

Report Shows Accelerated Adaptation Can Substantially Reduce Egypt's Food Production Losses From Climate Change

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Body

Without significant **climate change** adaption measures,, **climate change**-induced biophysical crop stress could lead to a 10% reduction in the Egypt's food crop yields by 2050 and cost the economy US\$1.84 billion per year over the same period, according to new projections from researchers at the International Food Policy Research Institute (IFPRI). The same research also finds, however, that accelerating investments in adaptation measures – particularly agricultural research and development for adaptation technologies – can improve the productivity of many crops, including wheat and fruits and vegetables, enough to mostly offset total production losses from **climate change**, generating overall food production in 2050 at approximately the same levels as a hypothetical future without **climate change**. For other crops, like maize or oil crops, accelerated adaptation is needed on global levels to ensure affordability of food for Egyptian consumers.

"These projections demonstrate how urgent investments in **climate** adaptation are, as well as how effective they can be in protecting livelihoods," said Claudia Ringler, co-author of the study and deputy director of IFPRI's Environment and Production Technology Division. "As world leaders develop their commitments for the United Nations **Climate Change** Conference COP26 in Glasgow, investments in adaptation, particularly through accelerated financing of agricultural research, should be a top priority."

While the report notes Egypt's agriculture sector weathered the recent COVID-19 pandemic and economic slowdown relatively well compared to other sectors, it is unlikely to do as well under **climate change**. The limited fertile land and scarce water resources in Egypt are likely to exacerbate the impact of **climate change** on food production, contributing to the substantial economic cost of **climate change**.

"Egypt has a vibrant and resilient agriculture sector with historically high productivity, despite the desert **climate**, but **climate change** will increase temperatures and reduce rainfall yet further – posing a major threat to agricultural production," said Kibrom Abay, the leader of IFPRI's Egypt Strategy Support Program.

The report examines a range of **climate**-resilient strategies for the agriculture sector in Egypt using sophisticated modeling to project the impacts of **climate change** on different crops as well as the impacts of a suite of technologies that can directly counter the impact of **climate change**.

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Impacts were modeled for food groups such as fruits and vegetables, roots and tubers, and oil crops, as well as several specific crops such as wheat, maize, rice, and sugar. Adaptation technologies and scenarios included improved soil fertility, water management, protection against crop pests and disease, and new seeds that improve tolerance to heat, drought, and other weather extremes. As many of these technologies work better in tandem, one adaptation scenario projected the impact of "stacking" these technologies together.

Results indicate that this stacking approach may be the most effective, generating agricultural productivity gains that would offset the projected overall food production losses due to climate change for key food security crops. But even in this scenario, adaptations are not projected to completely offset yield losses from climate change for maize, oil crops and sugar. These disparate impacts on specific crops underscore how climate change is likely to cause shifts in Egypt's agriculture and food production and food trade, even with accelerated adaptation efforts.

"There are no silver bullets in the fight against climate change and adapting to its impacts will require careful planning based on rigorous analysis. This report aims to assess the impact of climate change on Egypt's agricultural sector and to explore the robustness of different investments in climate change adaptation by comparing the outcomes of these investments to a reference climate change scenario in which no specific adaptation effort is undertaken" said Yumna Kassim, Senior Research Associate at IFPRI, when asked about the report's highly anticipated findings.

"At the end of the day, the future of Egypt's agriculture in the face of climate change ultimately depends on the extent of its impacts and the policies and investment choices the government makes, as well as the possibilities for agricultural producers and consumers to adapt to these impacts and to take up solutions. This report shows the impact of climate change and presents the policies and investment strategies the government of Egypt may need to take" says Nicos Perez, lead author of the report and Research Fellow at IFPRI's Environment and Production Technology Division, when asked about the main takeaway from the study.

The International Food Policy Institute (IFPRI) provides research-based policy solutions to sustainably reduce poverty and end hunger and malnutrition in developing countries. Established in 1975, IFPRI currently has more than 600 employees working in over 50 countries. It is a research center of the CGIAR, a worldwide partnership engaged in agriculture research for development.

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