

Climate change, global food security and the role of trade and export restrictions

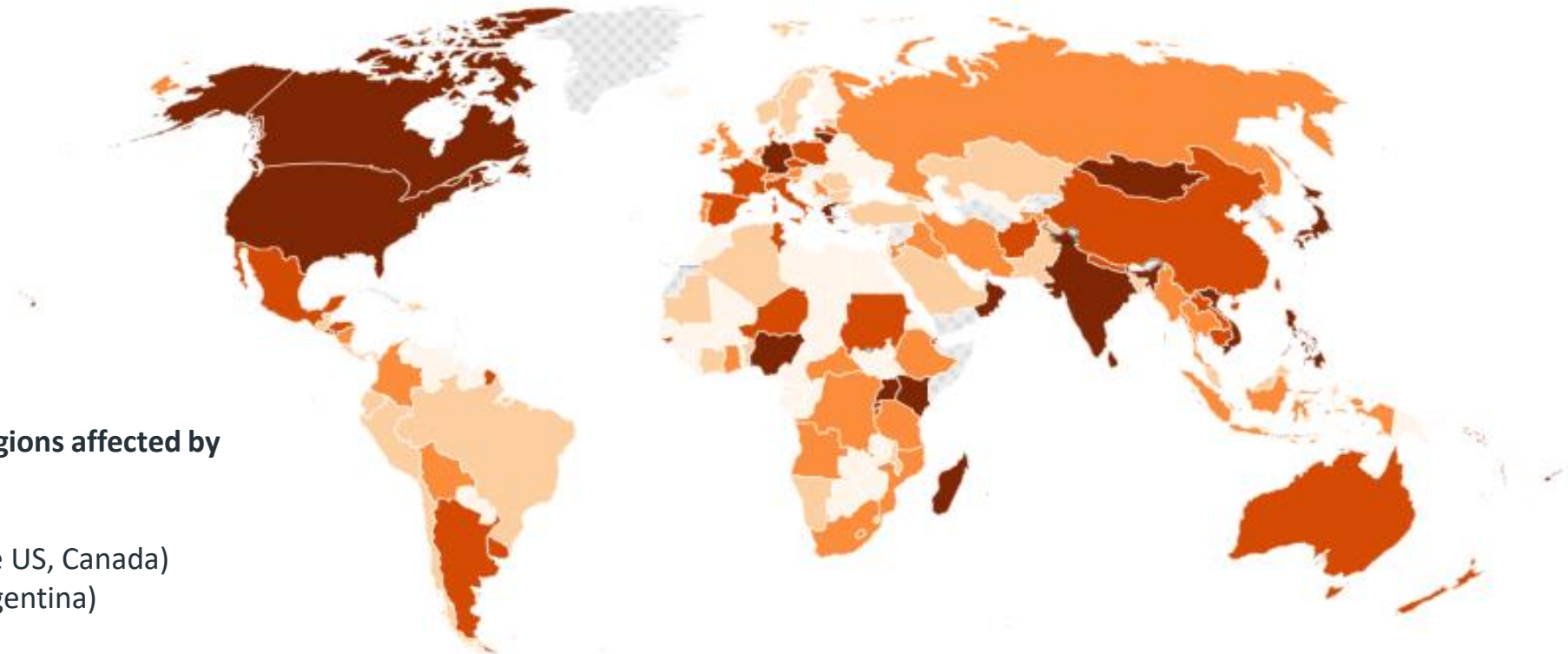
Transboundary climate risk in agricultural commodity flows and how market dynamic and responses interact

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WTO Webinar: 29th September 2023



Climate change and global food trade: mapping risk

Cereal imports 2018-2020, percentage



Global breadbasket regions affected by extreme weather:

- North America (the US, Canada)
- South America (Argentina)
- Asia (India, China)
- Russia
- Australia
- Europe (Germany, France)

Climate risks cross national borders and affect all countries, irrespective of their location or level of development.

Climate risk interacts with responses (including anticipation of risk), such as export (and import) restrictions: with the risk of multiplying the market effects of the climate events themselves.



Senegal

Rice trade flows

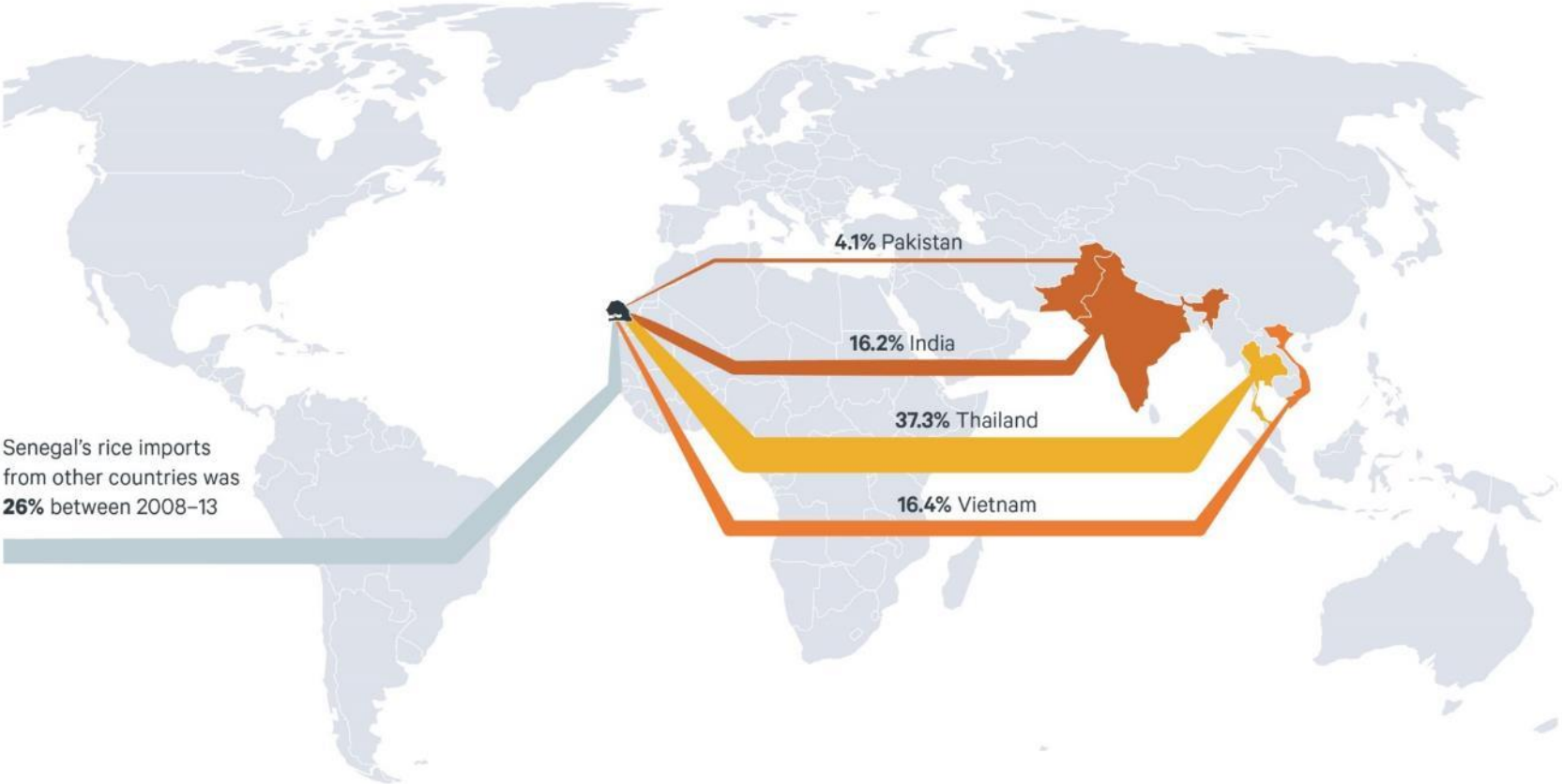
85%
Senegal's rice imports
before 2008 crisis

>200%
Rice price increase
in Senegal 2008–2009

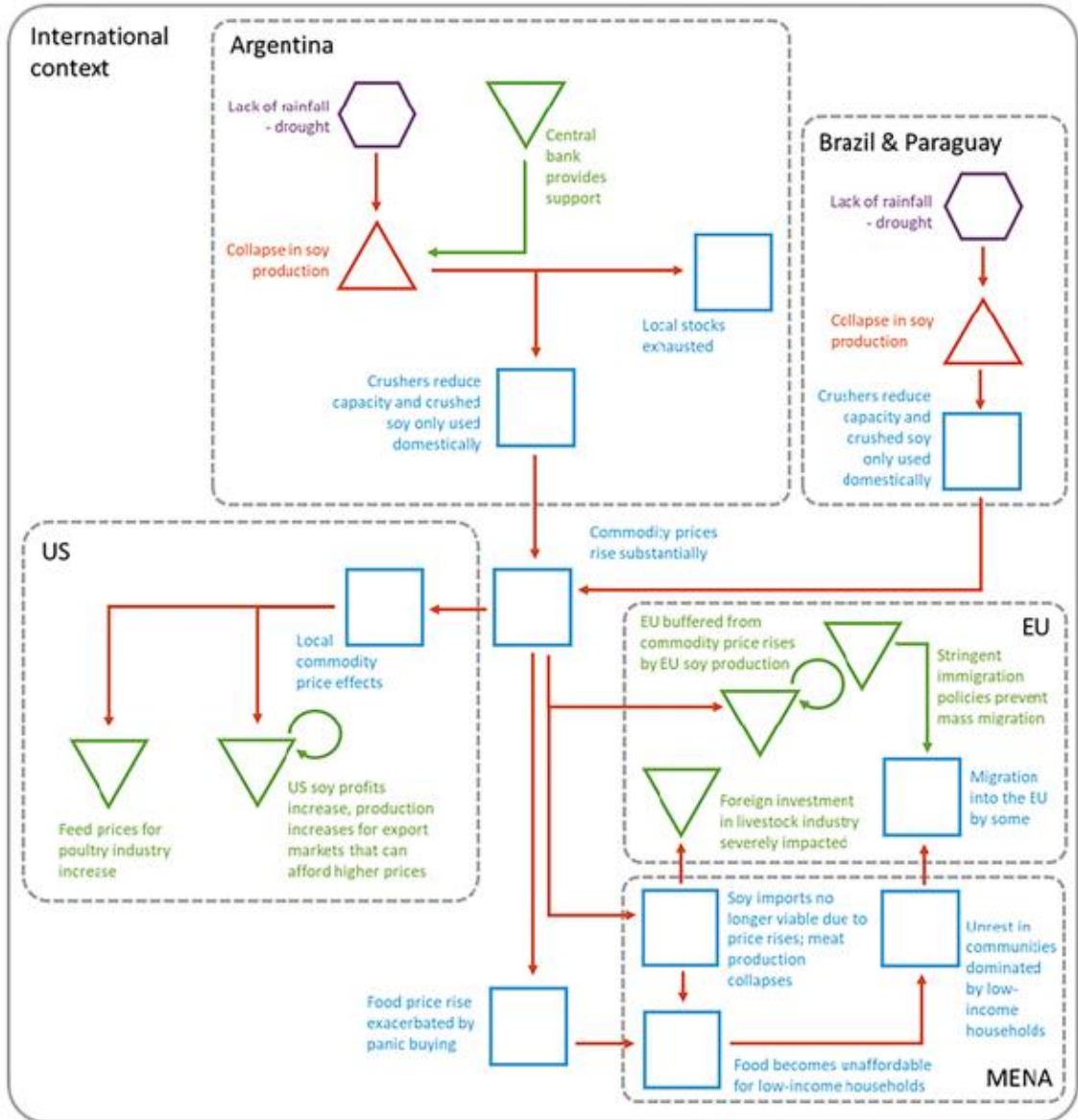


Size of trade link

Climate vulnerability
of link country



Source: UN comtrade & Schletz (2014).

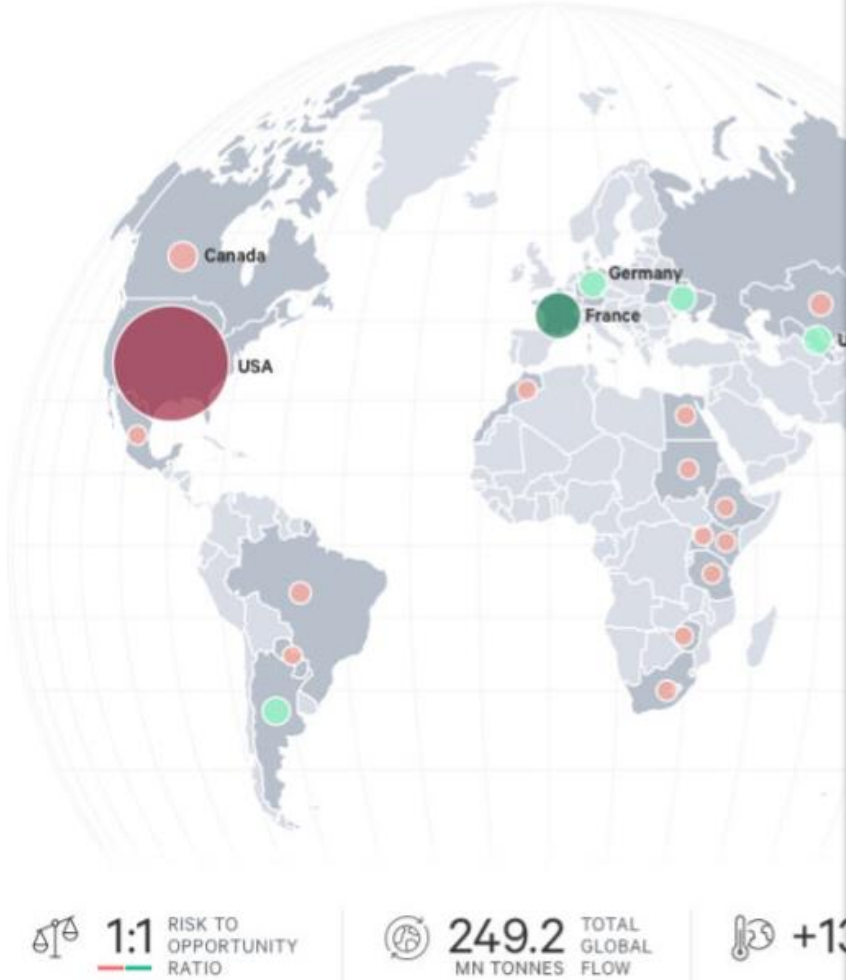


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CASCADES output: West et al. (2021) Europe's cross-border trade, human security and financial connections: A climate risk perspective. *Climate Risk Management*. <https://doi.org/10.1016/j.crm.2021.100382>

Top Global Risk Exporters for Wheat

Visualising the top exporters of climate change risk for global wheat trade.



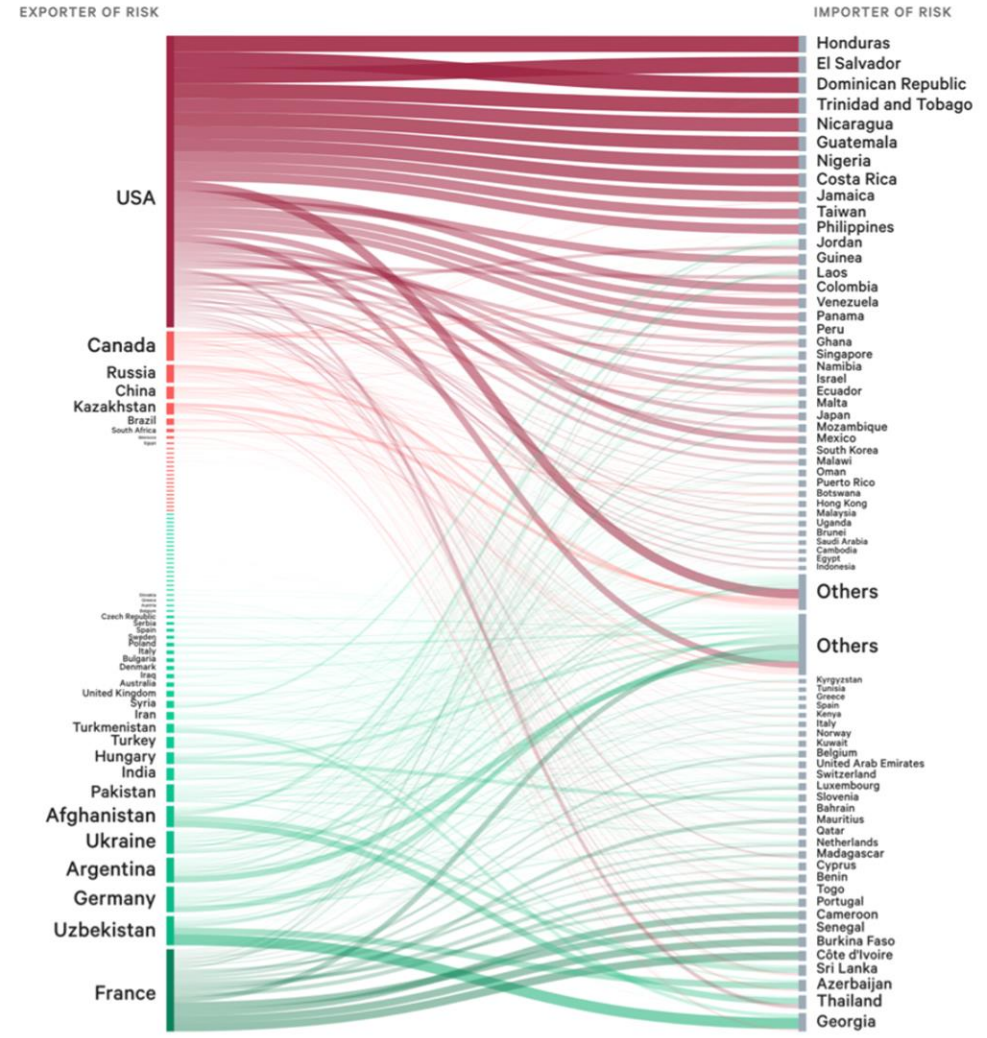
1:1 RISK TO OPPORTUNITY RATIO

249.2 TOTAL GLOBAL FLOW MN TONNES

+13%

High Risk Bilateral Trade Relationships for Wheat

Visualising the top exporters and importers of climate change risk for global wheat trade.



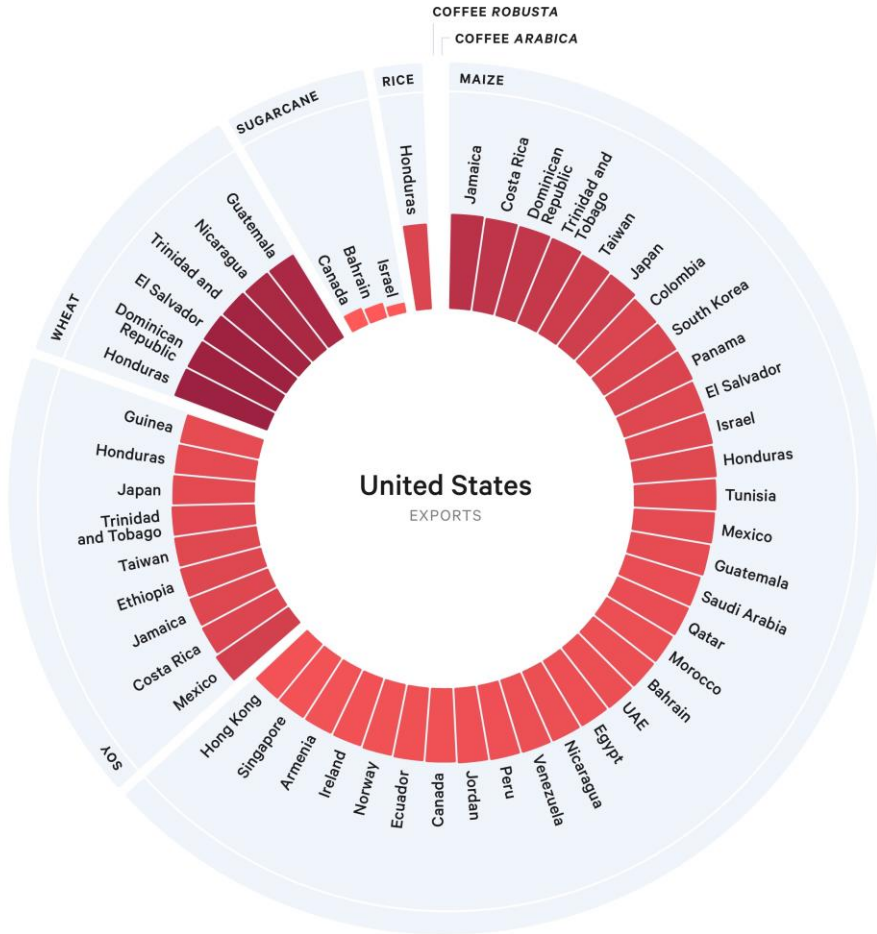
Source: Adams et al. 2020.

Adams, K. M., Benzie, M., Croft, S., & Sadowski, S. (2021). Climate change, trade, and global food security. SEI Report. Stockholm Environment Institute, Stockholm, Sweden.



Key Trade Relationships and Climate Risk

Visualising the United States' exports by volume and climate change risk.



SHARE OF CROP EXPORT (%)
 RISK - OPPORTUNITY RELATIONSHIP (LOG)

Key Trade Relationships and Climate Risk

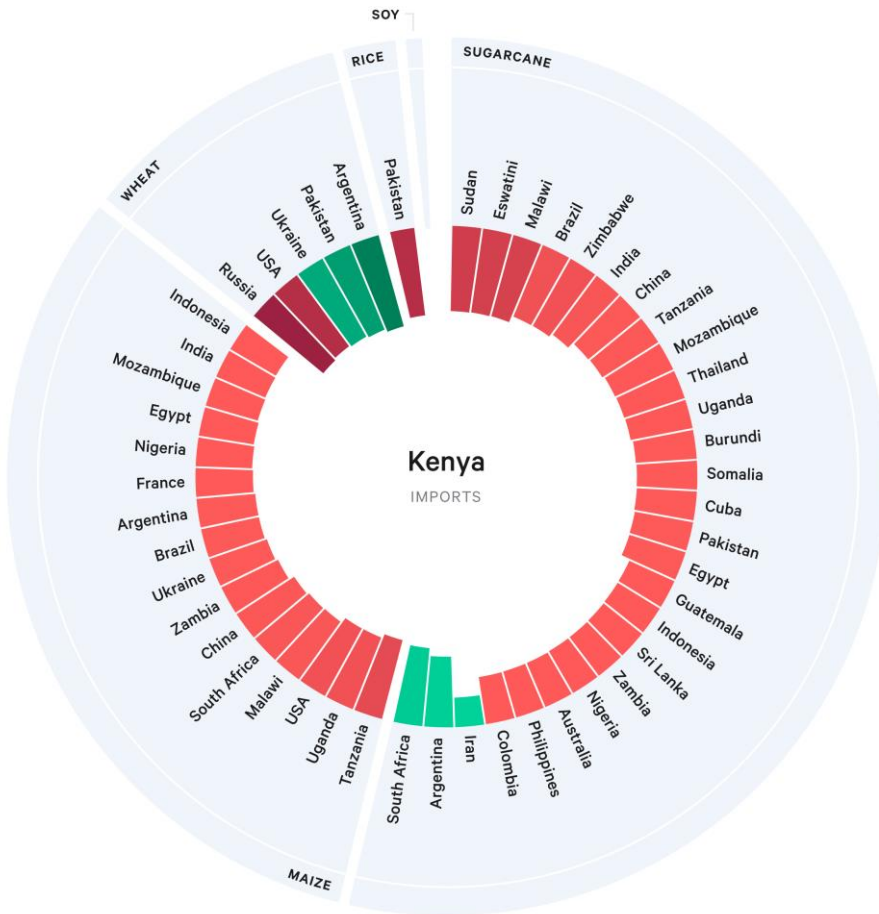
Visualising China's exports by volume and climate change risk.



SHARE OF CROP EXPORT (%)
 RISK - OPPORTUNITY RELATIONSHIP (LOG)

Key Trade Relationships and Climate Risk

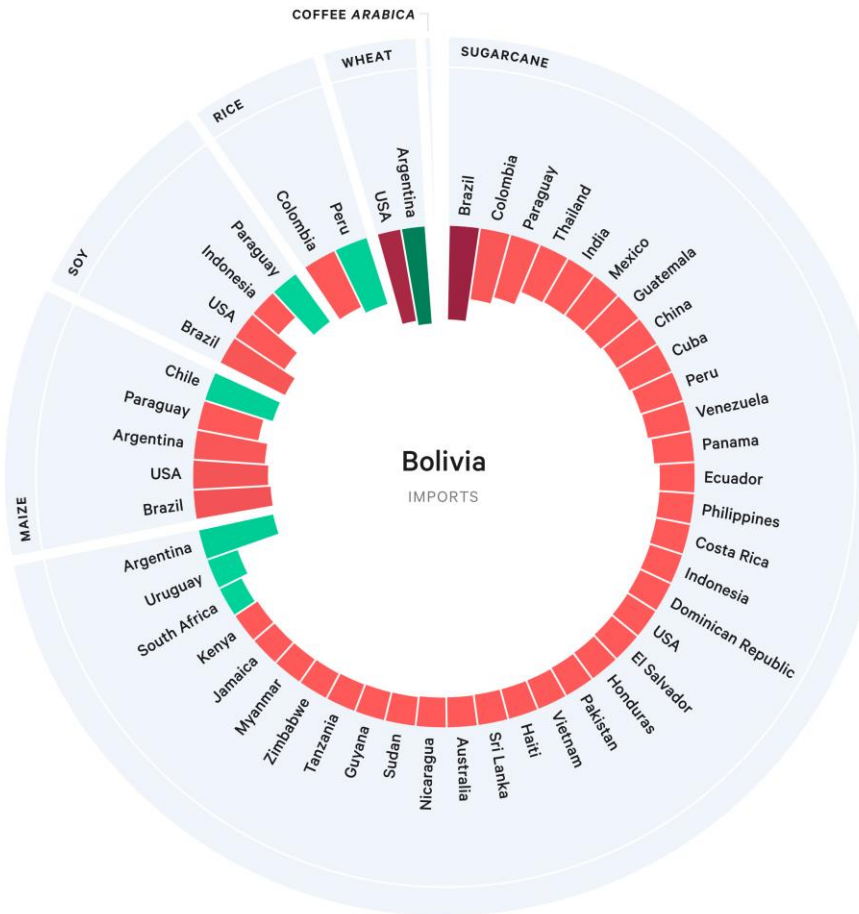
Visualising Kenya's imports by volume and climate change risk.



SHARE OF CROP IMPORT (%)
 RISK - OPPORTUNITY RELATIONSHIP (LOG)

Key Trade Relationships and Climate Risk

Visualising Bolivia's imports by volume and climate change risk.



SHARE OF CROP IMPORT (%)
 RISK - OPPORTUNITY RELATIONSHIP (LOG)

Implications for developing countries

- Many low-income countries are highly exposed
 - Direct food security risks via imported staples
 - Indirect risks to food affordability via embedded crops (oils, sugar, etc.)
 - Situation aggravated by export restrictions
- High LDC-dependence on powerful exporters (US, China, Brazil) (and little influence on market dynamics and responses)
- Several south-south risk transfers
- Many developing countries could contribute resilience to global markets if investments are made in their agriculture sectors and domestic supply chains: demand for finance to bolster domestic production will increase

Policy challenges

- Multiple “political spaces” for risk management
- Autarky, narrow-self interest and transboundary mal-adaptation vs. “systemic resilience”
- With or against the tide? Post-COVID, post-Ukraine: grappling with cascading and systemic risk vs. regionalisation, sky-high potential for incoherence & fundamental limits of state governance
- “Just Resilience” – the need for a global approach to adaptation
- What is the role and mandate of WTO to regulate encourage cooperative approaches in the face of global food shortages?

The background of the image is a close-up, top-down view of parched, cracked earth. The soil is light brown and grey, with numerous deep, irregular cracks forming a network of polygons across the surface. A small, vibrant green seedling with several leaves is growing out of a crack on the right side of the image. A single, thin, dry twig lies horizontally across the middle of the frame, partially overlapping the cracks.

Thank you!

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