

# Case study 4 (GWS)

## Transborder Climate Change Risks (TCCR) of international supply chains

**Approach:** Dynamic simulation studies with the multi-national macroeconomic model GINFORS.

### Research innovations covered:

1. Encompass both, short term adaptation and possible longerterm societal transformation.
3. Incorporating societal trends into scenario analysis.
5. Expanding the Impact Chains approach: Expanding the logic of the impact chains approach to encompass cross border impacts of climate change.

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### Today's discussion:

- **What is the main narrative of the case? What ecological/ political/ managerial/ economic development(s) are on display in the case?**
  - Economic developments: Multi-national trade flows -> For open economies, the transnational (indirect effects) of climate change can be more challenging than the local or direct ones.
  - Political & managerial narratives: Sectoral focus of the evaluation of results (to be finally decided within these days: Opportunities to take sectoral stakeholder interests into account [co-production]?).
- **What's the policy relevance to be extracted from your case, with regards to CC risk?**
  - European states are not isolated islands. Thus, national risk assessments alone may miss out relevant systemic interrelationships in light of multi-national trade dependencies.
- **Scientifically important findings?**
  - Level of detail of socioeconomic scenario projections (conventional integrated assessment models do not tend to provide many insights into sectoral production activities, employment and price developments).
  - Need to consider future variables such as trade openness, investment, supply chains or globalization in future climate vulnerability assessments in Europe well documented in the literature (for example Benzie et al, 2017, Hedlund et al., 2018). ). This case presents and applies an integrated modelling framework for this.
- **Relevance for the ambition to improve the Impact Chain methodology.**
  - Bridging qualitative impact chains with a quantitative macroeconomic modelling framework
  - Integrated monetary assessments: Ex ante assessments inferred from a comprehensive mapping of socio-economic transformation pathways.
  - Guiding issues:
    - How to identify relevant system elements, and move towards a more systemic assessment by integrating in the IC framework knowledge from other approaches?
    - How to include future vulnerability conditions based on socio-economic scenarios and better understand the socioeconomic consequences involved in climate change adaptation?
    - What are the most important TCCR, how to best articulate and frame TCCR, how to assess and adapt to future TCCR?