

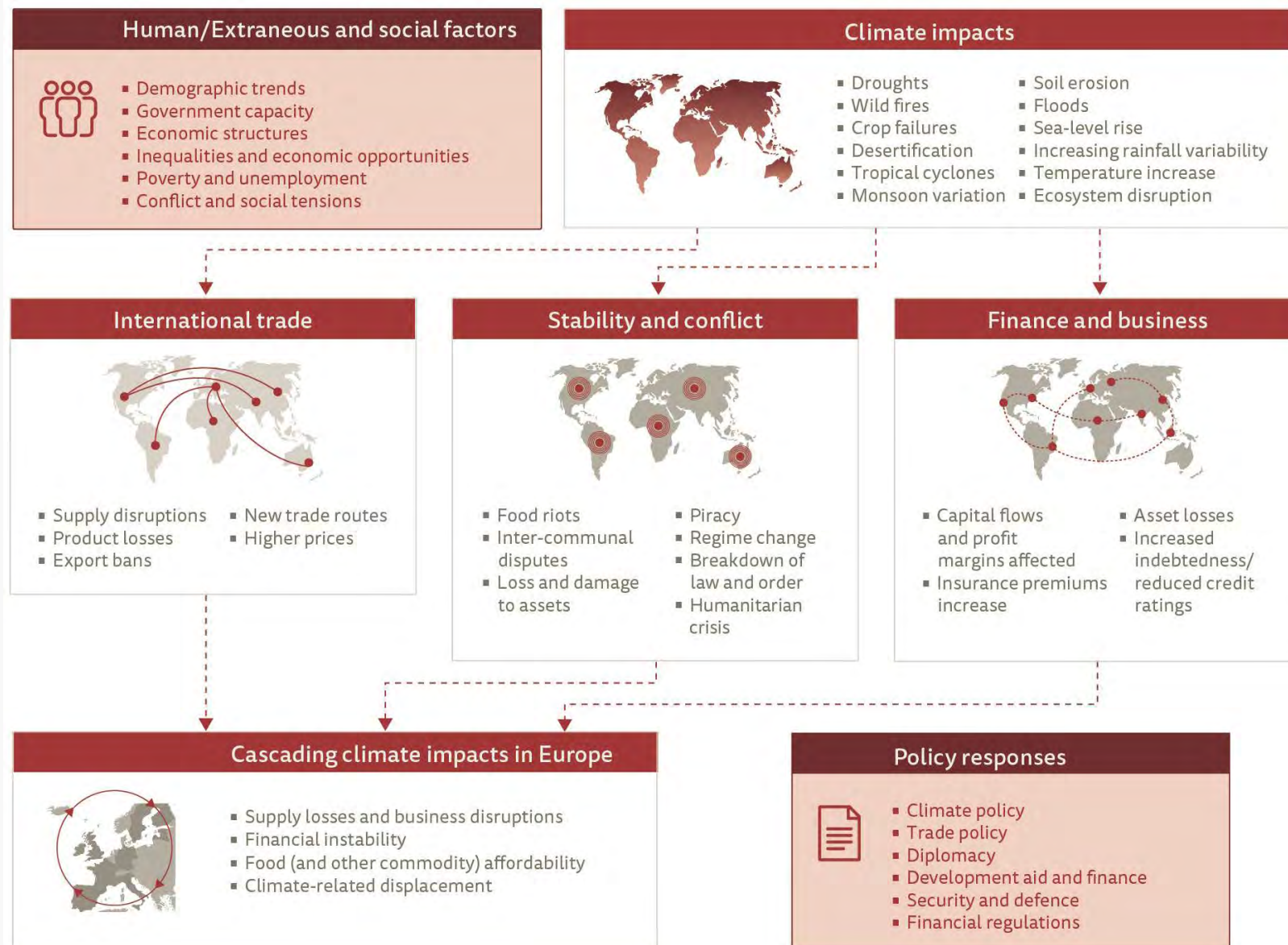


Transboundary climate impacts on Europe: Early insights from CASCADeS

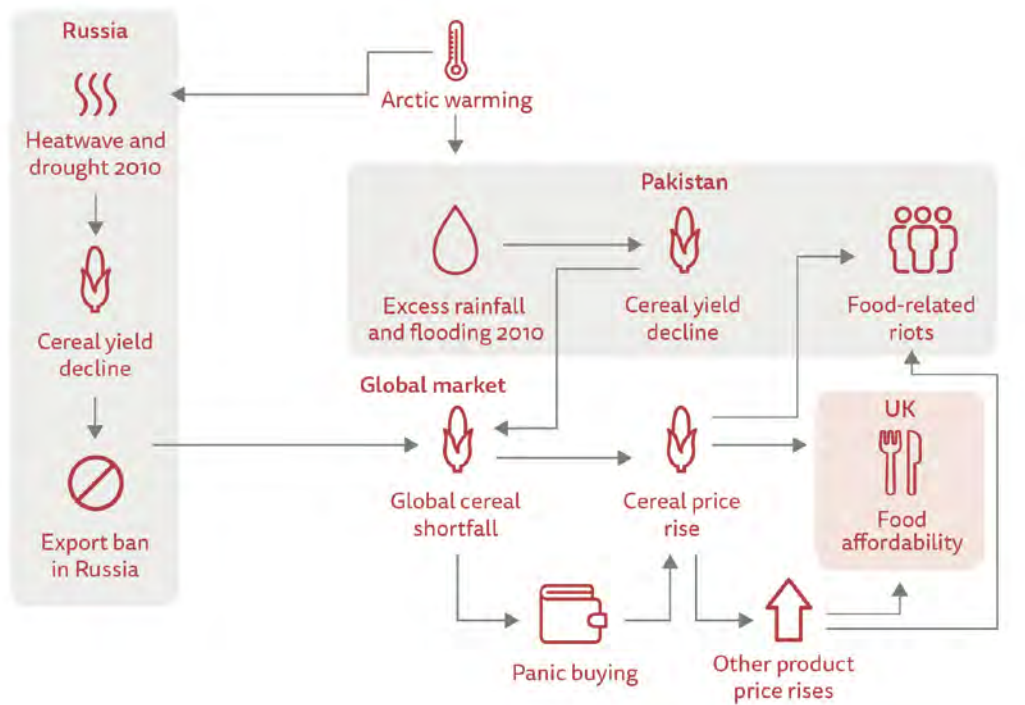
Dr. Christopher Reyer (reyer@pik-potsdam.de) + CASCADeS consortium

21st of January 2022 – IGES workshop on “Building Resilience to the Risk of Compound and Cascading Disasters in the Context of Climate Change”

CASCADES objective and partners



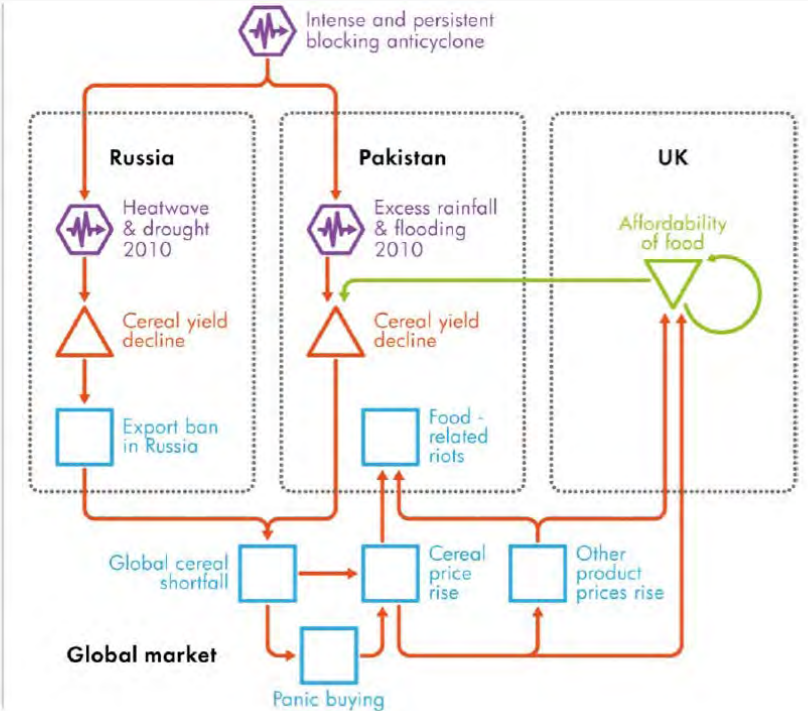
CASCADES Conceptual Framework




Climate triggers



Categories of cross-border impacts



 Climate trigger

 Initial impact

 Transmission of impact

 System component

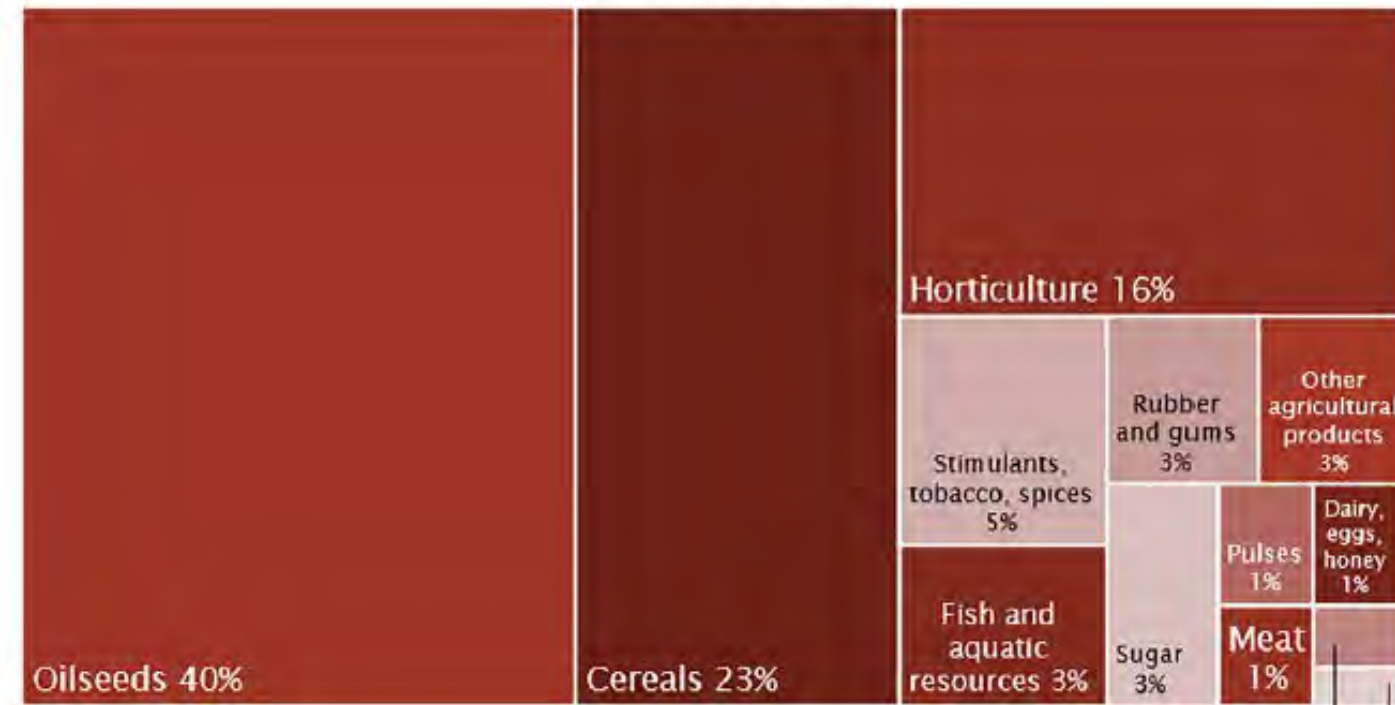
 Recipient risk

 Response

..... Border

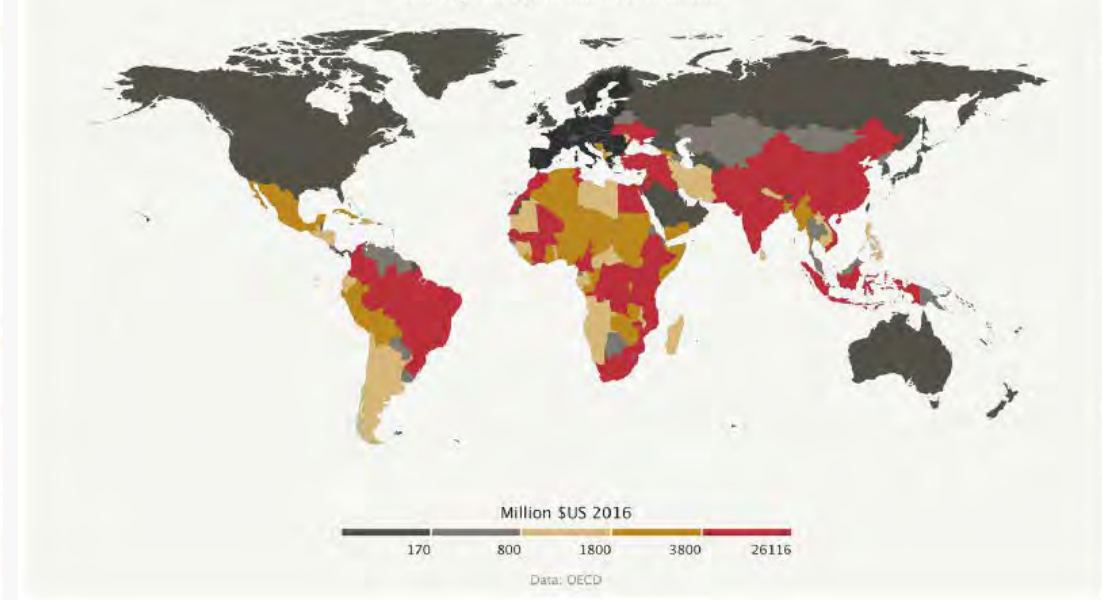
Europe's connection with the world (trade, development)

Agricultural products



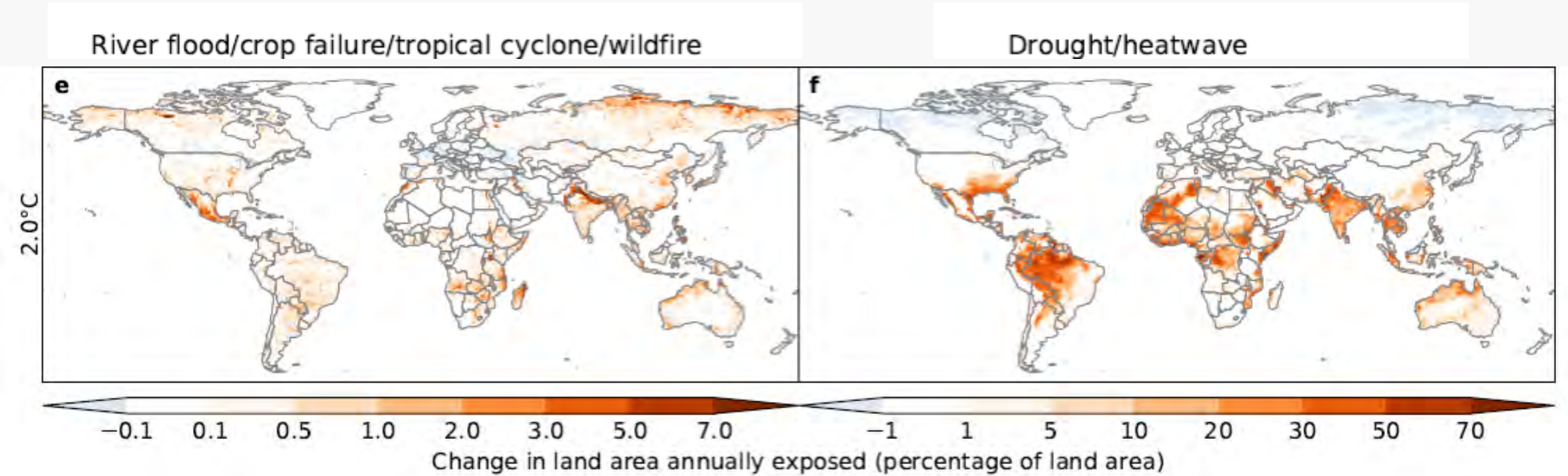
- Agriculture makes up 19% (monetary value) or 9% (mass-based) of total EU imports in 2018
- Fossil fuels are most important imports but here focus agriculture most sensitive to climate risk

ODA spending to non-EU countries



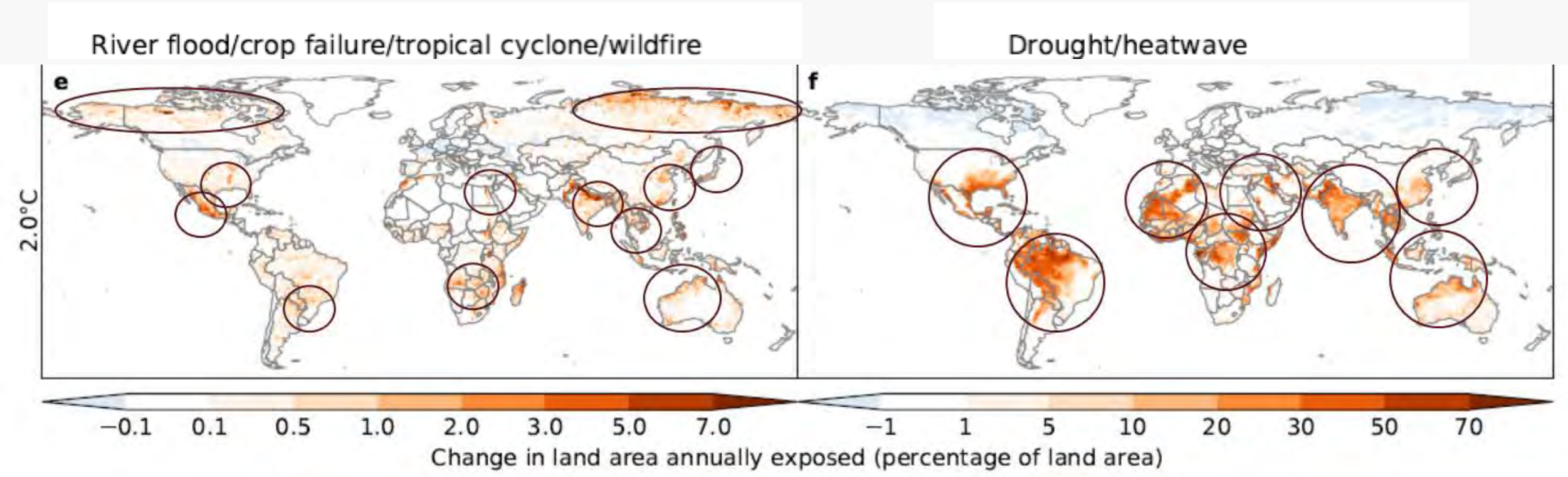
- Most Overseas Development Aid (ODA) goes to neighboring regions and old colonial ties
- Immigration from northern Africa/Sahel is not large in absolute numbers but Europe is primary destination and region is climate sensitive

Land area and population exposed to extreme events



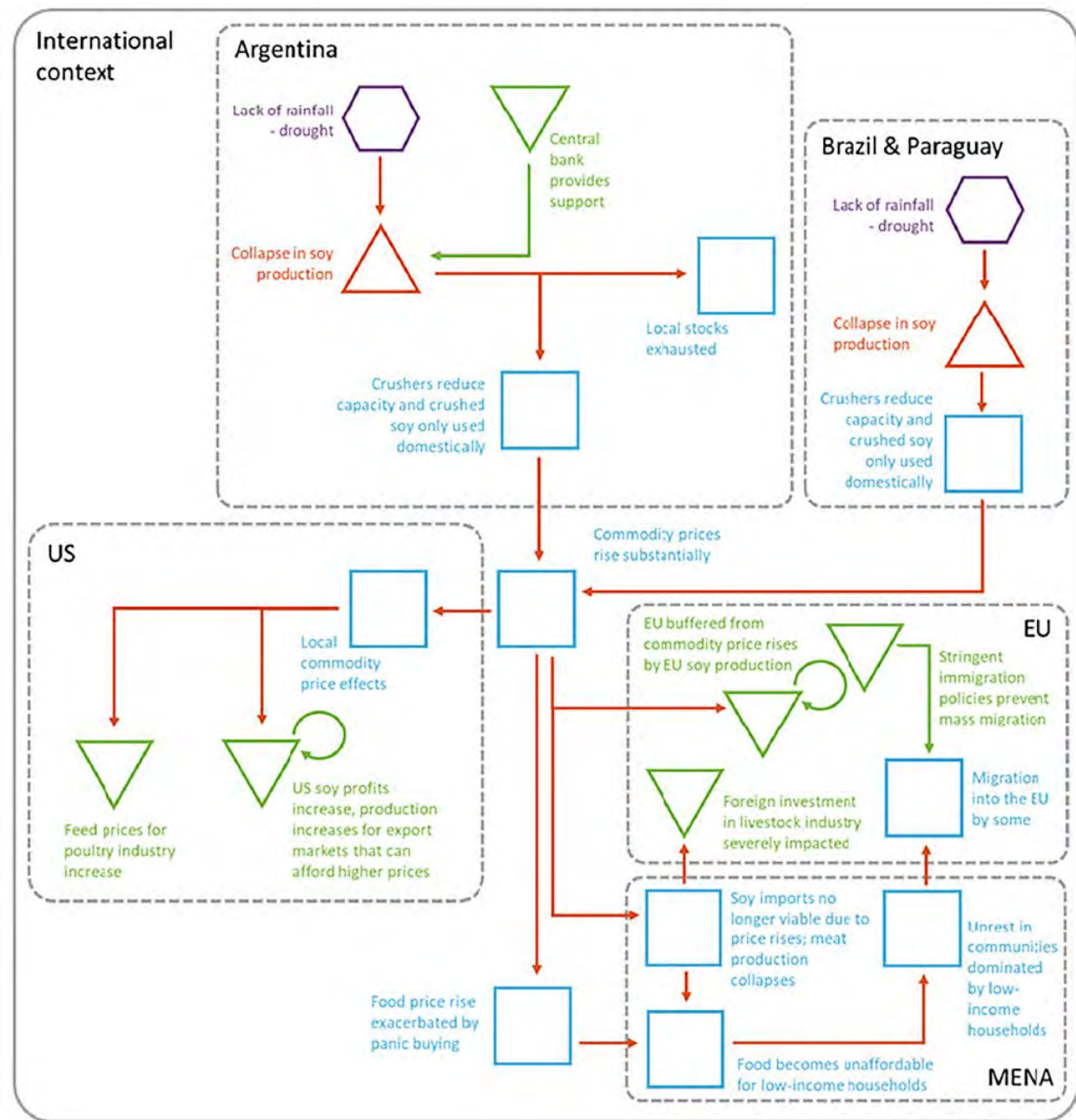
- Based on ISIMIP data: 5GCMs, RCP2.6 & RCP6.0 to drive 8 hydrological models, 5 fire models, 3 crop models, 1 hurricane model

Land area and population exposed to extreme events

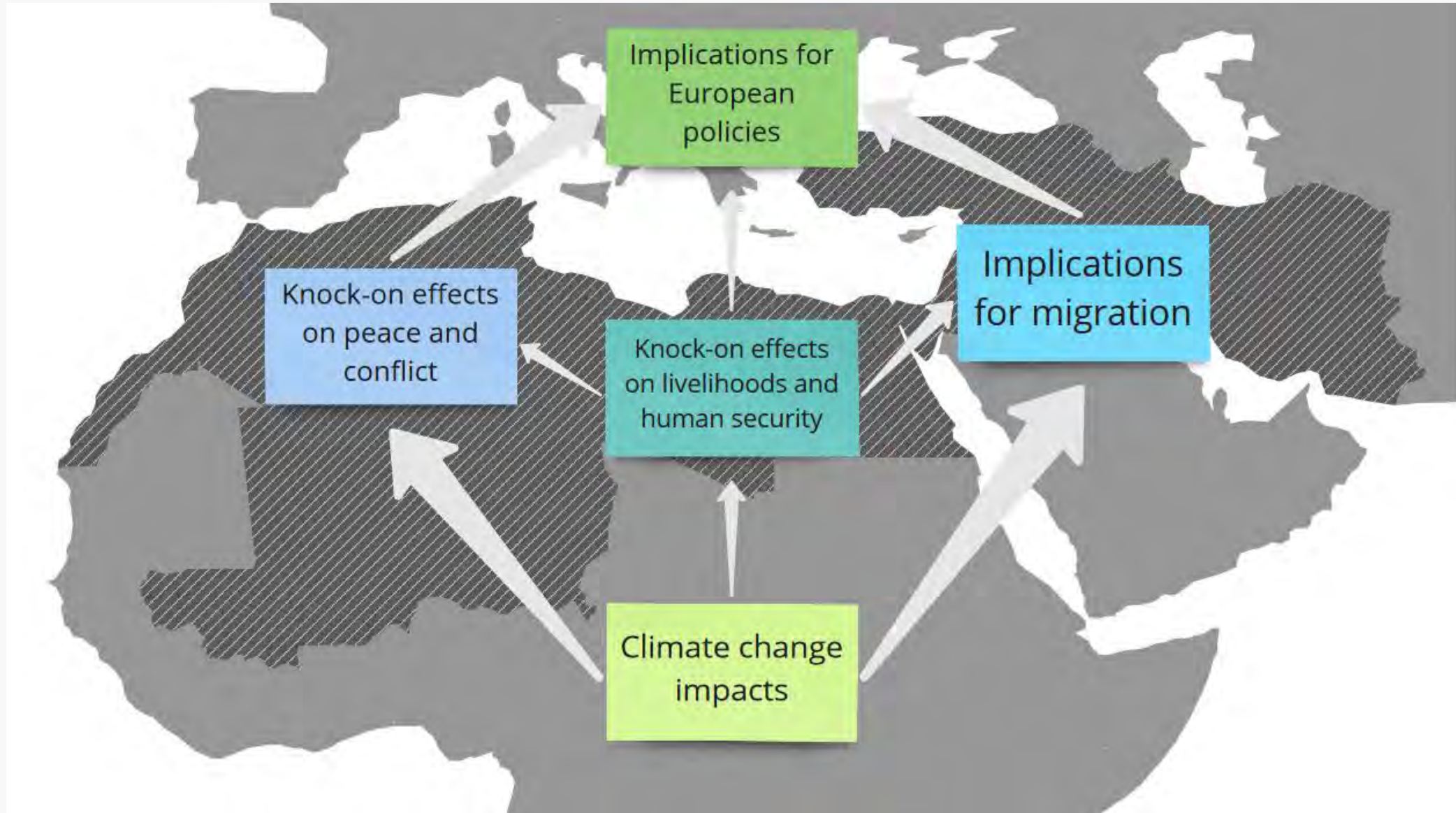


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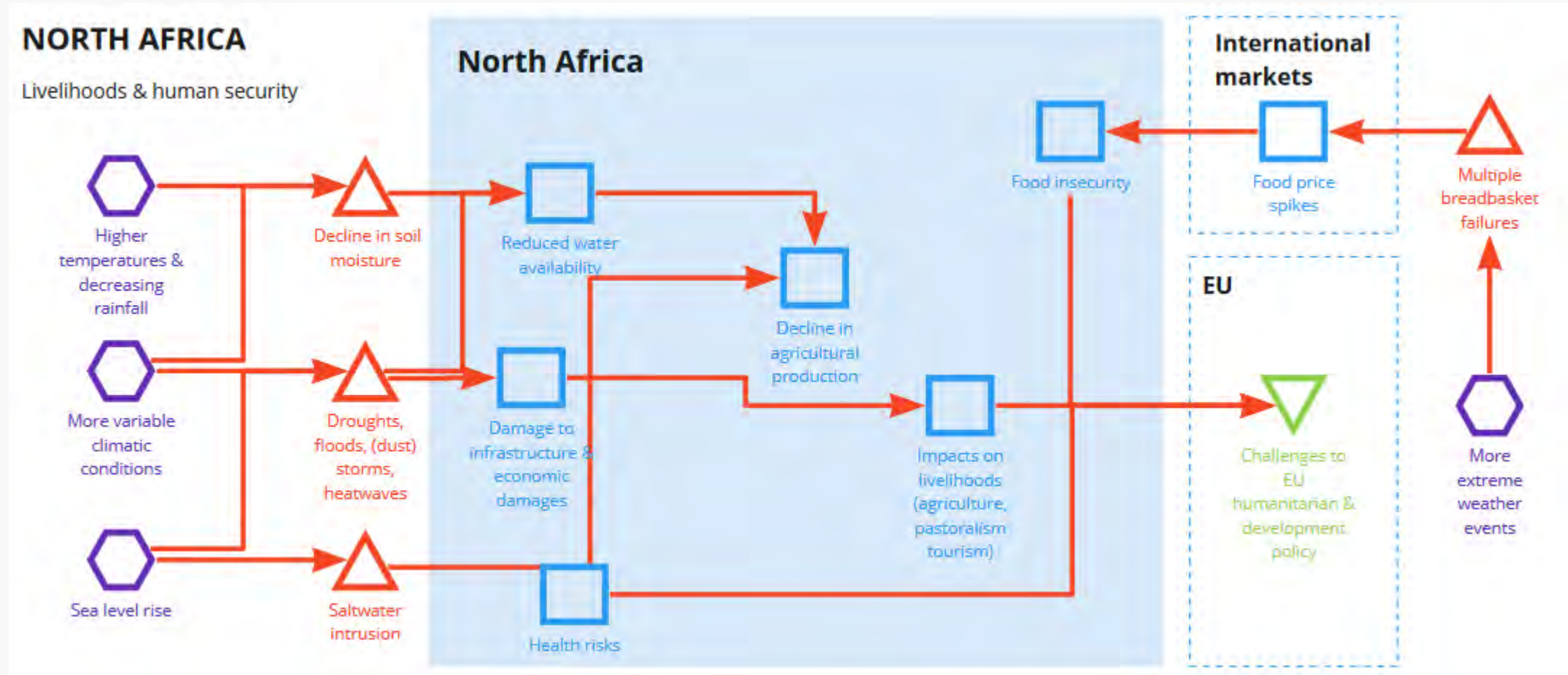
Drought in Argentina, Paraguay, Brazil and its cascading effects on Europe in a SSP3 world



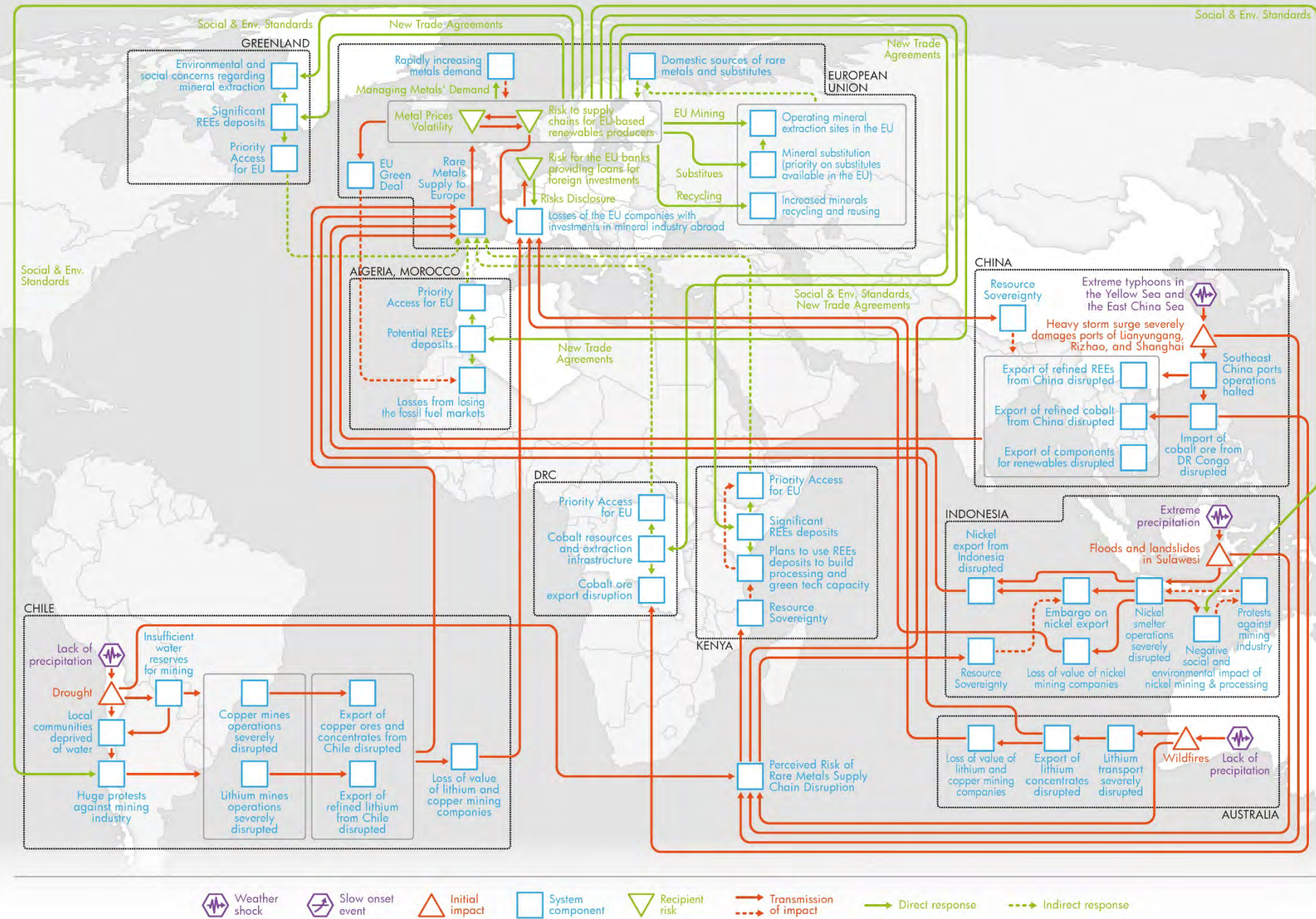
Climate impacts on EU Foreign, Security & Development Policy



Climate impacts on EU Foreign, Security & Development Policy



Full picture of cascading links for Policy Simulation with stakeholders



Virtual conference center. New online simulation platform for stakeholder engagement

The interface displays a virtual conference center with multiple rooms and a chat window on the right.

Rooms and Activities:

- Top Row:** A room with a "RESERVE" sign, a "PRIVATE MEETING" room, and the "ARCTIC TRADE ROUTE DEBATE" room featuring flags of Belgium, the USA, and Canada.
- Middle Row:** Another "RESERVE" room, a "NORTH AFRICA FOOD CRISIS" room, and a "PRIVATE MEETING" room.
- Bottom Row:** Three "WORKING GROUP" rooms for "TRADE", "FINANCE", and "FOREIGN POLICY", each with participant icons. To the right is a "LIBRARY" area.
- Bottom Section:** A "PLENARY ROOM" and a "SOCIAL ROOM".

Left Sidebar:

- Belgium: Department of Foreign Policy (FP) logo.
- INVITATIONS (NEW) icon.
- POLICY PROPOSITIONS icon.
- CONFERENCE CENTER icon.
- LOG OUT button.

Bottom Bar:

LATEST NEWS | LIVE 24 | **BREAKING NEWS** - CLICK TO ENTER - **BREAKING NEWS** - CLICK TO ENTER 2

Chat Window (Right):

- CHAT | E-MAIL 3
- Belgium: Department of Transport: How should we proceed with the negotiations?
Let's stick to our principles.
- Belgium: Department of Finance: But can we do that and find a common ground with others?
Let's see how the things will work out.
- Belgium: Department of Transport: This can be difficult but we'll manage.
- type your message...
- SEND button

Potential Policy Recommendations: Soy imports

e) Response transmission targets



Co-invest in climate resilient soy production and climate resilient supply chain logistics via ODA (e.g. EuropeAid), climate adaptation finance (e.g. EU contributions to e.g. Green Climate Fund)

Cooperate in multilateral forums (e.g. WTO) to reduce the volatility in the soy market to future shocks

EU Common Agricultural Policy / Farm to Fork Strategy of EU Green Deal → lessen European dependence on soy imports

Incentivise or encourage Europe-based private companies to disclose (e.g. via national financial reporting requirements, or international voluntary initiatives like the Task Force on Climate-related Financial Disclosure) and manage climate-related supply chain risks



Find out more about us!

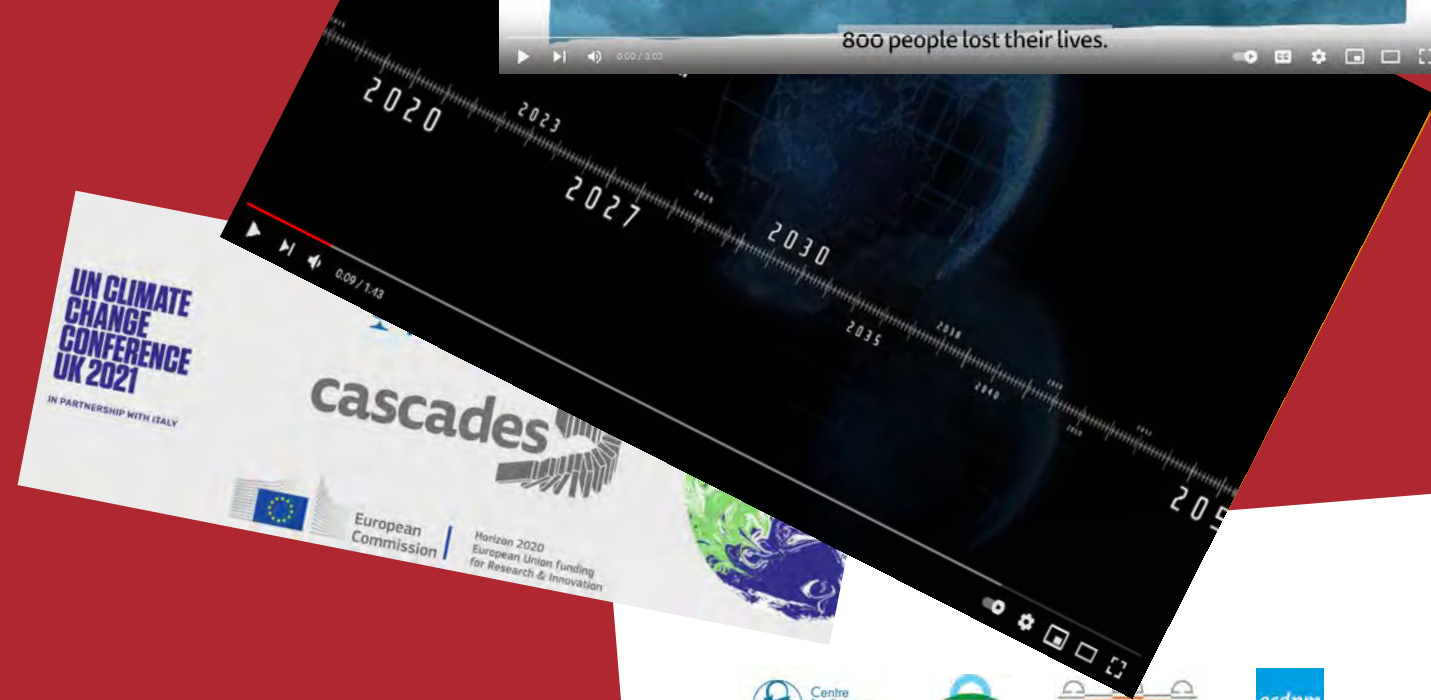
Web: cascades.eu

Email: info@cascades.eu

Twitter: [@CASCADES_EU](https://twitter.com/CASCADES_EU)



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Key videos and papers

- Short CASCADES Intro video (Conceptual Framework):
<https://www.cascades.eu/multimedia/cascades-conceptual-framework-of-cascading-climate-impacts/> (youtube direct link:
<https://www.youtube.com/watch?v=AHXS3hzpMM0>)
- Long CASCADES Conceptual Framework video: <https://www.youtube.com/watch?v=oK8O5hSWWZ0&t=1s>
- Policy Simulation Introduction (2020)
<https://www.cascades.eu/multimedia/strategic-simulation-trailer/>
- Policy Simulation Trailer 2021 Workshop:
<https://www.cascades.eu/multimedia/cascades-policy-simulation/> (youtube directlink: <https://www.youtube.com/watch?v=wTrOy6mEZWs>)
- COP26 CASCADES participation (watch back video's and find out more):
<https://www.cascades.eu/cascades-at-cop26-2/>
- Carter TR, M Benzie, E Campiglio, H Carlsen, S Fronzek, M Hildén, CPO Reyer, C West (2021) *A conceptual framework for cross-border impacts of climate change*. Global Environmental Change 69: 102307. <https://doi.org/10.1016/j.gloenvcha.2021.102307>
- Hildén M, G Lahn, TR Carter, RJT Klein, IM Otto, B Pohl, CPO Reyer, F Tondel (2020) *Cascading climate impacts: a new factor in European policy-making*.
https://www.cascades.eu/?post_type=publication&p=114
- Lange S, J Volkholz, T Geiger, F Zhao, I Vega del Valle, T Veldkamp, CPO Reyer, L Warszawski, V Huber, J Jägermeyr, J Schewe, DN Bresch, M Büchner, J Chang, P Ciais, M Dury, K Emanuel, C Folberth, D Gerten, SN Gosling, N Hanasaki, AJ Henrot, T Hickler, Y Honda, A Ito, N Khabarov, W Liu, C Müller, K Nishina, S Ostberg, H Müller Schmied, SI Seneviratne, T Stacke, J Steinkamp, W Thiery, Y Wada, H Yang, M Yoshikawa, C Yue, K Frieler (2020) *Projecting Exposure to Extreme Climate Impact Events Across Six Event Categories and Three Spatial Scales*. Earth's Future <https://doi.org/10.1029/2020EF001616>
- West CD, E Stokeld, E Campiglio, S Croft, A Detges, A Duranovic, A von Jagow, Ł Jarzabek, C König, H Knaepen, P Magnuszewski, I Monasterolo, CPO Reyer (2021) *Europe's cross-border trade, human security and financial connections: A climate risk perspective*. Climate Risk Management 34:100382.
<https://doi.org/10.1016/j.crm.2021.100382>