

New UNDP Data Warns Climate Change Could Slash Global Crop Yields, Deepening Development Challenges

November 10, 2025



A major new dataset released by the United Nations Development Programme (UNDP) through its Human Climate Horizons (HCH) platform, in collaboration with the Climate Impact Lab, has revealed that climate change is set to severely impact agricultural productivity and human well-being worldwide—with the greatest risks concentrated in countries least equipped to adapt.

The findings show that **over 90 percent of countries assessed (161 out of 176)** are projected to experience **declines in staple crop yields by the end of the century**, even when accounting for observed farmer adaptation.

“Climate change is not just an environmental challenge—it is a profound development crisis,” said **Pedro Conceição**, Director of UNDP’s Human Development Report Office. “High agricultural yields are important not just for food security, they also sustain livelihoods and open pathways for economic diversification and prosperity. Threats to agricultural yields are threats to human development today and in the future.”

A Global, Data-Driven View of Climate Impacts

The new projections, based on **Hultgren et al. (2025)**, link climate variables to yields for **six major staple crops**—maize, rice, wheat, soy, cassava, and sorghum—across more than **19,000 subnational regions in over 100 countries**. The analysis models the effects of moderate and high emissions scenarios over three periods: **2020-2039, 2040-2059, and 2080-2099**, offering one of the most detailed global assessments to date of how rising temperatures and shifting climate patterns could reshape food

systems and development outcomes.

Poorest Countries Face the Steepest Losses

The data show that **low Human Development Index (HDI) countries** will bear the brunt of agricultural losses. Under high emissions scenarios, **median national crop yields could decline by 25-30 percent by 2100**, with **Sub-Saharan Africa and parts of Asia** especially vulnerable. In these regions, farmers rely heavily on rain-fed agriculture and have limited financial and technical capacity to adapt.

Even major agricultural economies are at risk. The world's **“breadbasket” regions**, including key wheat and soy producers, could see **yield declines of up to 40 percent** under severe warming—potentially triggering price shocks, trade disruptions, and broader global instability.

An Urgent Call for Equitable Climate Action

The findings underscore the message of the **Belém Declaration on Hunger, Poverty, and Human-Centred Climate Action**, released ahead of **COP30 in Brazil**, which calls for placing food systems and equity at the heart of global climate strategies.

Crucially, the research also demonstrates that **emissions reductions can significantly limit crop losses**. Under moderate emissions scenarios, declines by 2100 are projected to be **less than half** of those under high emissions, across both developed and developing economies.

“The pathway to a sustainable and equitable future lies in human-centred climate action,” added Conceição. “Ensuring that every person retains access to sufficient, nutritious, and reliable food is not only a matter of survival—it is a cornerstone of human dignity and development.”

The Human Climate Horizons dataset offers policymakers, researchers, and development planners a vital evidence base to guide **targeted adaptation, resilience, and mitigation efforts**, as climate change increasingly shapes the trajectory of global human development.