



Europe's economic vulnerability to climate change beyond its borders

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Climate change is leading to increased water scarcity and drought in many parts of the world. Agriculture, an important sector for the EU economy, is one of the most climate-sensitive of all economic sectors: crop yield and water use are directly affected by changes in climatological conditions. Although the EU produces most of the agricultural commodities used by its economic sectors, it meets some of its needs by importing. The availability of these imports, particularly those that rely on water, is at risk because many commodities are produced in regions that are potentially sensitive to extreme weather events and climate change.

As part of the IMPREX, a Horizon 2020 project, a work package entitled "Water Economy" mapped the EU's global dependency on water resources outside its borders and assessed how increased water scarcity and drought, due to climate change, may disrupt supplies of the key food crops that it imports. This study presents the outcomes of the work package showing how levels of vulnerability will vary under different climate change scenarios.

To translate climate impacts into vulnerabilities for the EU economy, we first calculated the global water demand of the EU agri-food based economy. Next, we identified which imported products are key to the EU. Finally, we assessed how water scarcity and drought could disrupt supplies of key food crops that it imports in the years 2030, 2050 and 2085 under the Representative Concentration Pathway (RCP) 2.6 and 6.0 climate change scenarios.

The results of our analysis show that climate change impacts outside the EU's borders are expected to escalate and are likely to pose an increasing risk to agri-food importers in EU Member States; greater effort is needed to build adaptive capacity and resilience. The European economy will become significantly more vulnerable to water scarcity and drought conditions under climate change in the future, even under the most optimistic RCP scenario. In the near future, supplies of soybeans, rice, sugar cane, cotton, almonds, pistachios and grapes are most likely to be affected because they come from areas with significant or severe levels of water scarcity. Climate change will significantly increase the risk of disruption to these commodity imports, particularly those from Southeast Asia and the USA. In the longer term, products such as coffee, palm oil, soybean and cocoa are also likely to be impacted by increased drought conditions due to climate change altering rainfall patterns and thereby increasing the risk of drought or other water-related problems in their countries of origin.

To assist producers and importers and to increase awareness of the risks that climate change poses to the agri-food business, EU policies and business strategies should consider that the region's economy is highly dependent on goods produced in locations that are vulnerable to the water-related impacts of climate change.