives? Can processing clusters access cheaper, more reliable energy? Can national government coordinate with shea-producing states so processors know where additional supply will come from and producers have confidence that demand exists? And critically: how quickly can these interventions become real?

Part of my decision to work more closely with policy institutions like the Nigerian Economic Summit Group stemmed from a desire to better understand the gap between sound policy intent and private-sector experience. The closer I have come to that intersection, the more apparent another hidden cost has become: the cost of waiting. Interest continues accruing. Machinery sits idle. Inventory deteriorates. Customers find alternatives. Investors reconsider decisions. Nigeria's ambition to turn more of its agricultural production into higher-value products is the right one.

Restrictions can create an incentive for industry

Only a functioning system, however, enables response.

The real work begins below the waterline. Because treating the symptom may change what crosses the border; treating the disease changes what Nigeria can actually produce.



The Billion-ShillingTrust Deficit: Why Kenya's Food System Runs at Half Power

Bharathi Bharatam
Co-Founder of Kuza Biashara and Director of Programme Development and Impact

kuza



The Empty Factory And The Full Farm

Ten tonnes of potatoes arrived at a processor's facility in Kenya after much preparation. For months, Kuza's agripreneurs, who are trained members of the local community, had worked alongside a group of smallholder farmers to help them meet the buyer's requirements and prepare their crop for sale. The farmers invested their time, money and land in the opportunity and did everything that was asked of them.

Yet, the entire shipment was rejected.

The reason given was unclear, and there was no independent assessment, negotiation nor offer to accept even some of the produce. Because the potatoes were perishable, they had to be sold quickly into the open market at a much lower price. The financial loss was significant. More damaging, however, was the loss of confidence in the formal market. Trust that had taken months to build disappeared in a single day.

This is not an isolated incident. It reflects a wider challenge at the heart of Kenya's agricultural system. Food processors struggle to secure the volume and quality of produce they need, while farmers say there are no reliable buyers. Both are telling the truth. Through our work at Kuza with farmers and buyers across Kenya, we see this tension play out every day. With support from TRANSFORM, we have been refining a demand-led approach that aligns farmer training and market access more closely with buyer demand. That experience has provided valuable insight into where agricultural markets break down and what it will take to rebuild trust.

When Trust Breaks Down

Processors carry real challenges of their own. They may be unsure how much demand there will be for their products. They may be waiting weeks or months to be paid by customers further up the value chain. Those pressures are genuine. But farmers often bear the consequences. They pay upfront for seeds, fertiliser, labour and transport, months before earning any income. If requirements change at delivery, or produce is rejected without an independent assessment, they can be left with perishable crops and no alternative buyer. Kenya already loses an estimated 30 per cent of its harvested crops largely as a result of poor harvesting and handling practices, inadequate

storage and cold chains, transport challenges, perishability, and weak market linkages. A rejected shipment only reinforces the belief that formal markets cannot be relied upon.

So, farmers adapt. They grow crop varieties they know they can sell easily and turn to informal traders who pay cash immediately and rarely change the terms of a deal. It is a rational response to a system that has let them down too many times. In dairy alone, around 80 per cent of Kenya's milk moves through informal channels - not because formal processors do not exist, but because informal markets offer greater certainty.

The result is a vicious cycle. Farmers leave formal markets. Processors have fewer suppliers to rely on. Supply shortages persist, and trust continues to erode.

How To Share Risk More Fairly

Breaking the cycle requires a more balanced relationship between farmers and processors. The first step is greater certainty before planting begins. If a processor wants farmers to grow specific crops to a particular standard, there should be a commitment to a price, or at least a minimum price, before the season starts. This does not remove market risk, but it ensures farmers are not carrying it alone. A contract that defines only what the farmer must deliver, and not what the buyer will pay, is unlikely to build a lasting relationship.

Second, quality disputes need greater transparency. Rejection decisions should not rest solely with the buyer. Independent quality verification, whether through an industry body, third-party assessor or digital system, would create accountability on both sides. If produce falls short of the agreed standard, the evidence should be clear. If it meets the specification, farmers should have confidence that it will be accepted.

Payment practices matter too. Farmers cannot wait months to be paid while continuing to shoulder production costs. In an era of mobile money and digital payments, long delays are increasingly difficult to justify. The processors who figure this out first will have the first pick of the best farmers and the best produce.

Finally, stronger supply chains require shared investment. Successful agricultural markets are built on partnerships where buyers help farmers succeed, whether through access to inputs, technical support, pre-season finance or premiums for quality produce.

None of these measures are revolutionary. Together, however, they create predictability. When farmers know what price they can expect, how quality will be assessed and when they will be paid, they are more willing to invest and plan. Processors gain a more reliable supply base. Trust grows.

The empty factory and the full farm are not separate problems. They are symptoms of the same trust deficit. Until risk is shared more fairly, Kenya's food system will continue to operate below its potential. When that changes, farmers, processors and consumers all stand to benefit.

Bharathi Bharatam is Co-Founder of Kuza Biashara and Director of Programme Development & Impact. With over 25 years of experience across Africa and Asia, she leads Kuza's programme architecture — spanning learning systems, last-mile delivery models, and the OneNetwork digital ecosystem.

Kuza is an impact enterprise supported by TRANSFORM, an impact accelerator led by Unilever, the UK Government's Foreign, Commonwealth and Development Office, and EY. For more than a decade, TRANSFORM has combined grant funding with business support to help scale market-based solutions across Africa and Asia that build inclusive, sustainable economies, empower marginalised communities, and drive climate-resilient growth.



SDG 2 in Africa: Five Years to Turn the Numbers Around

The deadline for Zero Hunger is approaching. In Africa, there's been a recent pause in the long-term rise in hunger, but it remains far from the trajectory required to achieve SDG 2 by 2030.

When the Sustainable Development Goals (SDGs) were adopted in 2015, SDG 2 set out an ambitious objective: end hunger, achieve food security and improved nutrition, and promote sustainable agriculture by 2030. For African agriculture, that means much more than increasing food production.

SDG 2 includes targets to end hunger and ensure access to safe and nutritious food; double the productivity and incomes of small-scale food producers; establish sustainable and resilient agricultural systems; increase investment in rural infrastructure and agricultural research; and improve the functioning of global agricultural markets. With less than five years remaining, the latest data suggest that Africa is not on track. But the picture is not uniformly negative.

Hunger Has Finally Stopped Rising, But Remains Extraordinarily High

Africa's hunger rate fell slightly from 20.3% in 2024 to 20.0% in 2025, the first break in the continent's upward trend since 2017. Yet approximately 309 million people in Africa remained undernourished in 2025. That is roughly one in five people. Africa now has the largest number of people facing hunger of any region, even though the prevalence has begun to stabilise. Population growth is an important part of the explanation: the number of people experiencing hunger can remain high even when the proportion of the population affected falls. And the 2030 outlook remains stark. Current projections indicate that Africa could account for more than half of the world's hungry people by 2030. Though the

direction has improved slightly, the pace has not.

Food Insecurity Remains A Much Larger Problem

Hunger is only one measure of food access. In 2025, 56.6% of Africa's population experienced moderate or severe food insecurity, according to the latest UN estimates. That means people were at some point forced to compromise on the quality or quantity of food available to them. The affordability of a healthy diet is even more revealing. In 2025, 66.6% of Africa's population could not afford a healthy diet. That is more than twice the global level reported in the same assessment. This changes how SDG 2 should be understood. A food system can produce more calories while still failing to provide affordable, nutritious diets. For Africa, the challenge goes beyond "How do we produce more food?" to "How do we produce, process, distribute and price food so that people can actually afford a healthy diet?"

Smallholder Farmers Remain The Critical Test

SDG Target 2.3 calls for the productivity and incomes of small-scale food producers to double by 2030, particularly for women, family farmers, pastoralists, indigenous peoples and fishers. This is one of the areas where progress is particularly difficult to measure. Farm-level income and productivity data remain limited across Africa. The UN notes that data for the relevant indicators are available for only a limited number of countries, making continent-wide assessment difficult. But where data do exist, the direction is clear: small-scale producers generally have substantially lower productivity and incomes than larger producers. Across countries with available data, small-scale producers' annual agricultural income is often below $1,500 in constant 2017 PPP terms, and their incomes can range from just 1% to 82% of those of non-small-scale producers. That gap matters because smallholders cannot become the foundation of a transformed food system if the economics of farming remain weak.

Sustainable Agriculture Is Improving, But Not Fast Enough

SDG 2.4 calls for sustainable food production systems and resilient agricultural practices that increase productivity while protecting ecosystems and improving the capacity to adapt to climate change. The latest global assessment gives productive and sustainable agriculture a status score of 3.3 out of 5 in 2024, with a trend score of 4.0 over 2015–2024. That indicates progress, but not enough to reach the 2030 target at the current pace. Sub-Saharan Africa remains among the regions furthest from the target. The weakness is particularly visible in productivity and employment conditions. Environmental efficiency and resource management indicators have generally performed better than indicators related to agricultural productivity and decent work. That matters for Africa because sustainable agriculture cannot simply mean reducing environmental damage. It must also produce enough value to support farmers and workers. Investment is increasing, but public commitment remains insufficient. There is more money flowing into agricultural development than there was a decade ago. Agricultural development assistance to developing countries reached $18.7 billion in 2024, while Africa received $8.7 billion, nearly twice its 2015 level in real terms. Yet agriculture's share of public spending remains low globally. Agriculture accounted for only 1.83% of government expenditure in 2024, down from 2.09% in 2015.The issue, therefore, is whether the scale, structure and destination of that finance are aligned with the transformation required. Africa needs investment not only in

The 2030 Test Is Bigger Than Hunger

SDG 2 is sometimes reduced to a single question: Is hunger falling? Africa's data show why that is insufficient.

Africa must simultaneously improve:

- **Food access:** 20% of Africans were still undernourished in 2025.
- **Food security:** 56.6% experienced moderate or severe food insecurity.
- **Diet quality:** 66.6% could not afford a healthy diet.
- **Smallholder incomes and productivity:** still substantially behind larger producers.
- **Agricultural sustainability:** progress remains too slow, particularly in Sub-Saharan Africa.
- **Investment:** agricultural development finance is increasing, but remains inadequate relative to the scale of transformation required.

These are not separate challenges. They reinforce one another.

A farmer who cannot access finance cannot invest in improved inputs. A producer without reliable roads or storage cannot reliably reach markets. A processor without affordable energy cannot compete. A household facing high food prices cannot necessarily afford a nutritious diet even when food is available.

What Can Still Change Before 2030?

The latest numbers do not suggest that SDG 2 is achievable through incremental improvements.

They point instead to the need for a more integrated agricultural strategy—one that treats production, markets, nutrition, climate resilience and livelihoods as parts of the same system.

There is some reason for optimism. The decline in Africa's hunger rate in 2025 shows that the trajectory is not fixed. The African Union's new CAADP implementation framework also sets measurable ambitions for 2030, including a 45% increase in agrifood output, a 50% reduction in post-harvest losses, a tripling of intra-African agrifood trade and stronger local processing. But five years is a short period in agricultural transformation.

Africa has made some progress, but meeting the SDG targets will require faster action to raise farmer incomes and productivity, improve access to nutritious food, strengthen resilience and make agricultural growth more sustainable.



People & Community

Zero Waste and Circularity: How Frontline Communities are Building Africa's Sustainable Cities Through Creativity

Desmond Alugnoa Co-Founder,
Green Africa Youth Organisation (GAYO),
Earthshot Prize Winner 2024

When a landfill collapses, it rarely brings down just a pile of rubbish. Homes, livelihoods and lives can disappear with it. Across Africa, from Ethiopia to Mozambique and Uganda to Guinea-Conakry, recent landfill and dumpsite disasters have exposed a painful reality: how African cities manage waste is becoming a threat to the very progress they have made in reducing poverty, tackling climate change and pursuing sustainable development.

This crisis, however, also presents an opportunity where young people and frontline communities are already showing us how to divert waste from landfills for recycling and improving soil biodiversity. African cities do not need to

replicate wasteful urban models developed elsewhere; instead, they can build cities around a circular economy that ensures decent green jobs for their communities with young people at the centre. This is not just an environmental choice; it is an economic and social imperative.

More than 60% of municipal waste in many African cities is food waste and organic material; but rather than treating this as waste destined for dumpsites, cities can recover it as a resource through composting, animal feed, biogas and other circular solutions. Doing so can reduce methane emissions and improve crop yields while creating businesses and jobs along the entire value chain. This potential is already being demonstrated by several communities; Accra, Lilongwe, Kisumu and Dar es Salaam were among the 20 cities recognised by the United Nations in 2025 for progress toward zero waste. Behind many of these efforts are young people and community leaders mobilising residents, creating enterprises and challenging conventional approaches to urban development.

The Green Africa Youth Organisation (GAYO), a youth-led, gender-balanced organisation that won the Earthshot Prize under the Clean Air category in 2024, has demonstrated how youth leadership can connect climate action with livelihoods. Through its Zero Waste Cities programme, GAYO works with informal waste workers who are largely young people and women to improve source separation and collection of Municipal Solid Waste (MSW). GAYO'S initiatives have also transformed agricultural residues such as coconut and rice husks into charcoal briquettes, providing an alternative to wood fuel while keeping waste out of drains and landfills. The impact extends beyond waste diversion. Approximately 2,000 tonnes of food waste have been converted into animal feed and organic compost, supporting urban agriculture while creating opportunities for micro, small and medium-sized enterprises across the waste value chain.

GAYO recognises that no circular economy can function without the people who work on its frontlines. Informal waste workers collect, sort, recover and recycle materials every day, often without recognition, social protection or safe working conditions. They are not a problem to be removed from the waste system; they are essential workers in Africa's circular economy.

The launch of the Federation of Informal Sector Waste Workers Associations of Ghana (FISWWAG) in July 2026 demonstrates what community organising can achieve. The process identified and profiled more than 50,000 informal waste workers across Ghana and strengthened more than 25 waste worker cooperatives. Recognising these workers creates pathways to safer jobs, market access, stronger enterprises and greater dignity. This initiative brought together delegates from 16 African countries to share stories of resilience and the common belief in a zero-waste Africa.

Sustainable African cities will not be built by infrastructure alone; they will be built by people, too. Governments must therefore invest in young people's skills, support community-led enterprises, integrate informal workers into formal waste systems, and create policies that make reuse, repair, recycling and resource recovery economically viable. The future of Africa's cities depends on rejecting waste colonialism and turning waste from a liability into an asset. Therefore, we can turn the millions of young people and frontline workers already brokering zero waste solutions in their communities into the architects of a just transition.

African cities can become circular, but we are prepared to invest in the people who are already showing us how to achieve this.

Empowering African businesses with sustainability intelligence to build resilient and impactful businesses.

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