



Climate change adaptation to transboundary climate risks: needs, options and locations

Birgit Bednar-Friedl
University of Graz, Austria

COACCH Stakeholder
Workshop
19 March, 2021



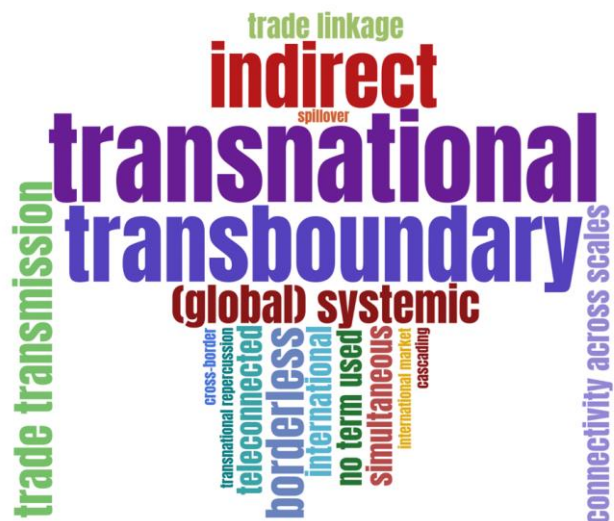
This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 776479

What are transboundary climate risks?



Risks that are transmitted across borders

- Trade and supply chains
- Biophysical resources
- People
- Finance
- Physical infrastructure
- Geopolitics, human security



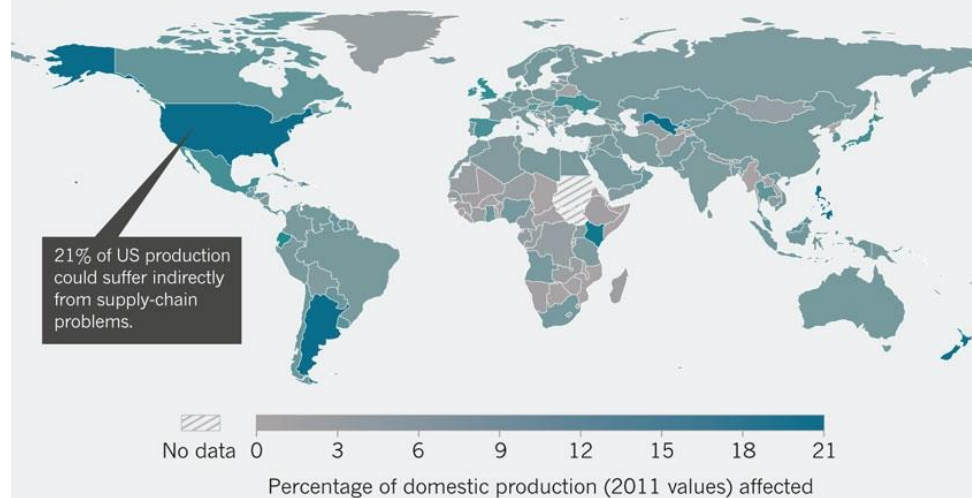
GLOBAL ADAPTIVE PRESSURES

Simple modelling of supply chains shows how the cessation of exports from one country, for example the Philippines in the wake of a typhoon such as Haiyan, will affect many others. Direct trade links are broken immediately and may cause shortages (top panel). Supply restrictions from those nations spread further, affecting the global economy (bottom panel).

DIRECT IMPACT



SECONDARY IMPACT



Adaptation to what?



Most frequent climate hazards:

- storms (56% of papers)
- flooding (56%)
- changes in rainfall (28%)
- drought (42%)
- higher temperature (28%)
- extreme heat (19%)
- wildfires (14%)

Risks to industry:

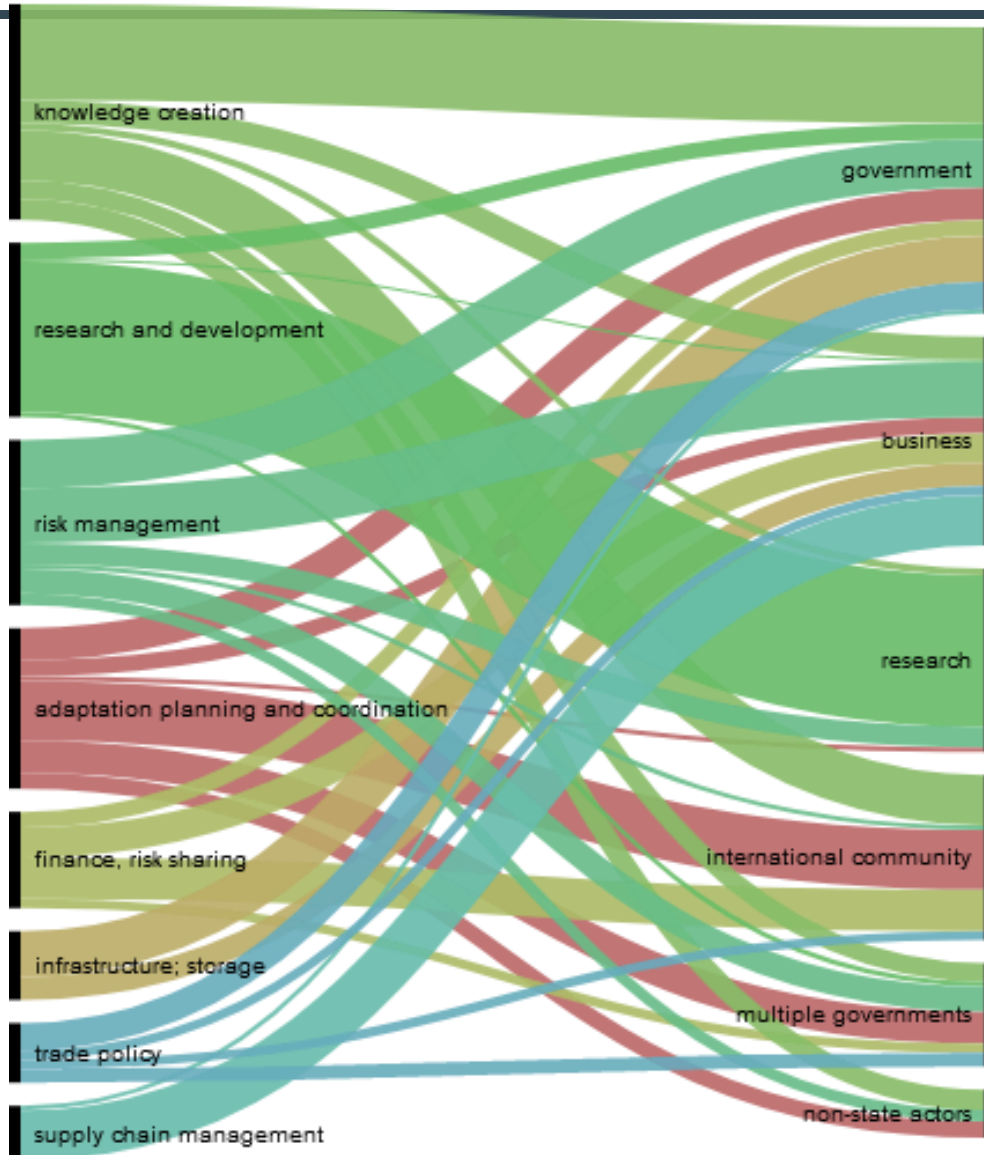
- supply chain and trade disruptions (40%)
- reduced availability of goods and services (21%)
- transport disruption (21%)
- business disruption; reduced profit margins (30%)
- higher prices (28%)
- macroeconomic damage (33%)
- global systemic risks (21%)



How adapt? Adaptation options



Who adapts?



GOVERNMENT

- main role is knowledge creation
- adaptation planning and coordination
- risk management and provision of transport infrastructure and storage capacities → complement businesses in risk and supply chain management

BUSINESS

- supply chain management
- risk management
- adaptation finance, insurance for business interruptions
- storage

INTERNATIONAL COMMUNITY/GOVERNANCE/NGOs

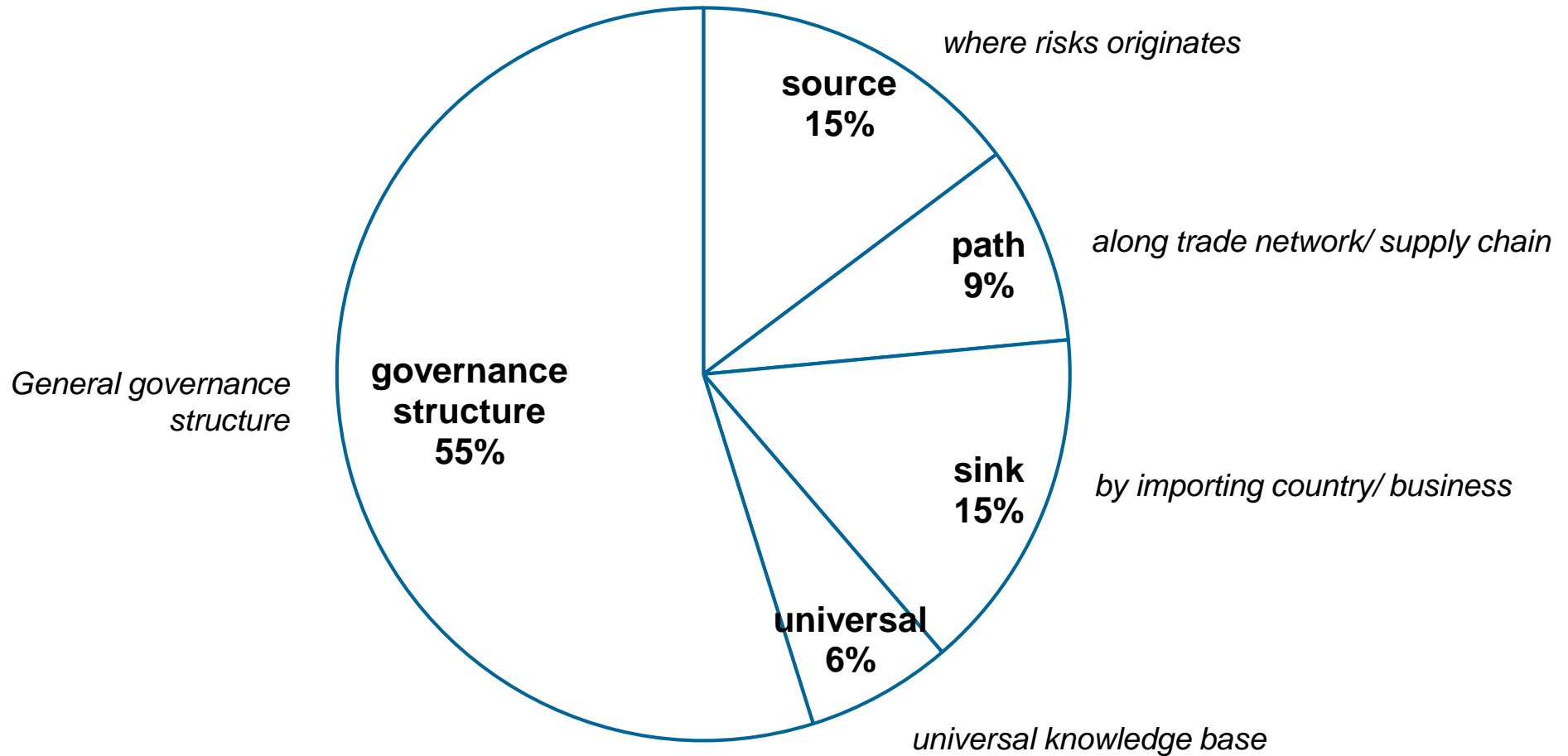
- adaptation planning and coordination
- knowledge creation
- risk management, adaptation finance



Where to adapt? Sites and scales of adaptation



Locations of Adaptation



The industrial sector adapting to transboundary climate risks

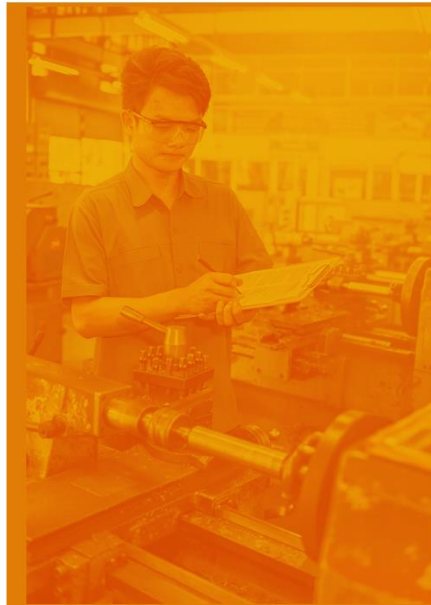
● Climate hazard and risk ● Adaptation option ● Key actors ● Site of intervention



Adapting to what?

There is a variety of climate hazards and transboundary climate risks to address

- Storms, floods and extreme weather are associated with disrupted supply chains, lower productivity and economic damages.



How?

The approaches to adaptation in the industry field are diverse and cover various aspects of risks

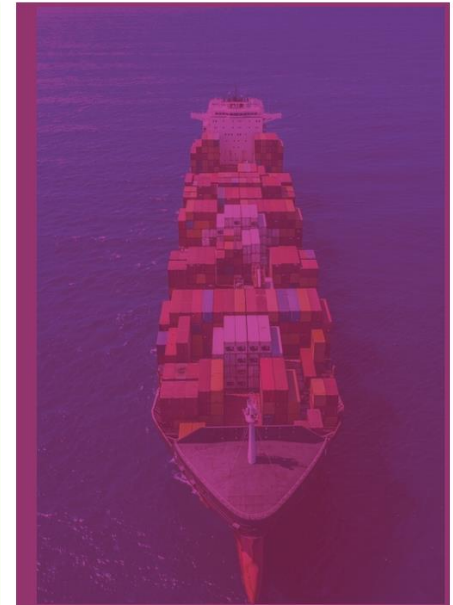
- Knowledge creation, research and development, and risk management are among the most important measures.



Who?

Transboundary climate risks pose a new challenge and require the collaboration of various actors across borders and scales

- Key actors include governments and the international community as well as businesses and research



Where?

Challenges can be tackled at the country of origin of the risk, the trade pathway, or the country of destination

- The international governance structure is a major target of adaptation action.