New research reveals climate change risks to global food trade and food security

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Climate change poses a huge risk to both the global trade of agricultural commodities and food security, a new report reveals.

The report, by the Stockholm Environment Institute (SEI), reveals for the first time in detail which countries are exposed to transboundary climate risks (TCRs).

The findings, which included analysis by the Stockholm Environment Institute at York, looked at the transboundary climate risks of agricultural trade, and identified which countries are significant sources of climate risk for global commodity markets.

Six key agricultural commodities were assessed: staple commodities (such as maize, rice and wheat), highly embedded commodities (soy and sugar cane) and luxury commodities (coffee).

Sources of risk

The report's findings suggest that all countries are exposed to transboundary climate risks, regardless of development, power, or wealth.

Countries in Europe and North America were found to be highly exposed to TCRs via foreign imports, and can be major sources of risk for other countries which depend on their exports for food security.

The United States, China, and Brazil were found to be significant sources of climate risk, posing problems for countries in Central and Latin America and the Caribbean (which depend on US imports) and countries in Asia and Africa that import food from China.

Small Island Developing States and small, globally integrated countries like Singapore and Sweden are also especially vulnerable. In contrast, as a large commodity exporter, Russia may increase agricultural production due to climate change, including of maize, soy, and rice, though likely not enough to offset risks elsewhere.

Systemic resilience

Dr Simon Croft, from SEI York, said: "Our modeling provided the foundations upon which the assessments of transboundary climate risks in this report are conducted.

"Given the complexity of global supply chains, especially for commodities such as palm oil, unpicking these trade linkages is essential for quantifying and mapping TCRs in detail."

Overall, the report urges leaders at the UN Food Systems Summit and the upcoming COP26 climate change negotiations to acknowledge the important links between climate change, food security and trade, and to take action to build systemic resilience to climate impacts through multilateral cooperation.

More information: Adams, K.M. et al, Climate Change, Trade, and Global Food Security: A Global Assessment of Transboundary Climate Risks in Agricultural Commodity Flows. *SEI Report* (2021). doi.org/10.51414/sei2021.009

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