Raising Africa’s agricultural productivity
The Technologies for African Agricultural Transformation initiative is increasing agricultural productivity through the deployment of proven agricultural technologies. In Ethiopia, the adoption of new wheat varieties, has increased wheat production, raised farmers’ income, and created job opportunities.
African economies and African societies rely highly on agriculture. The continent’s estimated 33 million smallholder farms are key not just to food production, but also to the livelihoods of the many Africans whose work is linked to the agricultural sector.

Disruptions in agriculture increased hunger in 2020

African agriculture has shown promising signs of progress in recent years, with agricultural productivity increasing 13% on average every year between 2015 and 2020. This trend coincided with better trade: Africa’s agricultural trade deficit fell by 26% between 2015 and 2020, and certain processed agricultural commodities have gained global market share.

Despite these gains, agriculture in most African countries is still characterised by small-scale, low-technology, rainfed farming. This leaves farmers and food production systems highly vulnerable to climate-related, economic, and other shocks. In recent years, droughts, cyclones, and floods reduced crop yields, and parts of Africa are tackling transboundary pest invasions and animal diseases (e.g., desert locusts, fall armyworm, peste des petits ruminants). The disruption inflicted by Covid-19 on input and output markets therefore hit many African farmers all the harder. For example, when surveyed in May/June 2020, 73% of households earning income from agriculture in Malawi reported a reduction in agricultural income.

The importance of strengthening smallholder production

Covid-19 has drawn attention to the vulnerability of Africa’s smallholder farmers. Small-scale agricultural production needs urgent attention and support, to improve food security and increase farmers’ incomes. An estimated 33 million smallholder farms populate the continent, providing a major source of food and livelihood to millions of Africans. Agriculture employs more than half of Africa’s workforce, and smallholder farmers constitute 60% of the population in low-income African countries. Strengthening smallholder production will therefore play a central role in post-Covid-19 recovery efforts and more food security and resilience in Africa.

In agriculture, productivity has grown and the trade deficit has fallen. But the pandemic increased hunger by 60%

The income shocks caused by Covid-19 have also made it harder for millions of African households to afford basic food supplies. In addition, pandemic-related mobility restriction measures disrupted food supply chains (especially between rural and urban areas) and food availability. These and other effects of the pandemic contributed to a 60% rise in the number of people who are hungry or malnourished in Africa—some 397 million Africans—in 2020.

In spite of these challenges, the long-term prospects for African agriculture remain strong. Most African countries are far from realising the potential of their agricultural sub-sectors and could boost agricultural output through measures to improve yields, expand the area of land under cultivation, and reduce post-harvest losses.

Similarly, sustainable land management is increasingly recognised as a viable pathway to accelerate food security, arrest land degradation, and address tenure issues. The Bank is implementing an inclusive and sustainable land governance programme to support African countries as they resolve land concerns and transform agriculture.

With better access to inputs, training, and finance, smallholder farmers could transform the sector

In the immediate term, as the effects of the pandemic continue to be felt, governments will need to monitor food and input markets closely so that they can address blockages in the movement of food products and intervene wherever farm inputs or production shortfalls emerge.

Over the longer term, measures are needed to improve productivity. Africa’s smallholder farmers need better access to inputs, such as fertiliser and hybrid seeds. They also need more advisory services and finance that makes it possible for them to purchase inputs and invest in production. Governments, development partners, and private investors need to better understand the distinct needs of different types of farmers so that they can better tailor their support to farmers’ needs.

Given that Africa is the most rapidly urbanising continent in the world, the demands of urban populations for more and better food...
Figure 2  **High-resolution impact mapping: Assessing living conditions of smallholder households’ in East Africa**

The Bank is using high-resolution impact mapping to assess the changes in well-being before and after the rehabilitation of the Mombasa-Nairobi-Addis Ababa Road Corridor, with a focus on individuals that own at least two hectares of land suitable for agricultural use. Focusing on an unprecedented geographic scale, the map provides details on the roads’ economic footprint, improvements in human development and how they promote integration throughout the entire corridor. By comparing data from household surveys in 2005 (before) and 2020 (during or after) and applying geotagged datasets, and satellite imagery, the methodology can assess with a high degree of reliability the changes in people’s living conditions — for example, additional people with access to energy — within 20 km of the roads. Not all changes are directly attributable to the project: they reflect broader improvements in living conditions over time.

### Changes along the Mombasa-Nairobi-Addis Ababa from 2005 to 2020

**Access to essential services**
- 5 million additional individuals with access to electricity
- 1.6 million additional individuals with access to piped-in drinking water

**Improved health conditions**
- Child stunting rates decreased by 3% in Kenya
- Child wasting rates decreased by 3% in Kenya

**Economic significance**
- 3.3 million additional individuals with access to a bank account
- Trade between Kenya and Ethiopia increased from $35 million to $175 million

**Mobility to market**
- 20 hours reduction in total travel time on concerned sections
- 75% reduction in average time spent on border

**Household assets**
- 487,000 additional individuals with access to a scooter
- 708,000 additional individuals live in a household with goats
- 658,000 additional individuals live in a household with cattle

**Women**
- 287,000 additional women completed up to primary school
- 1.2 million additional women employed

**Youth**
- 479,000 additional youth completed up to primary school
- 425,000 additional youth completed secondary school or higher
- 1.3 million additional youth employed in Ethiopia

**Access to education and jobs**
- 276,000 additional women completed secondary education or higher
- 437,000 additional women employed in agriculture
- 432,000 additional youth are employed in agriculture

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1 Smallholder households are defined as households that have at least 2 hectares of land suitable for agricultural use. In Kenya, smallholder households make up 11 million out of 12.7 million people living within a 20 km radius from the Corridor in 2020. In Ethiopia, this number is 8.4 million out of 10.5 million.
present African smallholder farmers with important opportunities to expand their production for market and by extension, to increase their income. Exploiting these opportunities requires investing in distribution systems, warehousing, cold storage, processing and packaging facilities, transport, energy, and water services (Figure 2).

But for agricultural production to become economically viable for smallholder farmers, factor and produce markets alike must become efficient. Well-functioning produce markets will ensure that smallholder farmers obtain just returns for their produce. For farming to be a viable economic activity, farmers also need to be able to acquire inputs (improved seeds, fertilisers, herbicides, etc.) at the right market price.

The Bank’s contribution to developing agriculture

The Bank’s work to promote agricultural development is guided by its Feed Africa strategy, which sets out the Bank’s priorities and goals for supporting the sector. The strategy identifies key actions that will make it possible for African agriculture to reach its full potential: increasing productivity and production (Box 2), developing enabling infrastructure, developing the agribusiness environment, catalysing investment in the sector, promoting inclusive and sustainable progress, and enhancing coordination and partnerships in sector interventions.

The Bank plans to deliver high-impact agricultural technologies to 40 million farmers by 2025. With over 11 million farmers so far, we are on track

Since we launched the Feed Africa strategy, the Bank’s agricultural programmes have reached increasing numbers of people. In 2020, 16.4 million Africans—8.0 million of whom were women—benefited from improved agriculture through our projects, up from 5.6 million people in 2016 and far surpassing our target of 6.3 million.

In 2020, Sudan harvested 1.1 million tons of wheat from 315,500 hectares of farmland. This was a major improvement from just five years before, when Sudan’s wheat farmers harvested 0.5 million tons of wheat on 250,000 hectares of land. The Bank’s Technologies for African Agricultural Transformation (TAAT) programme contributed to this outcome by providing Sudanese farmers with access to heat-tolerant wheat varieties and other productivity-enhancing technologies, as well as training in production techniques. While ordinary wheat typically produces high yields at temperatures between 20°C and 26°C, heat-tolerant wheat seeds thrive in areas where field temperatures exceed 30°C.

“Now, we consistently have good-quality wheat in record quantities,” said Daf’Allah Mohamed Ahmed, a Sudanese farmer taking part in the TAAT programme. “My wheat yield increased from 2.5 tons to 5 tons,” he added, with a broad smile.
An example of our work to raise agricultural productivity is the Technologies for African Agricultural Transformation (TAAT) programme, a central pillar of the Bank’s Feed Africa strategy. TAAT seeks to double the productivity of nine priority commodities on the continent by delivering high-impact, proven technologies to 40 million farmers by 2025. At the core of TAAT is the Commodity Compacts, which comprise research institutes (national, regional, and international), governments, farmers’ organisations, and seed companies in 30 African countries. TAAT’s approach is to overcome the market failures associated with smallholders’ poor access to modern inputs by buying down risks for seed companies and smallholder farmers. It does this by producing early generation seeds, conducting demonstration trials (this creates demand), and training seed producers. As of November 2020, 10.6 million farmers—25% of the expected 40 million farmers—had adopted TAAT technologies for nine priority commodities. The Bank is on track to meet its target.

Another example of the Bank’s work to improve agricultural production is the Malawi Smallholder Irrigation and Value Addition Project, which aims to increase agricultural production and productivity by intensifying irrigation, diversifying crops, adding value, and building capacity. Completed in 2019, the project has directly benefited an estimated 109,000 households. By supporting the irrigation of 2,210 hectares of land, improving production on more than 20,000 hectares of rain-fed agricultural land, and establishing seven value-addition centres for agricultural products, the project increased farmers’ household income, boosted production, and added value for various crops, including rice, cassava, soybeans, peanuts, beans, and peas.

The Bank has found it more difficult to achieve its objectives for improved water management. In 2020, Bank projects improved water management on 16,500 hectares of land, down from 45,500 in 2015 and well below the target. To inform the design of future irrigation infrastructure projects and increase our impact in this area, we are paying special attention to lessons and recommendations from evaluations (Box 3).

The Bank has been increasing its support for the expansion of feeder roads linking rural and remote communities to national road networks. In 2020, our projects built or rehabilitated 3,099 km of feeder roads. This trebled our results over the 2015 baseline and surpassed our target for 2020. This encouraging performance puts us clearly on track to reach our goal of building or rehabilitating about 15,000 km of feeder roads in the decade to 2025.

In the southern part of Democratic Republic of Congo, our Rural Infrastructure Development Support Project strengthened rural infrastructure so that more agricultural products could be marketed. This project rehabilitated and built more than 1300 km of feeder roads, giving more farmers access to road networks and markets. The project also supported 10 vocational training centres and trained 6000 young people, 60% of whom were young women.

### Table 4 Feed Africa indicators (Level 2)

<table>
<thead>
<tr>
<th>INDICATOR</th>
<th>ALL AFRICAN COUNTRIES</th>
<th>ADF COUNTRIES</th>
<th>TRANSITION STATES</th>
</tr>
</thead>
<tbody>
<tr>
<td>People benefiting from improvements in agriculture (millions)</td>
<td>6.0</td>
<td>16.4</td>
<td>6.3</td>
</tr>
<tr>
<td>— of whom women</td>
<td>2.9</td>
<td>8.0</td>
<td>3.1</td>
</tr>
<tr>
<td>Feeder roads built or rehabilitated (km)</td>
<td>800</td>
<td>3099</td>
<td>1500</td>
</tr>
<tr>
<td>Land with improved water management (thousand ha)</td>
<td>45.5</td>
<td>16.5</td>
<td>47.8</td>
</tr>
<tr>
<td>Rural population using improved farming technology (millions)</td>
<td>0.60</td>
<td>0.07</td>
<td>0.63</td>
</tr>
<tr>
<td>— of whom women</td>
<td>0.30</td>
<td>0.03</td>
<td>0.31</td>
</tr>
</tbody>
</table>

- Achieved 95% of 2019 target
- Achieved less than the baseline

### Box 3 Maximising the impact of irrigation infrastructure

The Bank’s Independent Development Evaluation department evaluated two irrigation infrastructure projects completed in 2014 and 2017 in Malawi. Its analysis provides several lessons and recommendations:

- **Ensuring adequate capacity and adequate governance systems** in local institutions helps irrigation projects produce sustainable outcomes.
- **Building market infrastructure** should be complemented by actions to enhance access to agricultural markets.
- For projects to be effective, the **technical design of irrigation schemes** must be sound.
- **Empowering women** to participate in irrigated farming can improve ultimate development outcomes, i.e., poverty reduction and household welfare.

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### Feeder roads, irrigation infrastructure, better governance, and women’s empowerment are all part of the solution

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women, thereby empowering the region’s future agricultural workforce.

The Bank also supports livestock, fisheries, and aquaculture in a range of countries, to promote nutrition-sensitive diets and make livelihood more secure. In East Africa and North Africa, our research on agricultural policy is promoting public-private partnerships in green aquaculture diversification and value chains. We are also supporting the livestock sub-sector in Central Africa and West Africa.

In 2020, the Bank helped African farmers deal with the challenges posed by the Covid-19 pandemic. In June 2020, we launched Feed Africa Response to Covid-19, a strategic roadmap of support for African countries in tackling the crisis’s food and nutrition security impacts through a wide range of immediate, short-term, and medium-term options. The Bank’s response has involved working with governments and partners to prioritise measures aimed at increasing access to food for the poor and vulnerable, strengthening national food reserve systems, enhancing access to agro-inputs, supporting production (including post-harvest processing) for smallholders and large producers, establishing national food security taskforces, and strengthening the capacity of regional organisations to monitor multi-country initiatives.