

White paper

Growing Africa's Future

Five themes to advance food sovereignty on the continent

May 7, 2024



This white paper is part of the preparatory materials for The Africa Roundtable, hosted by Global Perspectives Initiative. McKinsey is supporting this initiative as a knowledge partner and, as such, authored the white paper at hand. The white paper outlines ideas that are intended to provide a factual basis for The Africa Roundtable discussions. It synthesizes key insights from McKinsey's previously published research on agriculture and economic developments in Africa curated by Acha Leke, Omid Kassiri, Amandla Ooko-Ombaka, Nina Cong and Natalia Molina Harno.

For further reference, key articles referenced in this paper include:

- "Striking the land use balance: Catalyzing a sustainable land use transition," McKinsey, November 2023.
- "Reimagining economic growth in Africa: Turning diversity into opportunity," McKinsey Global Institute, June 5, 2023.
- *Empowering Africa's food systems for the future (Issue 11)*. AGRA, 2022.
- *Green Africa: A growth and resilience agenda for the continent*, McKinsey, October 28, 2021.
- *Roadmap to Africa: A turning point in economic relations*, McKinsey, April 2023.
- Kannan Lakmeharan, Qaizer Manji, Ronald Nyairo, and Harald Pöltner, "Solving Africa's infrastructure paradox," McKinsey, March 6, 2020.
- "From green ammonia to lower-carbon foods," McKinsey, December 11, 2023.
- "Building food and agriculture businesses for a green future," McKinsey, September 19, 2023.

McKinsey is not responsible for the content of any discussions by The Africa Roundtable participants that occur before, during, or after this event. No part of this white paper may be copied or redistributed in any form without the prior written consent of McKinsey. All rights reserved.

Key messages



Africa's food industry is on track to reach \$1 trillion by 2030, fueled by a fast growing, rapidly urbanizing population and growing consumer spend. Although agriculture is critical to many African economies, the sector—and African food sovereignty overall—is challenged by low productivity, infrastructure gaps, and the impacts of climate change.



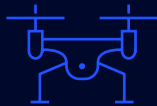
Unlocking Africa's food sovereignty potential will require our food systems to “do more with less”. Despite the continents' abundant land resources, only a fraction is ready for cultivation. While some land expansion is possible, most of the increase in production will likely come from more productivity, effectively requiring solutions that can drive better yields from existing land.



Significant investments are required to unlock opportunities to transform Africa's food system. These cover both near-term and long-term investments, including sustainable farming technologies to improve productivity, unlocking underutilized land, boosting intra-African trade, as well as investments in green infrastructure and reducing food waste—all of which can be enabled by digital tools.



Five key themes can shape the outlook for Africa's food sovereignty. First, Africa's land resources are critical to meeting the world's future food, fuel, and nature needs and the competition for land is intensifying; second, both local production and intra-Africa trade are key to driving the continent's self-sufficiency; third, urgent climate action is vital to building resilient and sustainable food systems; fourth, green investments play an important role in unlocking new value streams and improving controls in food systems to reduce waste; and fifth, new labor-intensive forms of production could be required to fully harness the continent's demographic advantage in agri-food systems.



Agricultural innovations and digital technologies can play a key role in improving productivity and reducing waste. For instance, advanced data analysis can help expand farmland sustainably by identifying suitable degraded land for conversion, and food balance sheets, which track food production, consumption, trade and storage, can help governments, farmers and businesses make more informed decisions.



Achieving African food sovereignty requires collaboration. Public-private-philanthropic partnerships (PPPPs) can enable stakeholders to work together to create a better investment environment by building infrastructure, funding green projects, and offering clear climate action plans.

By embracing innovative business solutions, improving the ease of doing business on the continent to attract investment, and developing strong partnerships, Africa can accelerate progress to address the challenges in its agricultural sector, empowering its young and growing workforce and paving the way for a more resilient and food-secure future for the continent.

Introduction

Africa's food industry is projected to be worth \$1 trillion by 2030, representing the single largest spending category in the continent's growing consumer spend.¹ By 2030, 130 million Africans could enter the consuming class—four times more than the expected number in the US, China, and Europe combined.² To meet this demand, the continent has significant potential for growth in the agri-food sector. Productivity and output in the sector have steadily improved over the last two decades, and growing intra-Africa trade is a priority for many countries on the continent to address high imports of key food commodities.

Africa has abundant resources to support growth, including untapped arable land. However, food sovereignty—the right of people to define and control their own food and agriculture systems—is not a reality for over 300 million Africans who

experience severe food insecurity. Climate-induced volatility is on the rise, with many of these food-insecure people also among the most vulnerable to its impacts.³

With populations continuing to grow rapidly, the need to sustainably increase food supply on the continent is critical. Technological innovations, including AI, are not silver bullets to these challenges but can support the goal of food sovereignty by focusing on targeted interventions to accelerate supply and unlock untapped resources, including land.

While this paper acknowledges the impact of demand-side interventions, for example encompassing more locally grown and indigenous foods in consumer diets, its focus is primarily on supply-side innovations, including fostering technology collaborations in the sector.

Food sovereignty—the right of people to define and control their own food and agriculture systems—is not a reality for over 300 million Africans.

Africa's food systems are transforming, but food sovereignty remains a challenge

Africa continues to be one of the world's fastest-growing regions, with 11 of the world's 20 fastest-growing economies in 2024 on the continent.⁴ Despite the challenging external environment and the shock of the pandemic, which reduced the continent's real GDP growth by almost half, Africa's average GDP growth is projected to stabilize at 4.1 percent in 2023 and 2024.⁵

Several factors are driving this opportunity across the African continent—including shifting population dynamics. For instance, Africa has the world's fastest-growing—and youngest—population. While population growth in other regions has slowed, Africa's has increased by 2.4 percent per year for the past 30 years, according to the African Development Bank. Today, more than 60 percent of the population is under the age of 25. And by 2030, young Africans are expected to constitute approximately 40 percent of global youth.⁶ Although more than half of its population lived in rural areas in 2019 (where most food production happens), the continent is urbanizing faster than anywhere else globally.⁷ Since 2000, Africa's urban population has outpaced global population growth. Over the next two decades, Africa could become mostly urban as more than 500 million people arrive in its cities, creating the largest total number of urban dwellers in the world (Exhibit 1). Urbanization offers opportunities for growth as consumption per household in cities is almost twice the African average.⁸

Urbanization contributes to the transformation of food systems, affecting food demand patterns and consumer preferences, as well as impacting rural areas.⁹ For example, farmers may need to grow different types of food to meet high demand, and agricultural land faces competition from other land uses (for example, forestry, conservation and

biofuel). Urbanization may also impact incomes for rural populations as remittances from urban areas increase. As a result of these trends, consumer spending has been the biggest contributor to Africa's GDP growth over the past two decades and is projected to continue as such for the next ten years, representing a more than \$3 trillion opportunity by 2030. Within this, food is expected to be one of the largest spending categories.¹⁰

For African food systems, tens of millions of new African consumers could emerge every year as the population grows. It is estimated that some 130 million Africans will enter the consuming class by 2030 (compared with 140 million in India, 25 million in the US, and 6 million in China, while Europe is expected to shrink by 5 million).¹¹

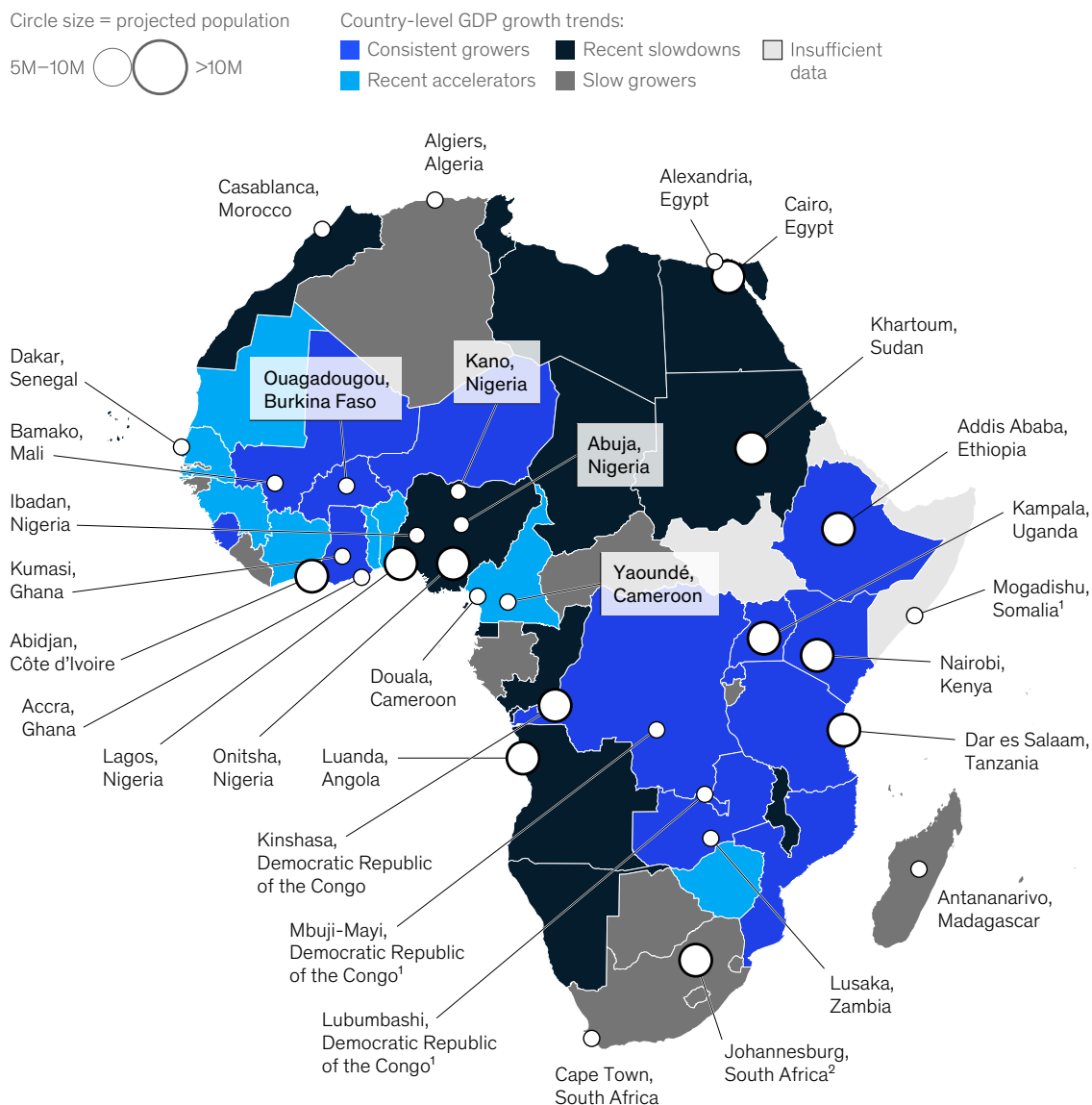
Today, Africans spend approximately \$1.6 trillion on consumption needs.¹² By 2030, consumers in the region could spend an additional \$1.2 trillion, 40 percent of which is focused on food, with the potential for more if the next decade of growth is fueled more by consumption spending than population growth.¹³

Beyond these demographic strengths underpinning consumption, Africa boasts growing regional cooperation, an abundance of natural resources, and a rapidly expanding digital landscape as young tech-savvy populations are driving widespread adoptions of digital technologies. These factors indicate potential future tailwinds for continued growth. For example, the African Continental Free Trade Agreement (AfCFTA), though not yet fully implemented, aims to gradually eliminate tariffs on 90 percent of goods, making it easier for African businesses to trade within the continent and expanding access to these growing markets.¹⁴

Exhibit 1:

By 2040, Africa will have 31 cities—19 more than today—with more than five million people.

African cities with more than 5 million people by 2040



The boundaries and names shown on this map do not imply official endorsement or acceptance by McKinsey & Company.

Note: Djibouti, Eritrea, Sao Tome and Principe, Somalia, and South Sudan are excluded due to incomplete GDP data 2000–19.

¹Lubumbashi, Mbuji-Mayi, and Mogadishu are not included in the other cities analyses as they are not included in the Oxford Economics data set.

²Greater Johannesburg includes the city of Johannesburg, Ekurhuleni, and the West Rand.

Source: Oxford Economics; UN World Urban Population; MGI Pixels of Progress geospatial data set

Despite these shifts and the opportunities they are creating, food sovereignty remains a significant challenge on the continent. According to the Food and Agriculture Organisation of the United Nations, about 40 percent of the world's hungry population is in Africa, even though Africans only represent about 20 percent of the world's total population. Furthermore, the prevalence of moderate or severe food insecurity in Africa has grown because of converging disruptions from the pandemic, supply-chain constraints due to the war in Ukraine, and climate events.¹⁵ The latest estimates show that 24 percent of the population on the continent experience severe food insecurity.^{16 17}

Food insecurity continues to have a gender dimension, too. Since 2019, more women have been affected by moderate or severe food insecurity than men in Africa. This gender gap narrowed slightly

in the region between 2020 and 2022, with the largest decrease observed in Western Africa, and the smallest in Northern Africa at that time.¹⁸

Furthermore, political challenges across the continent continue to affect land access, agricultural production, as well as potential investor interest. About 30 percent of Africa's population was affected by political events that brought instability in the 2010 to 2019 decade, compared with 4 percent in the preceding decade¹⁹.

Addressing these challenges will be vital to boost food sovereignty and meet the needs of Africa's rapidly growing population. At the same time, the shifts required offer significant opportunities to African stakeholders and investors, specifically with regards to transforming food production and boosting productivity across the agriculture sector.

Unlocking Africa's untapped potential for productivity

Africa's economies have been undergoing a profound structural shift to services over the past 20 years as people have left work in the fields to take jobs in trade and other services in cities.²⁰ Nevertheless, agriculture remains the backbone of many African economies, providing roughly 50 percent of the continent's total employment (higher in rural areas, where it is up to 70 percent), and 15 percent of total value-added.²¹ Africa's agricultural sector holds significant potential. The continent boasts abundant resources, including vast swathes of untapped arable land, a strong labor pool, and a rapidly growing urban consumer market. But there is room to grow.

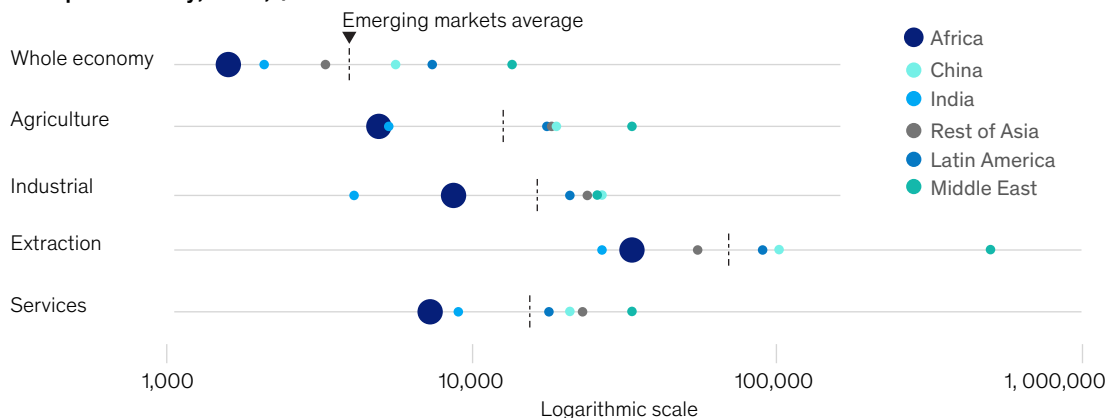
Over the past two decades, the primary driver of agricultural growth has shifted from big increases in the labor force to growth in real agricultural

capital stock. Yet African agricultural yields and productivity lag the standards of global peers, due in part to limited access to improved seeds and fertilizers, as well as the increasing impact of climate change.

Productivity has increased only modestly on average across all sectors of the African economy over the past two decades and is low across the entirety of the African economy relative to peers (Exhibit 2). Over the past decade, agricultural productivity in most African countries has improved at a rate too slow to close the gap with the rest of the world, exceeding the global average in only eight of Africa's 54 countries. In a context of climate change and political challenges, the continent's slow growth in agricultural output could threaten its ability to feed its people.

Exhibit 2:

Real productivity, 2019, \$



¹Emerging markets include middle-income countries as defined by the World Bank.
Source: MGI Africa Productivity Model; McKinsey Global Institute analysis

For instance, sub-Saharan Africa harvests maize over slightly more land than the United States, but cereal yields are, on average, one-fifth that of the United States and half that of India.²² At the same time, intra-African trade, which holds the potential to offset high levels of food imports, remains significantly lower compared to other regions, accounting for just 10 percent of imports. By comparison, in ASEAN, 21 percent of food imports come from within the region, while 58 percent of food imports in the EU originate from intra-EU trade.²³

Africa remains a net food importer, although its trade balance in agricultural products has improved over the past decade. In 2011, the value of net agricultural imports was nearly \$30 billion. In 2021, the balance was about \$6 billion.²⁴ Ethiopia, Morocco, and Rwanda have experienced rapid growth of crop outputs, but neither those countries nor Africa as a whole have achieved a green revolution like those in China, India, and other developing regions.

It's true that the continent boasts abundant resources, including untapped arable land; however, although estimates of untapped agricultural land on the continent range from 480 million to 840 million hectares, much of that land is unreachable due to infrastructure and conflict, or is heavily forested or under conservation. Africa's needs for food and fuel also need to be balanced against

the commitments that have been made related to natural capital, including increasing tree coverage for carbon sequestration and storage, and preserving biodiversity. This means only a fraction of untapped land is ready for cultivation—assuming land ownership rights are clear. In sum, Africa will need to increase the sector's productivity and learn to produce more with less.

McKinsey's analysis finds that if African countries were to match the productivity growth that Indian agriculture experienced from 1980 to 1990, they could collectively add \$200 billion of value to their economies by 2030—or \$40 billion more than expected at current productivity levels. The impact on food production could be significant. For example, Africa could produce two to three times more cereals and grains than it does today, which could add 20 percent more cereals and grains to current worldwide output. Similar increases are possible in the production of livestock and horticultural crops.²⁵

While food security interventions like cash transfers play a crucial role in helping the most vulnerable, achieving food sovereignty requires a broader approach. A robust commercial agricultural sector that increases productivity and output acts as a rising tide, lifting all boats and ensuring long-term food security for the entire population.

Stakeholders could consider several options to help transform and boost food production and productivity. McKinsey highlights four main strategies to consider:

1. Maximizing output value by aligning production resources and production choices with comparative advantage, shifting to higher-value production, and increasing value-added via agro-processing.
2. Boosting production by building the right logistics systems to get produce to consumers.
3. Empowering “midsize change agents” by enabling farms of all sizes to mobilize through a system of traders and warehouse aggregators.
4. Developing financial solutions, in collaboration with the private sector, that enable forward contracts and access to futures markets to allow farmers to hedge against falling prices and bring greater price stability to the market.

Overcoming the ‘infrastructure paradox’ in food systems

There are significant opportunities for investment in infrastructure to drive food sovereignty through boosting production and productivity in the sector. Estimates suggest Africa will need as much as \$65 billion in irrigation and \$8 billion in grain storage to fulfil its agricultural promise.²⁶ Furthermore, investment in digital tools—like a digital food balance sheet (FBS)—can yield significant benefits. An FBS, which tracks a country’s entire food system, providing governments, consumers, farmers, and development partners with accurate data for informed decision-making, could reduce government spending on emergency procurement by 3 percent.²⁷

Given Africa’s strong macroeconomic growth fundamentals relative to the rest of the world and considerable risk appetite for investments, there is significant forward momentum toward funding infrastructure and goods and services on the continent needed to enhance food sovereignty.²⁸ However, practically, there are several challenges to unlocking investments.

Despite available funds, a large pipeline, and a clear need, few projects reach financial close. This is Africa’s infrastructure paradox. About 80 percent of infrastructure projects fail at the feasibility and business-plan stage.²⁹ Barriers include investor and government capacity to assess deals and risk allocation and difficulties in the business environment such as obtaining licenses, approvals, and permits.

While multiple organizations already have efforts underway, further actions will need to be taken in targeted areas to identify and overcome fundamental barriers to investment, both in the near term and with a long-term time horizon.³⁰

Barriers to near-term investments

While there are, in principle, sufficient capital-seeking investable opportunities in Africa, there are several barriers that limit private sector capital deployment into African countries in the near term.

These include a lack of knowledge about investable opportunities on the part of potential investors and financiers, difficulties in the business climate, including political uncertainty leading to country risk premiums and higher costs of capital, and the large spread in attractiveness of green investment opportunities given the different ways countries have prioritized decarbonization agendas. The time and resources required to create projects that are bankable are also often significant. Additionally, a mismatch between investors and transition investment needs—for example, high-emitting sectors that need the most capital to transition typically do not meet the investment criteria of “green” investors—makes it difficult to allocate funds to the most relevant projects. Finally, the often low maturity of local financial sectors limits their ability to mobilize funds for green projects.³¹

Barriers to long-term investments

Africa’s underdeveloped infrastructure is a major roadblock to food sovereignty development on the continent over the long term. Public-private partnerships could help to speed up investments and spur new builds in critical green infrastructure to meet this backlog.

International investors are increasingly spending more across the continent, and Africa’s annual

investment in infrastructure has doubled to around \$80 billion since the beginning of the century.³² Nevertheless, the continent still lags the rest of the world in coverage of key infrastructure classes, such as energy, road and rail transportation, and water infrastructure, that are essential to increasing agricultural productivity. For instance, nearly 600 million people in sub-Saharan Africa lack access to grid electricity, with demand for electricity expected to quadruple between 2010 and 2040. The continent also trails the BRIC countries in other key measures, including rail and road density.³³

As Africa charts the path forward, an all-hands-on-deck approach may be required. National organizations that set the agenda for food sovereignty on the continent, such as the African Union (AU) and the African Development Bank (AfDB), as well as regional economic communities, intergovernmental organizations, including the European Union, private sector players, and bilateral investors all have important roles to play in a continent-driven agenda for food sovereignty.

As stakeholders across the continent and beyond its borders rally for Africa’s food sovereignty, five themes could guide their work, focusing on increasing supply, tackling challenges in climate change and workforce shifts, and managing finite resources, especially land use.

Africa’s annual investment in infrastructure has doubled to around \$80 billion since the beginning of the century. Nevertheless, the continent still lags the rest of the world in coverage of key infrastructure classes.

Five themes shape the outlook for Africa's food sovereignty

As the urgency to address food sovereignty in Africa grows, stakeholders can consider taking action across five interlinked themes. Each theme offers investment opportunities across both the near-term (three to five years) and long-term (five or more years).

Theme 1: To meet the world's future food, fuel and nature needs, food sovereignty policies can reflect the central role Africa's land resources could play.

Near-term investment opportunity: Unlocking underutilized and degraded cropland for sustainable agricultural production.

The world faces a complex challenge as it grapples with balancing the need for food, livestock, and fuel with the importance of protecting natural ecosystems. Humanity's appetite for land continues to grow, driven by population growth, but new challenges and additional commitments to climate and biodiversity mean that land use will need to adapt.³⁴

McKinsey estimates that 70 to 80 million hectares (Mha) of additional cropland will be required by 2030 to feed the world's population. This figure could rise if efforts to convert enough degraded land into cropland fail, and considering extreme weather events, as well as the potential impact of geopolitical, pandemic-related, and other disruptions on trade.

Sub-Saharan Africa has been identified as one of the most cost-effective locations to add nearly one-third of the new cropland requirement—around 20 to 30 Mha in a base-case scenario and as much as 90 Mha in an upper-bound scenario. While existing degraded land in the region could satisfy most future cropland demand and these projected

cropland gains are in line with historic cropland expansion, the historical trends are becoming increasingly hard to replicate due to issues with land access, climate-related shifts in land suitability, local market conditions—including smallholder land ownership—and meeting commitments to nature.³⁵ The heavily forested Congo basin, which includes part of the Democratic Republic of Congo and Tanzania, is the world's largest carbon sink and adjacent to many fertile cropland areas. Pastoralists who lose their pastureland to the cultivation of crops may compensate by clearing secondary and managed forests for grazing. Without adequate intervention, 6 Mha of secondary and managed forests may be at risk. Several areas in and adjacent to the basin, including Ethiopia, have also experienced armed conflict over the last five years, putting further pressure on available land.

Continued deforestation in the region is becoming untenable; expanding cropland while maintaining commitments to nature capital is likely to require concerted and collective action. Supply-side interventions could include stronger yield growth, trade expansion, and conversion of degraded land into cropland, while demand-side interventions could include changing behavior related to food waste and meat consumption, innovation to decrease land-use requirements, and shifts to prioritize sustainable offshore and marine resources.

A broad portfolio of interventions may be required to strike the land-use balance. McKinsey estimates that supply-side interventions could meet or offset around 60 percent of the land required globally. These interventions could include actions across three primary levers: stronger yield growth, trade expansion, and the conversion of degraded land into cropland.³⁶

Theme 2: To achieve self-sufficiency, Africa can focus on both local production and (intra-Africa) trade.

Near-term investment opportunity: An opportunity to build on the existing momentum of the AfCFTA for intra-Africa trade and boost competitive global trade for export commodities.

Even though Africa has sufficient fertile land—about 20 percent of remaining global agricultural land—and a large labor pool, and its agricultural exports have grown significantly in the last decade, Africa's net agricultural trade deficit is about \$40 billion, similar to levels over the last decade.³⁷

Many large economies in the world are running large trade deficits. For example, China's agricultural trade deficit was as high as \$135 billion in 2023.³⁸ The primary challenge is that Africa still relies on imports for key locally consumed commodities, that could be produced locally and even exported; about 50 percent of Africa's rice and wheat is imported, while almost half of Africa's countries export some form of rice.³⁹

A first-order solution could be to invest in competition and efficiency by building up local production capabilities for commodities where the region displays a cost advantage. Competitive local production has several benefits, including more resilient supply chains and localized job creation, while inefficient local production can drive up cost and, subsequently, affordability for end-customers as key ingredients need to be imported and last-mile logistics become expensive.

Where there is not a competitive advantage for a specific commodity in a region, intra-Africa trade can help to balance this equation. A material portion of Africa's food imports is already produced competitively somewhere on the continent. This suggests that there is an opportunity for Africa to become a production basin for agribusinesses while regional trade is improved through the adoption and implementation of AfCFTA to ensure that critical foods can reach all areas more easily.

Major agribusiness companies are increasingly integrating vertically as more traders extend into production and processing while retailers move into production and sourcing of key input commodities. There is also a small but rising

number of specialized players, especially on the input side. In addition, millions of smallholder farmers around the world are gradually integrating into commercial value chains. The investment into African agribusiness, paired with equal access to employment opportunities for women and youth, could lead to a strengthened workforce.⁴⁰

Africa's reliance on imports for seeds, fertilizers, and some cereals puts pressure on its ability to reduce food insecurity. In 2021, intra-Africa trade for agriculture contributed to only 30 percent of the sources of Africa's \$30 billion of total imports.⁴¹ To increase intra-Africa trade volumes, the most critical value chains could be prioritized according to the potential for import substitution, contribution to economic growth, and inclusivity of women, youth, and MSMEs, as well as their feasibility.

A recent analysis of AfCFTA's private sector engagement strategy suggests an opportunity to double production and trade from priority value chains, including agriculture, adding more than \$5 billion annually in intra-Africa trade and creating approximately 700,000 jobs with more than half (55 percent) focused on youth and women.⁴²

Theme 3: To achieve food sovereignty, Africa can take urgent climate action and build sustainable agribusinesses.

Near-term investment opportunity: Opportunity to build on the existing momentum of the AfCFTA for intra-Africa trade and boost competitive global trade for export commodities.

Long-term investment opportunity: Given the unproved viability of some of the key innovations, such as green ammonia, this is a long-term prospect.

Agriculture is one of the primary contributors to greenhouse gas emissions (GHG) and climate change, responsible for about 24 percent of global emissions, and this is likely to grow by 15 to 20 percent by 2050 unless addressed.⁴³ However, reducing GHG emissions fast and effectively may be more challenging for agriculture than for other sectors. While other sectors have a set of technologies through which they can choose to substantially reduce emissions, such options are less available in agriculture, and most known levers could disrupt existing production processes.

But the imperative to act is strong. Africa faces an increase in acute weather-related events and sustained threats to productivity. More frequent and severe droughts are expected to affect agriculture and manufacturing. Today, 460 million people (36 percent of Africa's population) are exposed to at least one form of climate hazard, such as drought, heat, water stress, or flooding. By 2050, this number is projected to nearly double to 900 million people (45 percent of the continent's population) in a 2°C warming scenario. Large parts of Africa could face a loss of labor productivity related to the risk of reduced effective working hours from rising heat and humidity, even in a 1.5°C scenario as stipulated in the Paris Agreement.⁴⁴

This impact is particularly acute for smallholder farmers, who generate an estimated 32 percent of GHG emissions from agriculture and produce a third of the world's food and are most at risk from the effects of climate change.

Adverse weather and pest-related incidents threaten to push more of these farmers, especially the most vulnerable, into poverty and destabilize local markets, curbing economic growth and heightening risk for agricultural investors. African food systems need investment to improve overall productivity in the sector and create income-generating opportunities for the large workforce. Without effective countermeasures, for example, 80 percent of smallholders in Ethiopia could face a major climate shock by 2050 that could reduce crop yields.⁴⁵

Moving forward, significant shifts in global food systems are necessary to meet the world's demand for food without harming the planet—and innovation at scale is key. COP28 marked a turning point for food systems. Notably, 130 countries pledged to transform their food systems and integrate food and land use targets in their plans by 2025. Also, at COP28, a broad coalition of non-state actors signed a call-to-action in a citizen-led initiative that emphasizes support for frontline communities and indigenous rights in the transformation process.⁴⁶

National governments, the World Bank, and the Gates Foundation have additionally committed a

total of \$890 million to CGIAR (Consultative Group on International Agricultural Research), a publicly-funded network that seeks to support smallholder farmers through research on technologies and techniques that build resilient and sustainable food systems, like new crop varieties and land management techniques. The International Food Policy Research Institute estimates that transforming food systems to align with nature, development, and climate goals will require \$350 billion in annual investment by 2030.

Beyond these initiatives, sustainable business concepts to support the future of farming and meet the sector's sustainability challenges will be vital.

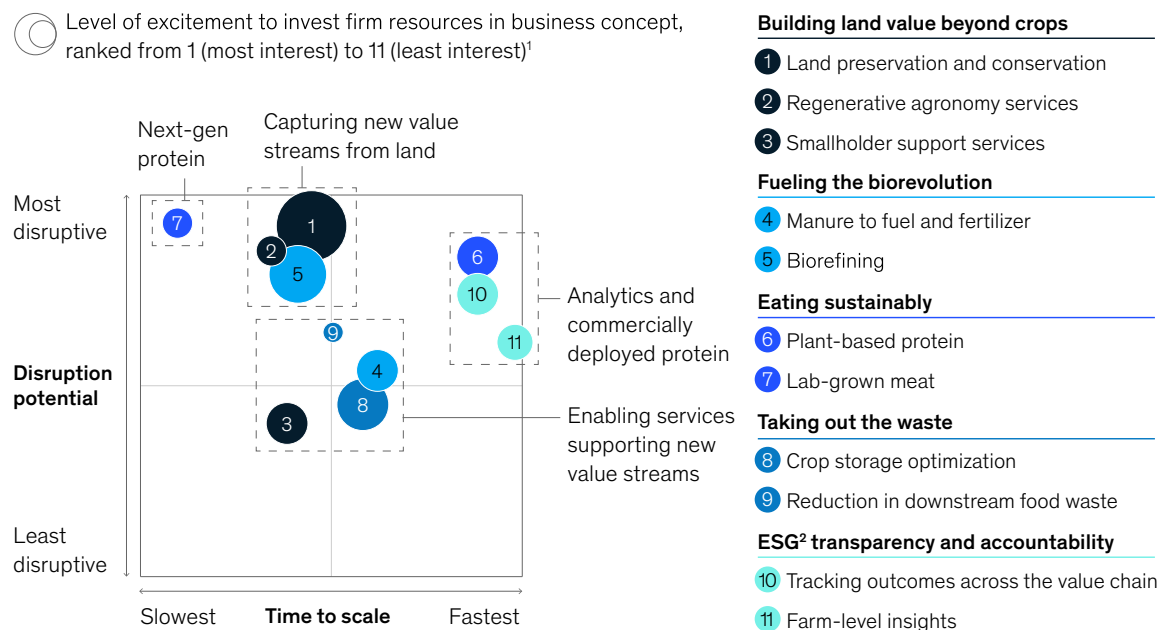
In a recent survey of global executives, including many in Africa, 11 food and agricultural business concepts were identified that could meet the sector's sustainability challenges and build a green and resilient future.⁴⁷ These 11 businesses are expected to scale rapidly and propel significant disruption for agriculture and are premised on five business-building ideas: building land value beyond crops, fueling the biorevolution, eating sustainably, ESG transparency and accountability, and taking out the waste. Of the five ideas, survey respondents expressed the most enthusiasm about building land value beyond crops, which includes land preservation and conservation, regenerative agronomy services and support services for smallholders (Exhibit 3).

These agribusiness innovations span short- to long-term investment horizons. For example, within building land value beyond crops, numerous new ventures have recently launched, with capital ready to be deployed with urgency—investors expect to increase fund allocation of new farming methods by 15 percent in their next rounds of funding, indicating that they recognize the importance of regenerative agriculture. On the other hand, green ammonia as a key idea in fueling the bio-revolution, will require a collaborative effort among stakeholders—alongside dedicated fiscal and regulatory tools and risk-sharing financial mechanisms, such as blended finance—but it also offers substantial opportunities. For green ammonia, the sector requires investors with a long-term horizon and risk appetite.

Exhibit 3:

Eleven business concepts are expected to scale rapidly and propel significant disruption for agriculture.

Respondent perspectives on impact, time to scale, and excitement about investing firm resources



¹Question: "If your firm/company were to invest in scaling a new business concept, which of these concepts would you be the most interested to see your firm/company invest in and which would you be the least interested to see your firm/company invest in?"

²Environmental, social, and governance.

Theme 4: To unlock new value streams and improve controls in food systems, investment is required to reduce and repurpose food waste and agricultural byproducts.

Long-term investment opportunity: Limited proven or scaled solutions and the need for infrastructure and supply chain improvements make this a long-term opportunity.

While global efforts are underway to tackle food waste and loss, sub-Saharan Africa faces distinct challenges due to limited infrastructure and inefficiencies in the food supply chain.

Food waste and food loss are related but distinct terms. Food waste happens at stores and homes (throwing out leftovers), while food loss happens upstream before food reaches stores (during production or transport). A decade ago, an estimated 120 to 170 kilograms per year of food produced was wasted along the end-to-end supply chain in sub-Saharan Africa, with 30 to 40 percent of waste attributed to postharvest losses and processing.⁴⁸

Globally, regulatory bodies and industry groups alike have taken steps to address both food waste and food loss. In fact, the United Nations' Sustainable Development Goal 12.3 is to "halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses" by 2030.⁴⁹

Although accurate and current data on waste is difficult to find, especially in emerging markets, logistics, trade, and processing infrastructure are critical bottlenecks. About 20 to 30 percent of food in Africa is lost due to limited cold chains compared to 13 percent globally.⁵⁰

In an Africa, transport and logistics barriers can be up to two to three times higher than in other regions of the world, with below-average performance in customs delay, road infrastructure, suboptimal trucking regulations, and high port charges.⁵¹ On average, there are 11 customs delay days in Africa compared to six in India, and only 25 percent of African roads are paved compared to the global average of 50 percent. In addition,

trucking regulations lack harmonization; this leads to increased insurance and logistics services costs as well as revenue losses due to cost delays in transit of \$6.2 million annually. High port charges contribute to approximately 30 percent of production costs.

The challenges call for investments in infrastructure and the food supply chain to reduce the gap between production and processing facilities and consumers and reduce food waste and loss, along with innovative solutions to reuse and repurpose food waste and agricultural by-products to unlock new value streams. Such innovations could include making fertilizer from residual organics, biochar, and biofuel feedstocks from power crops.

Reducing food loss is achievable. McKinsey research shows that food manufacturers and retailers, being at the center of the food value chain, are uniquely positioned to lead global efforts to reduce food loss. Working with each other and with all participants in the value chain, they could cut food loss by 50 to 70 percent. Two-thirds of the food that would otherwise be lost could be redirected to human consumption; the remaining one-third would go to alternative uses, such as bio-based materials or animal feed.⁵²

The business rewards of this would be significant. Companies could reap economic and cash flow benefits while simultaneously improving their scope 3 emission footprint. McKinsey research shows that retailers could reduce their cost of goods sold (COGS) by 3 to 6 percent and manufacturers by 5 to 10 percent. Grocers and manufacturers could capture \$80 billion in new market potential by developing new businesses from food that would otherwise be lost. They could also cut CO₂ emissions and the associated costs by 4 to 9 percent.

Regardless of the chosen course of action, each company could have an opportunity to fundamentally change how it interacts with other stakeholders in the food ecosystem. Manufacturers and retailers could go against business-as-usual approaches and address food loss in three key ways:

- 1. Work with suppliers to better match supply and demand.** To reduce food loss upstream, better communication and transparency among the players in the value chain are needed. For example, retailers could give farmers more information about expected demand, while farmers could give retailers more visibility of their production plans. Some companies are starting to engage in long-term planning with their suppliers, working together to align on the volume and mix of crops—not just for the upcoming planting season but also for the next one and the one after that—thereby reducing uncertainty for the parties involved.
- 2. Update procurement practices.** How grocery retailers and food manufacturers buy must change dramatically, shifting away from a commoditized view of food and a short-term focus on managing costs to a structured supplier collaboration or innovation-focused partnerships. For example, instead of choosing suppliers based on price alone, retailers could prioritize working with suppliers who can reduce food loss. This could involve creating partnerships or contracts that create incentive structures and establish performance metrics that reward less food waste. In addition, partners can regularly review specifications and look for opportunities to make them less stringent, without compromising food safety or sell-through. For example, this could include relaxing cosmetic standards for produce, such as allowing slightly different colored fruits. For manufacturers, reviewing specifications to optimize for loss reduction both at the farm and at the factory could lead to lower volume requirements.
- 3. Find creative ways to turn food loss into value.** Food that would otherwise be lost can be turned into new products and thriving businesses. R&D resources could be committed to developing new revenue streams from non-marketable food. For example, a brewing company invested in turning its barley byproducts into a protein and fiber ingredient and developed two new businesses as a result: a dairy-free protein drink and a protein ingredient that it now sells to other food manufacturers. Youth and women, in particular, could provide innovative and entrepreneurial ventures that contribute to the reduction of food waste. For example, in Burundi, farmers have developed low-cost temporary charcoal cooler storage technology options for smallholder farmers,⁵³ while an initiative in Kenya repurposes fruit that is no longer fresh into purées and dried fruit.⁵⁴

Theme 5: To fully harness Africa's demographic dividend in agri-food systems may require new labor-intensive forms of production.

Long-term investment opportunity: The scale of change and the pace of demographic change make this a longer-term opportunity.

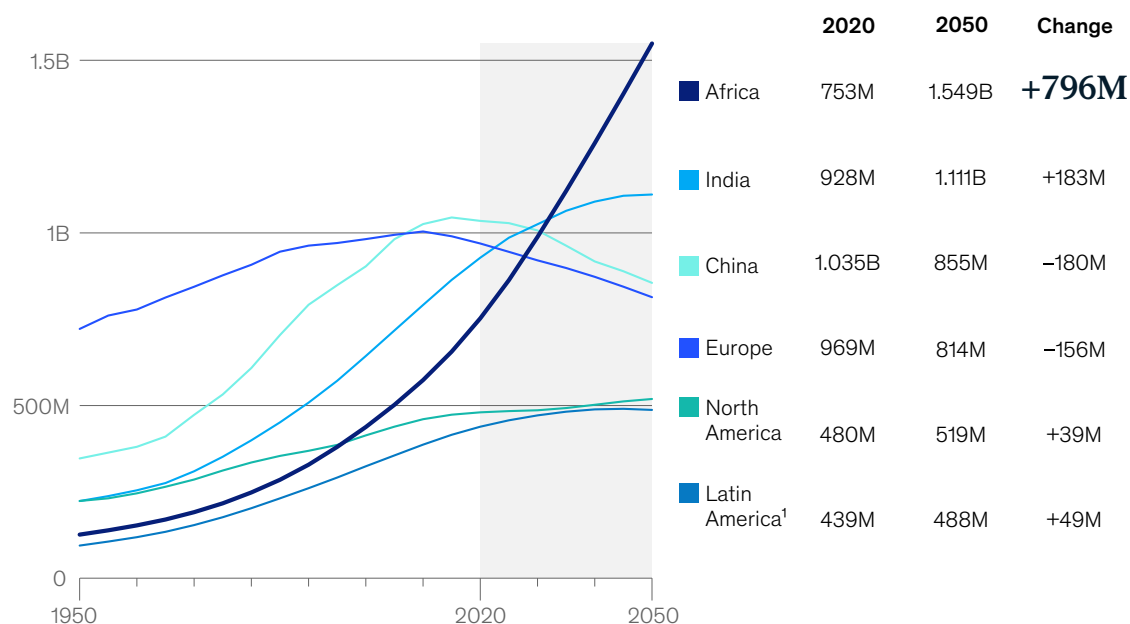
Africa's rapidly growing and large population of young workers presents an opportunity for agri-food systems, but low yields and productivity

currently limit the sector's attractiveness, leading many to seek opportunities elsewhere. With its population expected to nearly double to 2.5 billion by 2050, the continent has myriad opportunities to harness its rich natural resources and abundant human potential to increase economic growth and prosperity not only in Africa but also around the globe. In an aging world, the continent's young and fast-growing workforce represents a rich source of talent (Exhibit 4).

Exhibit 4:

Africa will add 796 million people to the global workforce and be home to the largest and youngest population by 2050.

Working-age (15–64) population



¹Includes the Caribbean.
 Note: Data for 2020–50 are projected using medium variant scenario.
 Sources: UN Population Prospects 2022; McKinsey Global Institute analysis

Today, Africa's workforce is approximately 800 million strong. By 2050, this number will almost double while workforces in Europe and China decline and the pace of growth in all other regions slows down. However, the full potential of this burgeoning workforce has not yet been realized due to low yields and productivity, which lag the standards of global peers and other sectors. At less than \$2,000 per worker on

average, Africa's agricultural gross value added (GVA) is the lowest globally. This partly explains why so many people are leaving agriculture to seek better opportunities in the services sector.⁵⁵ Further, productivity across all sectors of the African economy is lower than in comparable regions of the world with the agricultural sector ranked as the lowest producing of any sector across the continent.

Young people make up a significant portion of the agriculture workforce. The average age of those employed in farming is 32 to 39 years, which is younger than commonly believed.⁵⁶ This skews even lower for off-farm opportunities (particularly retail, which youth prefer due to lower labor and capital intensity). Off-farm opportunities in processing, packaging, transporting, marketing, distribution, and financial services also typically promote more equitable participation for women and youth. To feed this young and burgeoning workforce, an increase in agricultural production would be required. However, if the continent follows the trajectory of most regions that have achieved significant increases in output, it can expect a significant drop in the share of the labor force employed in agriculture in favor of higher-paying off-farm opportunities.⁵⁷ Employment in the off-farm portion of the agrifood system is currently growing faster than in primary production.

Key barriers and challenges that limit agriculture productivity in Africa and disproportionately hinder young people and women from securing income-generating opportunities are well understood. These include access to land, finance, services and inputs, markets, skills, and expertise; potentially limiting cultural and behavioral beliefs; and the nonexistence of youth-centric agriculture policies. Although two-thirds of women are employed in agriculture and produce about 70 to 80 percent of food in the region, they still own less than 20 percent of the land, while less than 30 percent earn an income from agricultural work.⁵⁸

Education and skills development remain critical in providing the emerging young workforce with access to the opportunities presented by the African food system, which include entrepreneurial

activities and digital innovations. Currently, about two-thirds of young Africans entering the labor market lack formal secondary education; about 20 percent of those aged 15 to 24 years and 30 percent aged 25 to 34 years have no formal education. Young women are disproportionately impacted by limited education.⁵⁹

Youth will lead the workforce, but to fully leverage the demographic dividend, Africa may need to rethink its traditional, labor-intensive models of production. Creating employment at scale in agriculture will likely require a different model for more labor-intensive models of agriculture on the continent, a provocation that while not the focus of this white paper, does merit further consideration. Home gardening has been part of tropical food production for millennia and in sub-Saharan Africa mainly focuses on staples. For example, approximately 70 percent of maize production in Kenya is from smallholder farms. In recent history, only Asia has managed to use this model of labor-intensive agricultural production to significantly grow agricultural output by 50 to 75 percent within ten years. These yield gains in turn drove increases for consumer goods in rural areas, reducing the need to import food.⁶⁰

While the context of Asia's agricultural transformation is unique and the impact on land reforms as a driver of productivity is mixed, exploring home gardens in African food systems as a pathway to significantly boosting employment in the sector is nonetheless instructive.⁶¹ This is particularly the case if the region can improve access to agricultural inputs, effectively leverage water resources, ensure access to markets, reduce labor burden and allow farmers to specialize in a smaller set of foods more productively.

Digital innovations can meaningfully accelerate near-term impact

Investments in infrastructure are crucial for Africa's agricultural transformation in the long term, however, opportunities also lie in agricultural innovations, including digital solutions, to boost productivity and empower farmers in the nearer term.

As internet and mobile access grows, Africa's young urban population is becoming increasingly digitally savvy, and this has only accelerated since the COVID-19 pandemic. As a result, markets in Africa have an opportunity to turn to digital solutions to meet their needs, and this is unlocking opportunities for digital players in a variety of sectors including healthcare, agriculture, and financial services. Fintech is, in fact, the fastest-growing startup industry in Africa, garnering 54 percent of known startup funding in 2021.⁶²

Technology and other agricultural innovations, including generative AI, while not a silver bullet, have the potential to drive the biggest supply-side unlocks for African agriculture in relation to the five themes explored in this article.

Below, five specific use cases are highlighted that demonstrate the diverse applications of technology and innovations in the agricultural sector.

Near-term investments

Recommendation 1: Employ advanced analytics to support land-use projects such as public-private partnerships (PPPs) for the conversion of degraded land

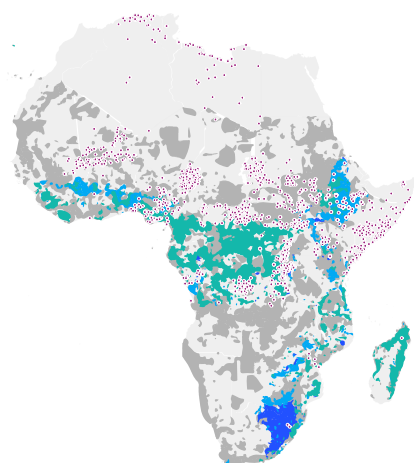
Restoration of degraded land is a more sustainable way to procure cropland, representing a more than \$100 billion investment opportunity in Africa. McKinsey's advanced analytics on land competition hot spots identified about 90 Mha of degraded land in sub-Saharan Africa that could be a key resource to provide for local and global food needs (Exhibit 5).⁶³ This is equivalent to more than three times the cropland area of Tanzania, and more than the total cropland area of Brazil today.⁶⁴

About 90 Mha of degraded land in sub-Saharan Africa could be a key resource to provide for local and global food needs.

Exhibit 5:

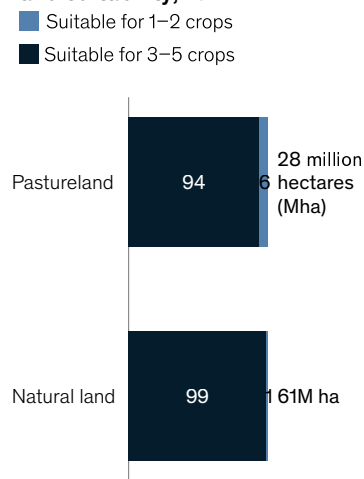
Land competition in some African countries puts pressure on forests for cropland, which could be managed instead through degraded land conversion.

Potential land uses¹ by 2030



- Protected areas (including primary forests)²
- Potential for natural-land conversion to cropland
- Historical armed conflict location³
- Potential for pasture conversion to cropland⁴
- Managed and secondary forests

Area breakdown by cover and suitability, %



Preliminary insights

> 95%

of land likely to be converted by 2030 from pastureland and natural land is also likely to be suitable for 3 or more crops (maize, wheat, rice, oil palm, millet, sorghum, or cassava).

2×

the total need for cropland in sub-Saharan Africa (20–30 Mha) by 2030 could be met through pastureland and natural-land conversion.

6 Mha

of secondary and managed forests are at risk of conversion in countries such as the Democratic Republic of Congo and Ethiopia. Action is required to preserve these forests, in addition to primary forest areas that are already protected.

¹Estimated from the product of past conversion to crops and probability of conversion coming from a land-use-specific random forest model. This is not to be interpreted as a recommendation for land-use change. Analysis not conducted for some North African countries including Algeria, Libya, Egypt and Morocco.

²Map does not show the potential protected areas based on IBAT Key Biodiversity Areas that could be protected for each country to achieve 30% of protected areas of their surface by 2030. However, McKinsey's Transition Scenarios in Agriculture and Land Use Sectors (TRAILS) model protects 14–30% of these areas, depending on the scenario.

³Based on the UCDP/PRIO Armed Conflict Dataset, 1946–22.

⁴Some of these areas can be defined as hot spots, which are areas with more than 30% probability of future change in land use when considering the upper quartile of intensity of historical change within a 10-kilometer radius.

Source: McKinsey ACRE

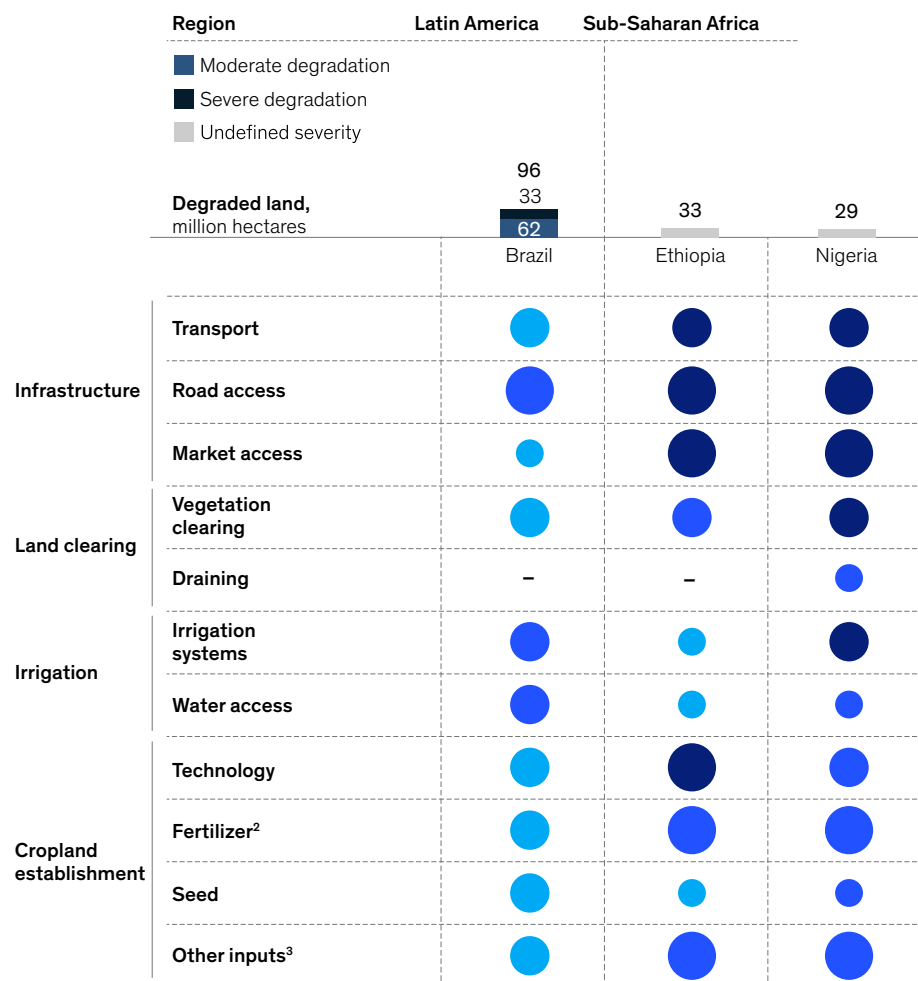
Converting degraded land can be challenging, time-consuming, and costly, depending on the region (Exhibit 6). Conversion costs can be particularly high in sub-Saharan Africa, where the viability of sourcing additional degraded land will often depend on the ability of fragmented, smallholder farm stakeholders to boost yields and convert pastureland in a sustainable manner. However, there are few compelling alternatives.

In the past, cropland expansion has been linked to significant forest cover loss, estimated at

3 to 5 percent.⁶⁵ Continued deforestation at this rate is incompatible with global and national commitments to climate and biodiversity, including the Nationally Determined Contributions (NDCs) to reduce GHG emissions under the Paris Agreement. The example of Brazil, however, shows that the sustainable conversion of degraded land is indeed possible. Brazil has committed to recovering around 15 Mha of degraded pasturelands by 2030, with around 10 Mha to date already successfully restored for crop production through the creation of several strategic PPPs.

Exhibit 6:

Across regions, costs and feasibility for degraded-land conversion vary significantly based on infrastructure and land quality.



Making land conversion feasible—particularly in sub-Saharan Africa—will likely require infrastructure investments, public–private partnerships, and concerted efforts to manage complex issues around land ownership and tenure

Note: Figures may not sum to total, because of rounding.

¹Directional.

²Synthetic.

³Includes pesticides, stimulants, feed additives, etc.

Source: Ochieng Adimo et al., "Can sub-Saharan Africa feed itself?," *PNAS*, December 12, 2016; Benjamin Leon Bodirsky et al., "Pasture intensification is insufficient to relieve pressure on conservation priority areas in open agricultural markets," *Global Change Biology*, July 2018, Volume 24, Number 7; Jordan Chamberlin, D. Headey, and T.S. Jayne, "Scarcity amidst abundance? Reassessing the potential for cropland expansion in Africa," *Food Policy*, October 2014, Volume 48; Jocelyn Cortez et al., "Global maps of cropland extent and change show accelerated cropland expansion in the twenty-first century," *Nature Food*, December 2021, Volume 3; Samuel Gebreselassie, Oliver K. Kirui, and Alisher Mirzabaev, "Economics of land degradation and improvement in Ethiopia," Springer, November 12, 2015; McKinsey ACRE; Our World in Data; Lisandra Paraguassu, "Brazil lures China's Cofco to finance recovery of degraded land," Reuters, April 12, 2023; Partnerships For Forests; *The forest transition: From risk to resilience: Global Forests Report 2023*, CDP, July 2023

Recommendation 2: Implement a regional food balance sheet to improve the continent's control over food and agricultural systems.

While Africa does not need to produce everything locally to achieve food sovereignty, an essential first step is to have a timely and comprehensive understanding of the food system to make evidence-based decisions on balancing consumption, production, and trade.

A food balance sheet (FBS) offers a potentially powerful tool for boosting food security. An FBS tracks a country's entire food system, from consumption and production to trade, prices, and storage. By drawing on data from both government and private stakeholders, an FBS provides accurate information for informed decision-making. This benefits not just policymakers (leading to better trade and food reserve management) but can also inform actions of consumers, farmers, producers, and development partners.

The success of Kenya's rapid FBS implementation demonstrates its potential. Within 12 weeks of deciding to digitize its FBS to better monitor food deficits and reduce spending on reserves, the Kenyan government had completed the steps needed to define, design, and build a minimum viable product (MVP), which is already in use and is expected to reduce spending on food reserves by up to 3 percent annually, while improving the ability to report agricultural data.

The benefits of an FBS extend beyond immediate food security improvements. With its detailed data on local crop production, prices, and yields, governments can target subsidies more effectively, directing support to areas that need it most. Additionally, by publicly sharing this data, similar to the US Department of Agriculture, an FBS can provide the transparency private investors seek. This can encourage investment in critical areas like storage facilities, as well as processing and manufacturing.

By helping users make evidence-based decisions on food production and resilience, a regional food balance sheet implemented across East and Southern Africa alone could improve food security

for upward of 20 million people, save about \$60 million in public spending on emergency food reserves, boost intra-Africa trade by \$1 billion, and create more than 50,000 jobs.⁶⁶

Long-term investments

Recommendation 3: Invest in smallholder farmer climate mitigation and adaptation at scale & non-tech innovation in inputs.

Opportunities relating to Theme 3 span a range of short- to long-term investments. An example of a short-term investment is investing in smallholder farmers' climate mitigation and adaptation at scale. While stakeholders have focused on climate-smart agriculture for the past two decades, there is no clear roadmap for the types of mitigation and adaptation measures smallholder farmers can adopt and how to prioritize investments and efforts to support those measures, such as agricultural insurance.⁶⁷

Governments, financiers, development organizations, and private-sector players have a potential role to play in supporting the global smallholder-farming community's shift to more sustainable practices.

They could do so in two ways. First, it is important to prioritize which measures to focus on at a subnational level, given the heterogeneity of smallholder farmer production systems, the range of impact, and the feasibility of adoption. Second, driving the adoption of these measures will require solutions at the farm and agriculture-system levels, beyond on-farm practices, such as R&D, infrastructure investments, and market linkages.

Long-term investment opportunities could include non-tech innovation in inputs. Green energy in Africa presents significant investment opportunities estimated to be around \$2.9 trillion from 2022 to 2050.⁶⁸ Green ammonia, in particular, could be a significant lever in decarbonizing agriculture. McKinsey estimates that green ammonia for fertilizer production could decarbonize 3 to 8 percent of emissions associated with a range of consumer food product emissions.⁶⁹

In approaching this opportunity, investors may need to consider three things:

- 1. A long-term horizon and risk appetite:** Because green ammonia plants are capital-intensive, developers of green ammonia could benefit from increased access to green financing.
- 2. Public and private commitment to renewables is needed:** Green ammonia production requires a massive capacity expansion in renewable power such as solar and wind to ensure there is enough green power available at an economical price.
- 3. Financial incentives to adopt new methods and technologies:** Prospective producers are facing uncertainty about future prices of green ammonia, and measures to encourage farmers to decarbonize could include green premiums, subsidies, rebates, or other incentive mechanisms.

Recommendation 4: Design innovations to address food waste and food loss and maximize value captured from production.

Part of minimizing food waste and food loss lies in calculating the True Cost of Food and optimizing value for money. Food loss and waste, among other environmental, social, and health factors, contribute to the hidden cost of agrifood systems. According to a 2023 report from the Food Agriculture Organization (FAO), the total hidden cost of food in Africa reaches \$952.5 billion from all factors combined.⁷⁰

Significant opportunities exist to optimize the food system. Designing innovations, products, and policies with a broader perspective on system costs and benefits, can help to address both overall costs of the food system and increase value of the food system.

Building a more equitable, healthy, and resilient food system starts with transparency about the economic underpinnings of the existing system. Many food system actors currently operate with a limited view of the system's costs, neglecting the indirect impacts on health, climate, and equity. Broadly, while costs of certain inputs such as land costs, transportation and storage, and wages are fully or partially accounted for in food prices, other significant impacts—such as the depletion of natural resources, biodiversity loss, human health impacts, livable wages and working conditions—are not. Limited incentives currently hinder progress, even for those who actively

consider the broader impact of food systems on health, climate, and equity. To accelerate technological innovation, incentivize sustainable practices and shift consumer preferences, a clear and transparent understanding of these system costs is needed. This will not only expose the true cost of the current system, but also reveal the impact of proposed changes on pricing, practices, and policies.

This lack of transparency and the absence of a codified, unified framework to quantify the “true cost” of the food system means that there is neither a clear line of sight into such costs, nor incentives to reduce these true costs and optimize for the true benefits of food through public spending and private investments.

Recommendation 5: Harness digital extension services to support agriculture sector development.

The average age of Africans employed in farming is younger than commonly believed.⁷¹ At the same time, rapid digitalization, accelerated by the COVID-19 pandemic, means that 33 million smallholder farmers in Africa are currently using digital applications, and this is projected to reach 200 million by 2030.⁷² In sub-Saharan Africa alone, more than 400 digital agriculture solutions are in use, and 20 have achieved scale at more than one million farmers, for example, the 8028 Farmer Hotline, a government-run advisory service in Ethiopia.⁷³

Agriculture Extension and Advisory Services (EAS) have a critical role to play in supporting agriculture sector development and climate adaptation, particularly for smallholder farmers facing climate-induced volatility. The rapid evolution of digital technology and digitally-enabled services in Africa is raising farmer expectations for more tailored, timely, relevant, and holistic EAS.

While the private sector is at the forefront of engaging with farmers across their full needs, a rapidly digitalizing public sector also has an important role to play in providing the public infrastructure, for example, farmer registries, to support the ecosystem.

In some cases, incentives are aligned for private sector players to engage in digital EAS—beyond being digital platform providers.

For discussion: Collaboration across sectors for a food-sovereign Africa

To realize the aspirations of a food-secure and food-sovereign Africa, actors in this space can learn from past successes and harness the power of collaboration to move forward faster. Public-private-philanthropic partnerships (PPPPs) offer a powerful example of such collaboration, bringing together the public sector's resources, the private sector's innovation, and the philanthropic sector's social impact expertise.

For collaboration to be effective, all stakeholders have a role to play. For instance, public and social sector organizations could help to build enablers across three pillars—defining a clear policy environment for agriculture, investing in infrastructure, and expanding financing and incentives.⁷⁴

Thought starters for discussion: Actions by sector

Building on the recommendations highlighted above, private sector investment and corporate actions could be catalyzed by several tactical interventions. For instance, while many African countries already have high-level climate plans, additional specifics could be developed. Filling these gaps with clear, near-term projects and strong business cases could help create a pipeline of attractive investment opportunities.⁷⁵ Furthermore, scaling up technical assistance to African governments can help improve the business environment for agriculture, while fostering collaboration with civil society organizations and local stakeholders can support project development on the ground. Strategies that increase transparency and reduce knowledge and data gaps regarding Africa's business and political environment can encourage investment, and investor liaison activities like workshops and presentations can further connect them

with promising local green businesses. Finally, developing financial instruments like venture capital and growth funds specifically for green agricultural projects, could help provide the capital needed to scale up early-stage projects and established businesses alike.

Smallholder farmers also have a critical role to play. Smallholder farms are key to global food security, producing a third of the world's food produce, but most vulnerable to the impacts of climate change.⁷⁶ Identifying adaptation and mitigation measures that Africa's smallholder farmers can adopt is critical to the protection and support of their livelihoods in the face of climate-related hazards.

Finally, there is an opportunity to harness the power of cross-sector partnerships to further accelerate agricultural innovations. For example, the AU-EU Innovation agenda, published in July 2023, included agriculture as a fundamental element in the green transition. It laid out a roadmap of near-, medium-, and long-term actions to improve the climate resilience of agriculture, enhance productivity, and improve food sovereignty.⁷⁷

Inspiration for food systems transformation from other sectors

Power Africa, a US-government-led partnership that brings together political leaders, companies, and financial institutions to increase energy access and low-carbon economic growth in the region offers an inspirational example of an effective PPPP. Since its inception ten years ago, Power Africa has supported 37.5 million new connections and close on 14 000 MW of clean energy projects.⁷⁸

The agri-food sector can also learn from how Africa's healthcare sector mobilized partners for the development of COVID-19 vaccine manufacturing

on the continent. Calls to increase vaccine security and self-reliance in the pandemic set the stage to accelerate efforts in that direction. The COVID-19 crisis highlighted that demand far outstrips supply for outbreak vaccines. In response to this, the Partnerships for African Vaccine Manufacturing (PAVM) was established by the African Union (AU) in 2021 to deliver a bold goal: enabling the African vaccine manufacturing industry to develop, produce, and supply over 60 percent of the total vaccine doses required on the continent by 2040, up from less than 1 percent today.⁷⁹

Africa's agri-food sector can emulate these examples. The continent has the potential to produce two to three times more food than it does today, and there is need for a coordinated effort across multiple stakeholders and interventions to reduce import dependency and boost regional production and trade along the key value chains/ commodities such as cereals, sugars, or vegetable oils. Stakeholders can act now—alongside catalytic

players who are willing to initiate and orchestrate a continental response to this crisis to feed more than 300 million Africans.

Parting shot

The next decade could be decisive for African agriculture as stakeholders have an opportunity to rethink the infrastructure, assets, and systems to power a more sustainable future that supports Africa's economic development and decarbonization and delivers food sovereignty.

Supply-side innovations can be scaled to allow both incumbents and new entrants to adapt. Decisions made today will have lasting implications, but a healthy understanding of the trends, players, and technologies involved can help plant the seeds for increasingly sustainable quantities of affordable and nutritious food.⁸⁰

References

- 1 “Developing Africa for the next horizon of growth,” McKinsey, January 29, 2019.
- 2 “Reimagining economic growth in Africa: Turning diversity into opportunity,” McKinsey Global Institute, June 5, 2023.
- 3 *Africa – Regional Overview of Food Security and Nutrition 2023: Statistics and trends*, FAO, AUC, ECA and WFP, 2023.
- 4 “Africa dominates list of the world’s 20 fastest-growing economies in 2024—African Development Bank says in macroeconomic report,” African Development Bank Group, February 16, 2024.
- 5 *African economic outlook 2023: Mobilizing private sector financing for climate and green growth in Africa*, African Development Bank, May 24, 2023.
- 6 Hicham El Habti, “Why Africa’s youth hold the key to its development potential,” World Economic Forum Agenda, September 19, 2022.
- 7 “Reimagining economic growth in Africa: Turning diversity into opportunity,” McKinsey Global Institute, June 5, 2023.
- 8 Ibid.
- 9 Chakib Jenane, John M. Ulimwengu, and Getaw Tadesse, (Eds.), *Agri-food Processing Strategies for Successful Food Systems Transformation in Africa: ReSAKSS 2022 Annual Trends and Outlook Report*, AKADEMIYA2063 and International Food Policy Research Institute, 2022.
- 10 “Reimagining economic growth in Africa: Turning diversity into opportunity,” McKinsey Global Institute, June 5, 2023.
- 11 Ibid.
- 12 Ibid.
- 13 *Empowering Africa’s food systems for the future (Issue 11)*. AGRA, 2022.
- 14 Agreement establishing the African Continental Free Trade Area, African Union, March 21, 2018.
- 15 *Africa – Regional Overview of Food Security and Nutrition 2023: Statistics and trends*, FAO, AUC, ECA and WFP, 2023.
- 16 Ibid.
- 17 Ibid.
- 18 Ibid.
- 19 “Reimagining economic growth in Africa: Turning diversity into opportunity,” McKinsey Global Institute, June 5, 2023.
- 20 Ibid.
- 21 Ibid.
- 22 “Maize production in nine Sub-Saharan African countries,” Global Yield Gap Atlas, accessed October 12, 2023; Hannah Ritchie, “Increasing agricultural productivity across Sub-Saharan Africa is one of the most important problems this century,” Our World in Data, April 4, 2022.
- 23 “Intra and extra-EU trade by member state and by product group,” Eurostat, Accessed April 26, 2024.
- 24 “Reimagining economic growth in Africa: Turning diversity into opportunity,” McKinsey Global Institute, June 5, 2023.
- 25 Ibid.
- 26 Lutz Goedde, Amandla Ooko-Ombaka and Gillian Pais, “Winning in Africa’s agricultural market,” McKinsey, February 15, 2019.
- 27 Lutz Goedde, Ryan McCullough, Amandla Ooko-Ombaka and Gillian Pais, “How digital tools can transform African agri-food systems,” McKinsey, January 22, 2021.
- 28 *Roadmap to Africa: A turning point in economic relations*, McKinsey, April 2023.
- 29 Kannan Lakmeharan, Qaizer Manji, Ronald Nyairo, and Harald Pöltner, “Solving Africa’s infrastructure paradox,” McKinsey, March 6, 2020.
- 30 *Green Africa: A growth and resilience agenda for the continent*, McKinsey, October 28, 2021.
- 31 Ibid.
- 32 Kannan Lakmeharan, Harald Poeltner, Qaizer Manji, Ronald Nyairo, “Solving Africa’s infrastructure paradox,” McKinsey, March 6, 2020.
- 33 *Roadmap to Africa: A turning point in economic relations*, McKinsey, April 2023.
- 34 Ibid.
- 35 “Striking the balance: Catalyzing a sustainable land-use transition,” McKinsey, November 7, 2023.
- 36 Ibid.
- 37 *Annual development effectiveness review 2023: Enhancing Africa’s resilience*, African Development Bank Group, May 2023.
- 38 “2023 Monthly statistics report,” General Administration of Customs of the People’s Republic of China, Accessed April 2024.
- 39 McKinsey analysis based on UN Comtrade data.

- 40 *Empowering Africa's food systems for the future (Issue 11)*. AGRA, 2022.
- 41 "Reimagining economic growth in Africa: Turning diversity into opportunity," McKinsey Global Institute, June 5, 2023.
- 42 Funke Aderonmu, "Formalizing Africa's informal sector through the AfCFTA: An opportunity for economic transformation," Princeton University Journal of Public and International Affairs, September 11, 2023.
- 43 "From green ammonia to lower-carbon foods," McKinsey, December 11, 2023.
- 44 *Green Africa: A growth and resilience agenda for the continent*, McKinsey, October 28, 2021.
- 45 Chania Frost, Kartik Jayaram, and Gillian Pais, "What climate-smart agriculture means for smallholder farmers," McKinsey, February 28, 2023.
- 46 *Sustainability Blog*, "COP28: Food and water," McKinsey, December 10, 2023.
- 47 Tom Brennan, Shane Bryan, Summit Byrne, and Chris Rogers, "Building food and agriculture businesses for a green future," McKinsey, September 19, 2023.
- 48 Christel Cederberg, Jenny Gustavsson, and Ulf Sonesson, *Global Food Losses and Food Waste*, Food and Agricultural Organization of the United Nations, 2011.
- 49 Moira Borens, Sebastian Gatzert, Clarisse Magnin, and Björn Timelin, "Reducing food loss: What grocery retailers and manufacturers can do," McKinsey, September 7, 2022.
- 50 Moira Borens, Sebastian Gatzert, Clarisse Magnin, and Björn Timelin, "Reducing food loss: What grocery retailers and manufacturers can do," McKinsey, September 7, 2022. Ibid.
- 51 *Empowering Africa's food systems for the future (Issue 11)*, AGRA, 2022.
- 52 Moira Borens, Sebastian Gatzert, Clarisse Magnin, and Björn Timelin, "Reducing food loss: What grocery retailers and manufacturers can do," McKinsey, September 7, 2022.
- 53 "Hunger amidst plenty: Addressing Food wastage in Africa using innovation and emerging technologies," African Union Development Agency – NEPAD, May 2021.
- 54 "Innovation and collaboration to address food loss and waste in African fresh produce: Event roundup and next steps," Innovate UK, November 2022.
- 55 "Reimagining economic growth in Africa: Turning diversity into opportunity," McKinsey Global Institute, June 5, 2023.
- 56 Felix Kwame Yeboah and Thomas Stuart Jayne, "Job creation for Africa's youth: Are there pathways in agricultural value chains?" Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, August 2020.
- 57 *The State of Food and Agriculture 2022*, FAO, 2022.
- 58 "Women grow 70% of Africa's food. But have few rights over the land they tend." World Economic Forum, March 21, 2018.
- 59 Felix Kwame Yeboah and Thomas Stuart Jayne, "Job creation for Africa's youth: Are there pathways in agricultural value chains?" Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, August 2020.
- 60 Joe Studwell, *How Asia Works? Successes and failure in the world's most dynamic region*, New York, NY: Grove Press, 2013.
- 61 *Agricultural sector transformation and growth strategy: Towards sustainable agricultural transformation and food security in Kenya*, Kenya Ministry of Agriculture, Livestock, Fisheries and Irrigation, 2019.
- 62 "Fintech in Africa: The end of the beginning," McKinsey, August 2022.
- 63 "Striking the balance: Catalyzing a sustainable land-use transition," McKinsey, November 7, 2023.
- 64 Ibid.
- 65 Ibid.
- 66 McKinsey analysis based on AfCFTA, UN Comtrade, and World Bank data.
- 67 Chania Frost, Kartik Jayaram, and Gillian Pais, "What climate-smart agriculture means for smallholder farmers," McKinsey, February 28, 2023.
- 68 César Augier, Hauke Engel, François Jurd de Girancourt, and Oliver Onyekweli, "Green energy in Africa presents significant investment opportunities," McKinsey, October 17, 2023.
- 69 "From green ammonia to lower-carbon foods," McKinsey, December 11, 2023.
- 70 *The State of Food and Agriculture: Revealing the true cost of food to transform agrifood systems*, Food and Agricultural Organization of the United Nations, 2023.
- 71 Felix Kwame Yeboah and Thomas Stuart Jayne, "The myth of Africa's ageing farmers," Rural 21, March 2020.
- 72 Michael Tsan, Swetha Totapally, Michael Hailu, and Benjamin K. Addom, "The digitalisation of African agriculture report 2018–2019," Technical Centre for Agriculture and Rural Cooperation (CTA), 2019.

- 73 Lutz Goedde, Amandla Ooko-Ombaka, and Gillian Pais, “How digital tools can help transform African agri-food systems,” McKinsey, January 22, 2021.
- 74 *Nature in the balance: What companies can do to restore natural capital*, McKinsey, December 5, 2022.
- 75 *Green Africa: A growth and resilience agenda for the continent*, McKinsey, October 28, 2021
- 76 Chania Frost, Kartik Jayaram, Gillian Pais, “What climate-smart agriculture means for smallholder farmers,” McKinsey, February 28, 2023.
- 77 The AU-EU Innovation Agenda.
- 78 “The Role of Public-Private Philanthropic Partnerships in Driving Climate and Nature Transitions,” World Economic Forum, December 13, 2023.
- 79 *Partnerships for African Vaccine Manufacturing (PAVM) Framework for Action*, Africa CDC, March 3, 2022.
- 80 Tom Brennan, Shane Bryan, Summit Byrne, and Chris Rogers, “Building food and agriculture businesses for a green future,” McKinsey, September 19, 2023.

