

Drought in southern Africa today: a preview of what climate change could bring and how African farmers can adapt

Over the last year, an intense drought in Southern Africa - the worst to hit the region in at least 35 years - has left tens of millions of people in need of food aid. And the problem could actually get worse before it gets better. The Food and Agriculture Organization (FAO) of the United Nations (UN) [warns](#) that without the means to produce enough food to feed themselves, 40 million people in Southern Africa will be struggling with some level of food insecurity by early 2017.



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Unfortunately, this situation could become a preview of things to come across sub-Saharan Africa.

The build-up of greenhouse gasses caused by human activity is altering weather patterns around the world. But [Africa may be hit especially hard](#). For example, the Intergovernmental Panel on Climate Change (IPCC) found that a failure to limit greenhouse emissions today could cause global temperatures to increase by 2.6 to 4.8 degrees Celsius by the end of the century. In much of Africa, the IPCC fears that temperatures will climb even faster, rising by at least 2 degrees by 2050, with the region's arid zones especially feeling the additional heat. IPCC experts also worry that if emissions continue to rise, average rainfall will steadily decline in Southern Africa. They further warn that weather extremes - heat, drought, and flooding - all could become more common across the continent.

Weather extremes hit African farmers particularly hard because they already face a daunting array of challenges. Their existing vulnerabilities include a lack improved crop varieties, severely depleted soils, poorly defined land rights, a reliance on rain instead of irrigation (only about six percent of African agricultural lands are irrigated), and insufficient access to financing, safe crop storage, markets, extension services and crop insurance.

Falling yields, higher food prices and other impacts from climate change

Here are just a few examples of how climate change could impact food production in Africa.

Unless farmers can adapt to shifting growing conditions, experts warn that yields - the amount of produce and grain harvested per hectare or acre - for all major African food crops will sharply decline. A [2015 report from the Montpellier Panel](#) found that by 2050, the average yield of maize, sorghum, millet, groundnut and cassava will decline by 22%, 17%, 17%, 18% and 8% respectively. Some areas could see even sharper declines.

Maize yields in South Africa and Zimbabwe could be hit especially hard, with potential losses of 60% or more.

Several countries could see overall crop yields fall by 50%. In addition, rising temperatures are expected to drive an expansion of pests and crop diseases while stressing livestock.

At the same time, lower productivity would cause food prices to rise. The Montpellier Panel report estimates that climate change on average will cause maize prices to increase by 4%, rice by 7% and wheat by 15%.

Rising sea levels caused by melting glaciers could inundate African coastal areas, ruining soils with salt water, contaminating groundwater and forcing large-scale population movements as predominantly agrarian communities seek out new farmlands.

Fighting back: how African farmers can survive and even thrive

African farmers are not powerless in the face of climate change. There are many ways in which they can survive and even thrive despite the dramatic shifts in growing conditions they are likely to endure.

Africans can invest in developing and adopting new agriculture innovations - from improved seeds to new ways of connecting to markets - with the zeal they have displayed for innovating and adopting mobile telephone technology. For example, more funding for crop breeders would enable them to take new varieties of drought-tolerant maize and heat-tolerant beans and develop seeds that match local growing conditions across the region.

Existing telecom networks could become the foundation for agriculture information services that create virtual markets and empower remote, rural farmers by giving them real-time insights into pricing and potential buyers for their produce.

Existing approaches that are already helping farmers increase productivity in an environmentally sustainable way can become core climate change adaptation strategies. They include well-established land management practices that help farmers retain water in their soils and water harvesting techniques that allow farmers to store water for future needs.

More reliable weather forecasts and better insights into upcoming climate trends can help farmers prepare for the future by selecting crop varieties that are likely to provide the biggest harvest as growing conditions shift.

Expanding extension services to provide technical advice on adaptation alternatives is critical. Today, many farmers in Africa are not even aware of climate change, even though they are experiencing its effects almost daily.

Existing gender inequalities on the farm will be intensified by climate change. Thus, it will be important to focus on women farmers, particularly when it comes to land rights, business skills, and market access.

Increasing income-earning opportunities can help farmers adapt to climate change, as income is itself a form of resilience. Farmers who have access to processing and storage options, pricing information and reliable and affordable forms of crop

insurance are often able to increase their income or at least minimize losses significantly even in the midst of stressful weather.

Many African farmers already adjust to variations in rainfall by changing the crops they plant. Farmers in Zambia, for example, regularly trade maize for cassava, which is more drought-tolerant, when rains are scarce. Many African farming households also regularly engage in a variety of water conservation techniques as rainfall decreases. While these approaches are not by themselves sufficient to avoid food loss, increasing support for existing household strategies can become a part of the overall package of adaptation measures.

African allies in the fight against climate change

The international community is increasingly aware of the challenges climate change poses for food production in Africa. Today, there are a half-dozen or more international programmes that eventually will have billions of dollars available for African countries to tap for adaptation efforts. These include the World Bank's Climate Investment Funds, the Clean Development Mechanism, the Global Climate Change Alliance and the Green Climate Fund.

In addition, there are [several initiatives](#) underway through the New Partnership for Africa's Development (NEPAD) Comprehensive Africa Agriculture Development Programme (CAADP). They include the NEPAD Agriculture Climate Change Programme, the NEPAD Climate Change Fund, the [Africa Gender Climate Change Agriculture Support Programme](#), the Africa Climate Smart Agriculture Alliance and the [TerrAfrica Partnership for Sustainable Land and Water Management](#).

"It's critical that all of these various initiatives are carefully coordinated work in concert to address the many different ways climate change could undermine food production in Africa and, by extension, the economic aspirations of all Africans," said AGRA president Agnes Kalibata. "The majority Africans work in agriculture, and agriculture remains Africa's best pathway to prosperity. But the setback from the drought in Southern Africa is a warning sign. Climate change is a serious threat to building a better future for Africa, and it demands our immediate attention."

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