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Climate 'could devastate crops'

Climate change could cause severe crop losses in South Asia and southern Africa over the next twenty years, a study in the journal *Science* says.

The findings suggest southern Africa could lose more than 30% of its main crop, maize, by 2030.

In South Asia losses of many regional staples, such as rice, millet and maize could top 10%, the report says.

The effects in these two regions could be catastrophic without effective measures to adapt to climate change.

The majority of the world's one billion poor depend on agriculture for their livelihoods. Yet, said lead author David Lobell, it is also "the human enterprise most vulnerable to climate change".

The researcher, from Stanford University in California, added: "Understanding where these climate threats will be greatest, for what crops and on what time scales, will be central to our efforts at fighting hunger and poverty over the coming decades."

'Crushing' losses

The study used computer models to assess the impact of climate change on farming in 12 world regions where the bulk of the world's malnourished people live. This included much of Asia, sub-Saharan Africa, the Caribbean and Central and South America.

"To identify which crops in which regions are most under threat by 2030, we combined projections of climate change with data on what poor people eat, as well as past relationships between crop harvests and climate variability," Dr Lobell explained.

The scale and speed of the effects on agriculture surprised the scientists.

"For poor farmers on the margin of survival, these losses could really be crushing," said co-author Marshall Burke, also of Stanford University.

All the models agree that there will be adverse effects on maize in southern Africa and rice in South-East Asia, but the picture is less certain in other areas such as parts of West Africa where it is unclear how global warming will impact the local climate.

Early investment

"For these regions, you get half of the climate models telling you it's going to get

wetter and the other half giving you the opposite," said Dr Burke.

"As a result, our study raises the potential for very bad impacts in these regions but with much less certainty than in other regions."

A few developing regions, such as the temperate wheat-growing areas of China, could actually benefit in the short run from climate change, he added.

Since it typically takes 15 to 30 years for major agricultural investments to be fully realised, work must start soon to help subsistence farmers increase their yields or switch crops, the study says.

While relatively inexpensive changes, such as switching crops or altering planting seasons, could trim the losses, "the biggest benefits will likely result from more costly measures, including the development of new crop varieties and expansion of irrigation," the authors wrote.