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# Agriculture

## Impact of the Agriculture scenario

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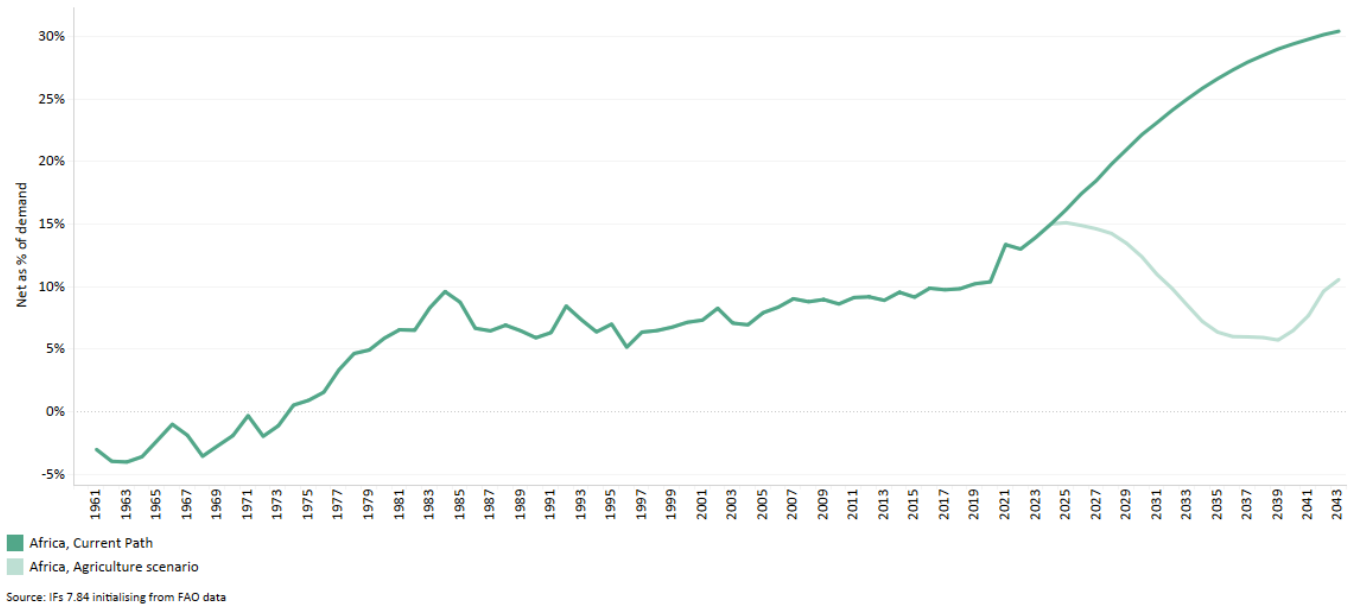
The impact of the Agriculture scenario is impressive, with Africa's agriculture production volumes more than doubling in the next two decades. With the interventions in the Agriculture scenario, Africa can produce around 2 167 million metric tons of agricultural produce in 2043, surpassing South Asia's production in 2038 and edging closer to South America's production of 2273 million metric tons. By 2043, Africa will produce 486 million metric tons of additional food (crops, meat and fish) in the Agricultural scenario, compared to the Current Path forecast for 2043.

With increased domestic food production in the Agriculture scenario, Africa's agricultural import bill can be reduced by US$212 billion in 2043 compared to the Current Path forecast. Likewise, the continent's export earnings from agriculture can increase from US$48.4 billion in the Current Path forecast to US$276 billion in 2043, while still prioritising domestic consumption.

The increase in available food energy (calories) in the Agriculture scenario reduces the number of children suffering from malnourishment by more than 1.7 million in 2043 compared to the Current Path forecast. The scenario also reduces infant mortality by nearly a million children deaths per 1 000 live births in 2043.

Despite these gains, Chart 8 presents Africa's growing food import dependence over time, a trend driven by a rapidly growing population. In 2019, the continent imported 10.2% of its agriculture demand, including staple foods such as rice and maize, which are cheaper to procure internationally than domestically. In the Current Path forecast, net agriculture import dependence will reach an alarming 30.4% of demand by 2043, whereas the Agriculture scenario can reduce the continent's food import dependence to 10.6%.

Chart 8: Agriculture imports dependence: Current Path forecast vs Agriculture Scenario: 1960 to 2043

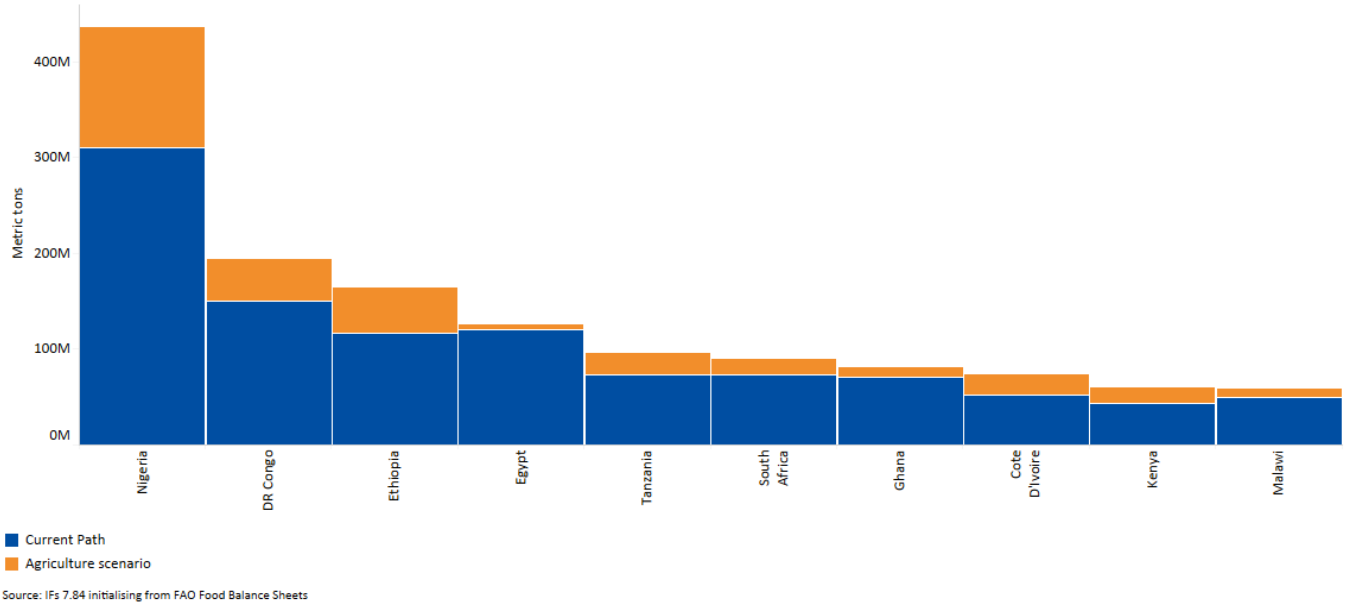



Source: IFs 7.84 initialising from FAO data

The averages conceal huge differences between countries and regions (Chart 9). Countries that achieve the most spectacular increases in production volumes (Nigeria, Ethiopia, the DR Congo, Cote D'Ivoire, Tanzania, South Africa and Kenya) are well known for their agricultural potential. In contrast, arid and small island states (many of which have reached saturation levels) gain the least. With its rich and fertile soils, Nigeria could increase from the 2043 Current Path volumes of 311 million metric tons of agricultural products to 438 million in 2043 if the associated reforms are implemented. This will cement Nigeria's position as Africa's most significant agricultural producer.

Egypt, one of the continent's most agriculturally productive countries, is already close to its full agricultural potential and, thus, the Agriculture scenario only increases total production by 5 million metric tons above the Current Path forecast, becoming Africa's fourth largest agricultural producer in 2043. The Agriculture scenario bodes well for Ethiopia, the DR Congo, Cote D'Ivoire, and Tanzania, with respective gains of 48 million, 45 million and 23 million metric tons above the Current Path forecast in 2043. Although coming off a low base, the Agriculture scenario also benefits countries such as Madagascar, Gabon and Mozambique, which can expect significant increases of 46%, 45% and 42% above the Current Path forecast in 2043.

Chart 9: Agriculture scenario impact on production by country 2043




Source: IFs 7.84 initialising from FAO Food Balance Sheets

The Agriculture scenario has significant developmental and economic impacts on Africa, as shown in Chart 10:

- Levels of poverty (using US$1.90 as a benchmark) in the Agriculture scenario are expected to decline from 34% in 2019 to 27% by 2030. While this is more promising than the Current Path forecast at 28%, both fall significantly short of the SDG target of eliminating extreme poverty by 2030. By 2043, the Agriculture scenario is expected to reduce the number of extremely poor Africans to 339 million (15%) instead of 398 million people (18%) in the Current Path forecast.

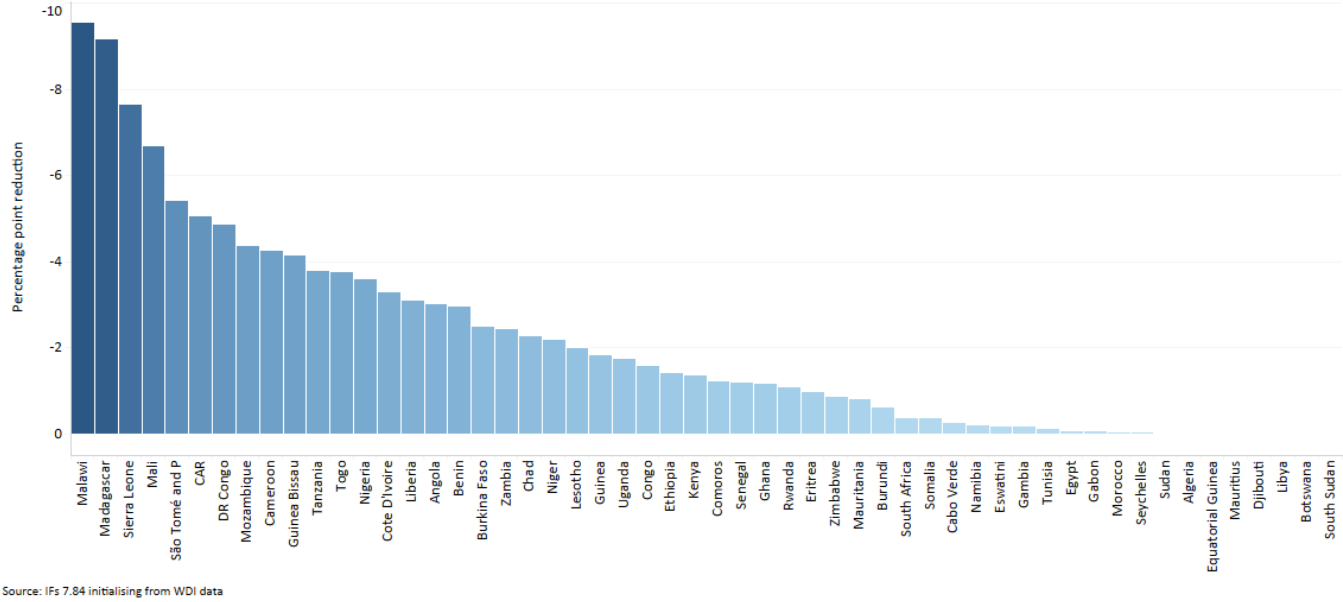
- Africa's low- and lower-middle-income, agriculture-dependent countries will benefit most from poverty alleviation in this scenario.

- Malawi, Madagascar and Sierra Leone will see an additional 10, 9 and 8 percentage point reduction in poverty rates compared to the Current Path forecast in 2043.

- Mali, São Tomé and Príncipe, Central African Republic and the DR Congo Príncipe will all see more than a five percentage point additional reduction in poverty rates.

- In absolute numbers, it will be Nigeria, the DR Congo, Madagascar, Tanzania, Malawi and Ethiopia that will benefit most from poverty reduction in the Agriculture

Chart 10: Percentage point reduction in extreme poverty (US$1.90) by African country added by the Agriculture scenario vs. Current Path forecast: 2043




Source: IFs 7.84 initialising from WDI data

By 2043, Africa's total economy, under the Agriculture scenario, will be US$354 billion larger (using MER) than in the Current Path forecast. The Agriculture scenario will increase the average GDP per person (in PPP) in Africa by US$ 204 in 2043—a 3% improvement on the Current Path figure forecast for that year. Agriculture tends to be particularly effective in boosting GDP growth in the short term. In Africa, low- and middle-income countries also gain the most in GDP per capita income from the Agriculture scenario. Regional breakdowns suggest that by 2043:

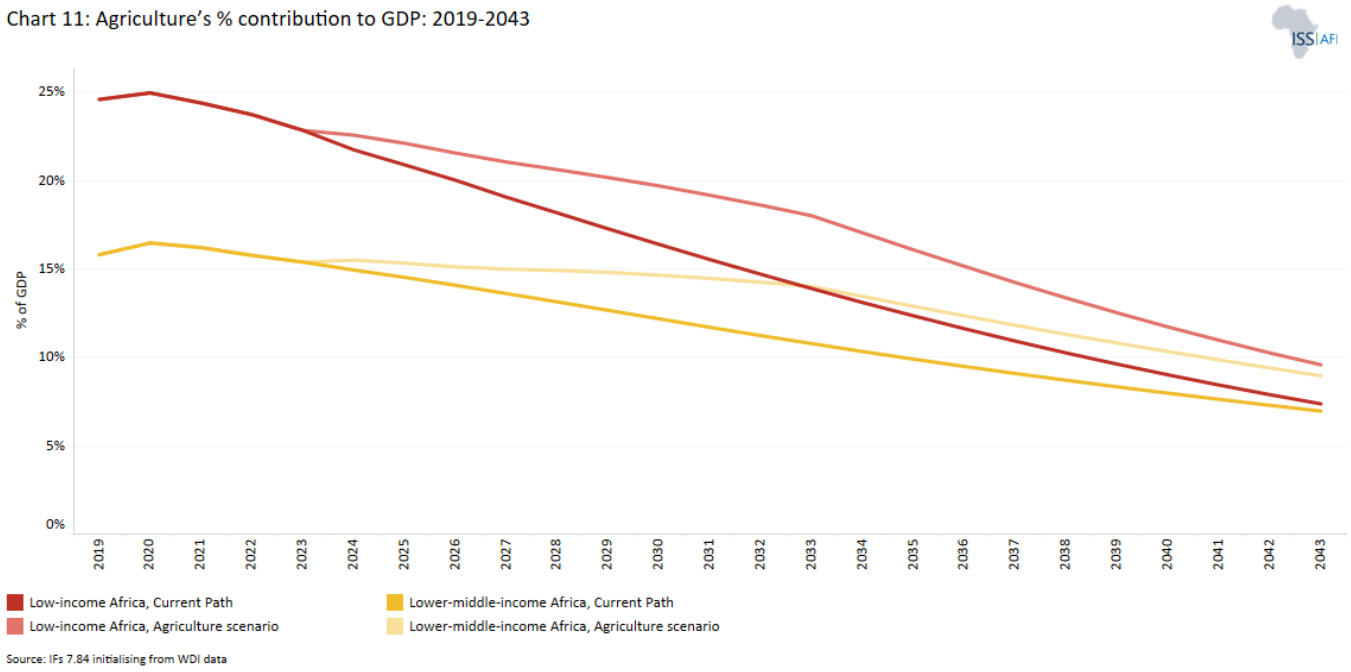
- Because of a well-established agricultural sector, North Africa will benefit least from improving its GDP per capita through the Agriculture scenario. The region's per capita income will increase by 1.2% compared to the Current Path forecast, representing an increase of US$179 in GDP per person.
- Proportionally, West Africa will benefit most at a 5% increase above the Current Path (equivalent to US$292
- East Africa will likely expect a 3.9% increase above the Current Path forecast.
- Southern Africa has a well-established agriculture sector and can expect an additional 2.6% increase in income levels above the Current Path forecast.
- Income in Central Africa will be US$97 per capita more in 2043 than in the Current Path forecast, representing a 4.3% increase.

The contribution of agriculture to the economy generally declines as countries graduate from low- to middle- and eventually to high-income status. For example, in Africa's 23 low-income countries, the agricultural sector contributed about 25% to GDP in 2019—about 16% in the 23 lower-middle-income countries and less than 3% in the upper-middle-income countries. By 2043, according to Africa's Current Path forecast, these portions will likely have declined to 7.4%, 7% and 1.6% for low-, lower-middle- and upper-middle-income Africa, respectively, showing a slowly changing economic structure. In the Agriculture scenario, these numbers would be 9.6%, 9% and 2%, respectively.

Chart 11 shows the impact of the Agriculture scenario on the average size of the agricultural sector (as a percentage of GDP) for the two most affected income groups. These two groups comprise 46 of Africa's 54 member states, including in

our modelling. For low-income Africa, the interventions will raise the agricultural sector's contribution to GDP to 9.6% instead of the Current Path's 7.4%. For lower-middle-income countries, the agricultural sector's contribution to GDP will likely be 9% instead of the Current Path's 7%.

Chart 11: Agriculture's % contribution to GDP: 2019-2043



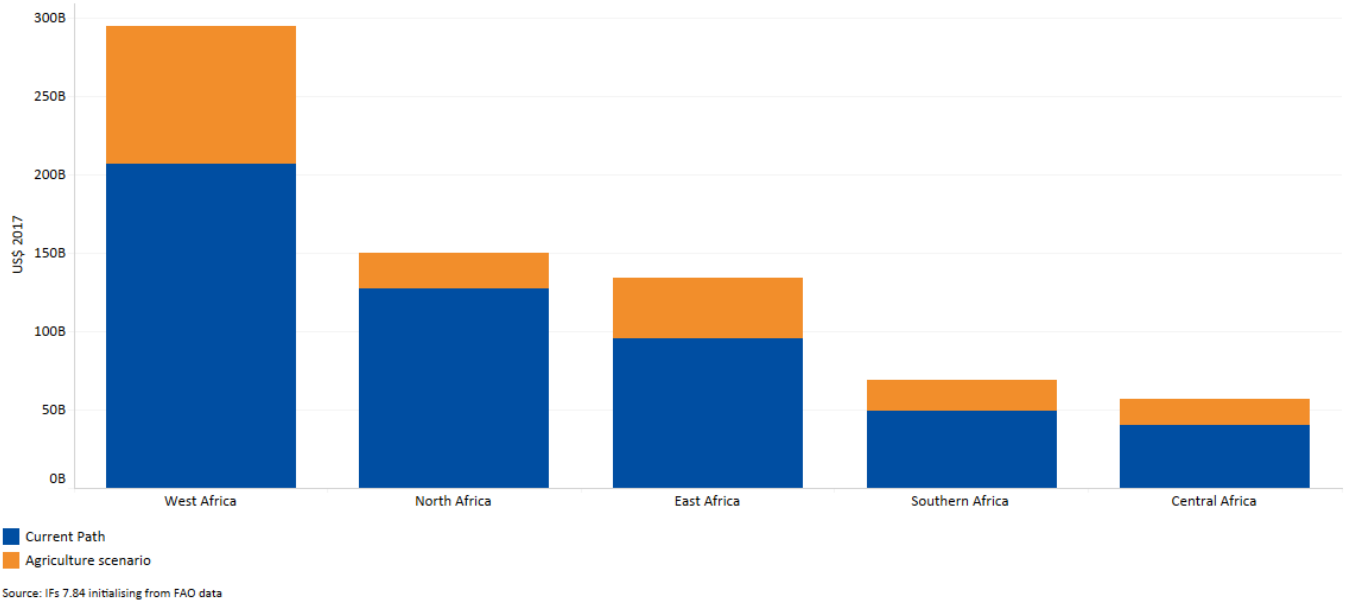

Source: IFs 7.84 initialising from WDI data

A different expression of the same metric is that in the Agriculture scenario, the sector would contribute 8.8% of the economy of the DR Congo by 2043 (down from 29% in 2019), compared to an even more rapid decline to 6.3% in the Current Path forecast. In addition, the economy of the DR Congo will be more significant in 2043 in the Agriculture scenario, with the agricultural sector contributing an additional US$7.97 billion above the Current Path forecast.

In 2019, the agricultural sector was the largest, as a percentage of GDP, in East Africa (22%) compared to only 4.9% in Southern Africa. Chart 12 shows the increase in the size of the agricultural sector in the Agriculture scenario relative to the Current Path forecast for each region and country by 2043. The regional differences are:

- US$17.6 billion in Southern Africa
- US$14.7 billion in Central Africa
- US$21 billion in North Africa
- US$35.6 billion in East Africa
- US$80 billion in West Africa

Chart 12: Size (US$ billion) of the agricultural sector in 2043: Agriculture scenario vs Current Path forecast




Source: IFs 7.84 initialising from FAO data

However, these improvements are not a given, as they would depend on factors such as the amount of water available for irrigation, the effect of carbon fertilisation due to climate change on crop growth, as well as the impact of new cultivars and genetically modified plants that are more temperature tolerant.

More than half of Africa's labour force is engaged in the agricultural sector. The Agriculture scenario accelerates the rate at which employment in the sector declines even as productivity improves and total output increases. However, jobs will be created downstream in the much larger agro-processing sector, ensuring increased food security. Productivity improvements could come from upgrading value-chain activities such as logistics, input services, storage and other off-farm activities—all of which will require improved connectivity and basic infrastructure.[1] As Africa moves up the agricultural value chain, growth in the sector will expand employment opportunities in downstream agro-processing, with much of that in urban centres.

## Endnotes

1. Some of these constraints can be overcome through technology, such as the use of precision irrigation and application of precise amounts of fertiliser exactly where they are required. Then there is also the potential of vertical farming, which could produce 180 million tons of food globally, according to some analysts.

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## Cite this research


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## About the authors

**Ms Alize le Roux** joined the AFI in May 2021 as a senior researcher. Before joining the ISS, she worked as a principal geo-informatics researcher at the CSIR, supporting various local and national policy- and decision-makers with long-term planning support. Alize has 14 years of experience in spatial data analysis, disaster risk reduction and urban and regional modelling. She has a master's degree in geographical sciences from the University of Utrecht, specialising in multi-hazard risk assessments and spatial decision support systems.

**Dr Jakkie Cilliers** is the ISS's founder and former executive director of the ISS. He currently serves as chair of the ISS Board of Trustees and head of the African Futures and Innovation (AFI) programme at the Pretoria oce of the ISS. His 2017 best-seller Fate of the Nation addresses South Africa's futures from political, economic and social perspectives. His three most recent books, Africa First! Igniting a Growth Revolution (March 2020), The Future of Africa: Challenges and Opportunities (April 2021), and Africa Tomorrow: Pathways to Prosperity (June 2022) take a rigorous look at the continent as a whole.

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