Governing the Water-Energy-Food Nexus: Challenges Across Borders

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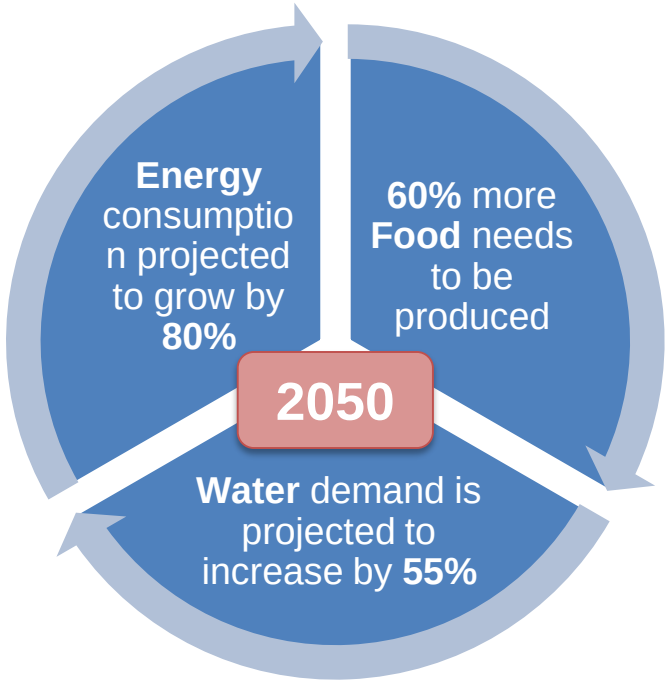
Governing the Water-Energy-Food Nexus: Challenges Across Borders

- The “Perfect Storm”
  - Migration increasingly driven by climate change
  - Increasing demand for primary commodities, and increasing dependence on primary commodities exports
  - In 2017, 197 land and environmental defenders were murdered

- Nexus: search for *synergies* and *efficiency*, but we also need to understand *trade-offs* and *costs*.



Source: FAO (2014); UN Water (2018)

Study	**Key points**
Endo et al (2017)	No fixed concept of the nexus. Need greater vertical integration (local to global connections) as well as horizontal integration (how nexus cases influence each other)
Albrecht et al (2018)	Nexus assessments strongly quantitative. Mixed-methods and transdisicplinary approaches needed. Need to incorporate social and political aspects of the WEF.
Wiegleb & Bruns (2018)	Natural science dominated discourse. Managerial framing of the nexus masks important power relations and social inequalities. Need for ‘epistemic pluralism’ and a greater focus on governance.

Study Objectives

- **Governance Gap:** weak regulation of WEF nexus globally, but little has been said about why this is the case. As Weitz et al. (2017) state, there are three major governance gaps to address:
  - Cross-sector coordination and collaboration
  - Capturing nexus dynamics beyond cross-sector interactions
  - Political and cognitive factors that influence change (e.g. policy coherence)

- Aims:
  - Focus on **transboundary** nexus **case studies** within LMICs, and situate those within a broader **review** of the WEF nexus
  - To identify the **drivers** of tensions and costs in the nexus, and the **governance** challenges these present.
  - To connect the ‘biophysical nexus’ with the ‘social, economic and political nexus’ through a **governance lens**
  - Through an in-depth case study approach emphasize the importance of a **social science perspective on the nexus**

Methodology: Search criteria

Search Terms	Article Number (n)
“water-energy-food”/ “water-food-energy”/ “food-water-energy”	212, 83, 59
“wef nexus”/ “few nexus”	56, 39
“nexus” AND “water” AND “food” AND “energy”	594
“transboundary” AND [“water” AND “energy” AND “food”] / [“nexus”]	52, 48
“governance” AND “water” AND “energy” AND “food”	182
“governance” AND “nexus” AND [“food”] / [“water”] / [“energy”]	105, 152, 137
“manag*” AND “water” AND “food” AND “energy” AND “nexus”	299
“watershed” AND “food” AND “energy” AND “water”	115
“river basin” AND “food” AND “energy” AND “water”	136
“irrigation” AND [“nexus”] / [“water” AND “energy” AND “food”]	203, 380
“ecosystem service*” AND [“nexus”] / [“water” AND “energy” AND “food”]	122, 199
“hydropower” AND [“nexus”] / [“water” AND “energy” AND “food”]	149, 108
“mining” AND [“nexus”] / [“water” AND “energy” AND “food”]	101, 96
“social justice” AND [“nexus”] / [“water” AND “energy” AND “food”]	62, 14
“economic development” AND [“nexus”] / [“water” AND “energy” AND “food”]	312, 109
“institution*” AND “water” AND “energy” AND “food”	219
Total (n)	4,343

Table 1. Key term search combinations and numbers of articles

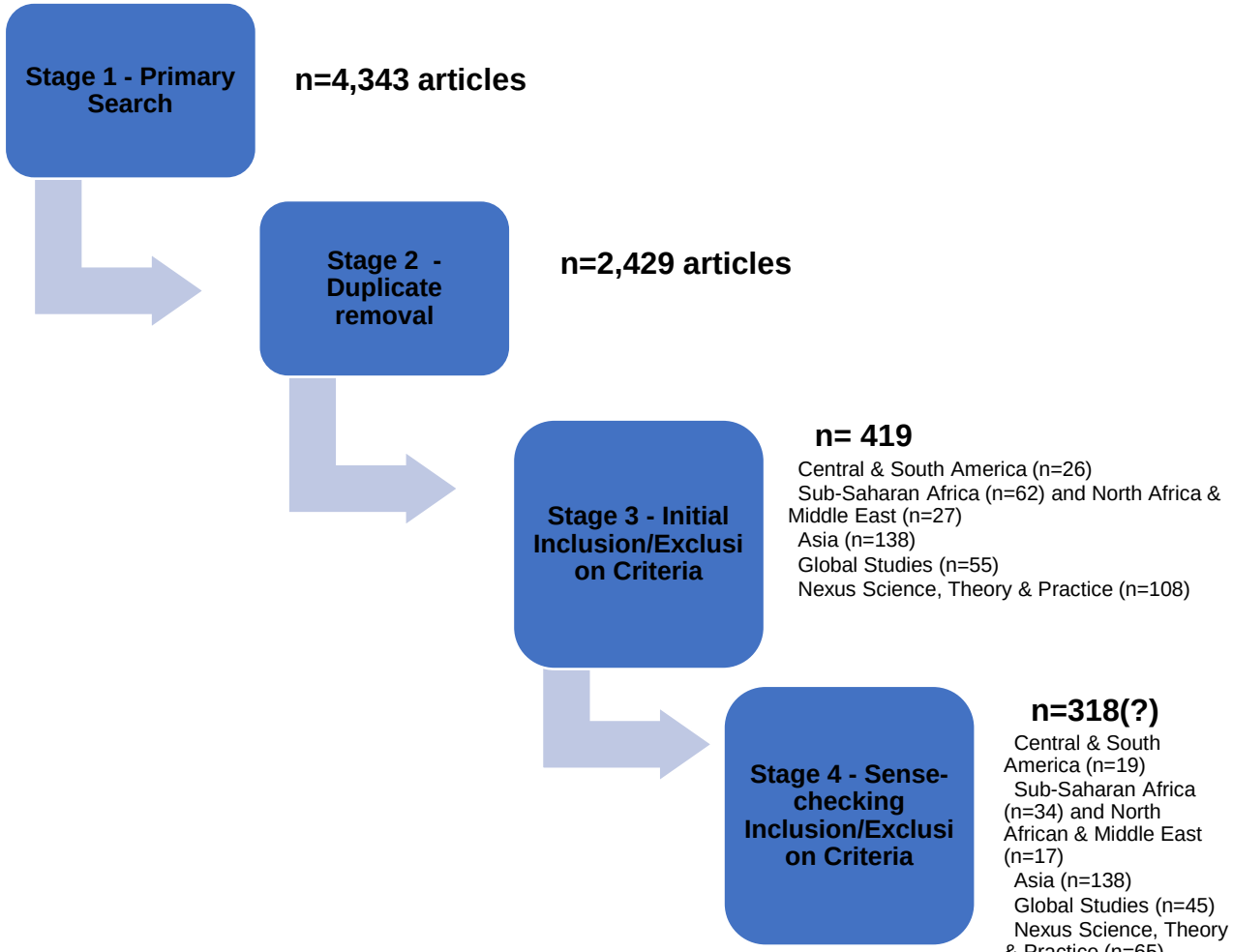
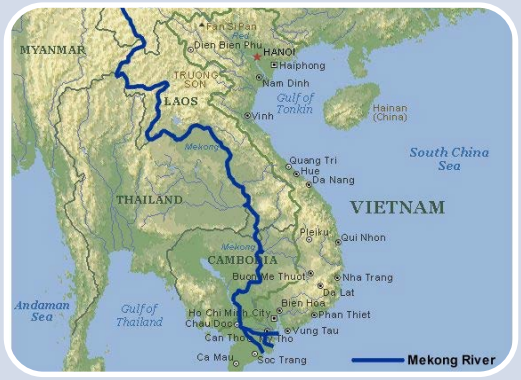


Fig 1. Flowchart of Stage 1 to Stage 4 Review Process

Case studies



Illi River (Central Asia)

- Kazakhstan and China
- Agricultural production (maize, soybean, cotton)
- Energy

Mekong River (Southeast Asia)

- Vietnam, Laos, Thailand, Cambodia, China, Myanmar
- Hydropower: energy exports
- Agriculture production for export (rice) as well as fish

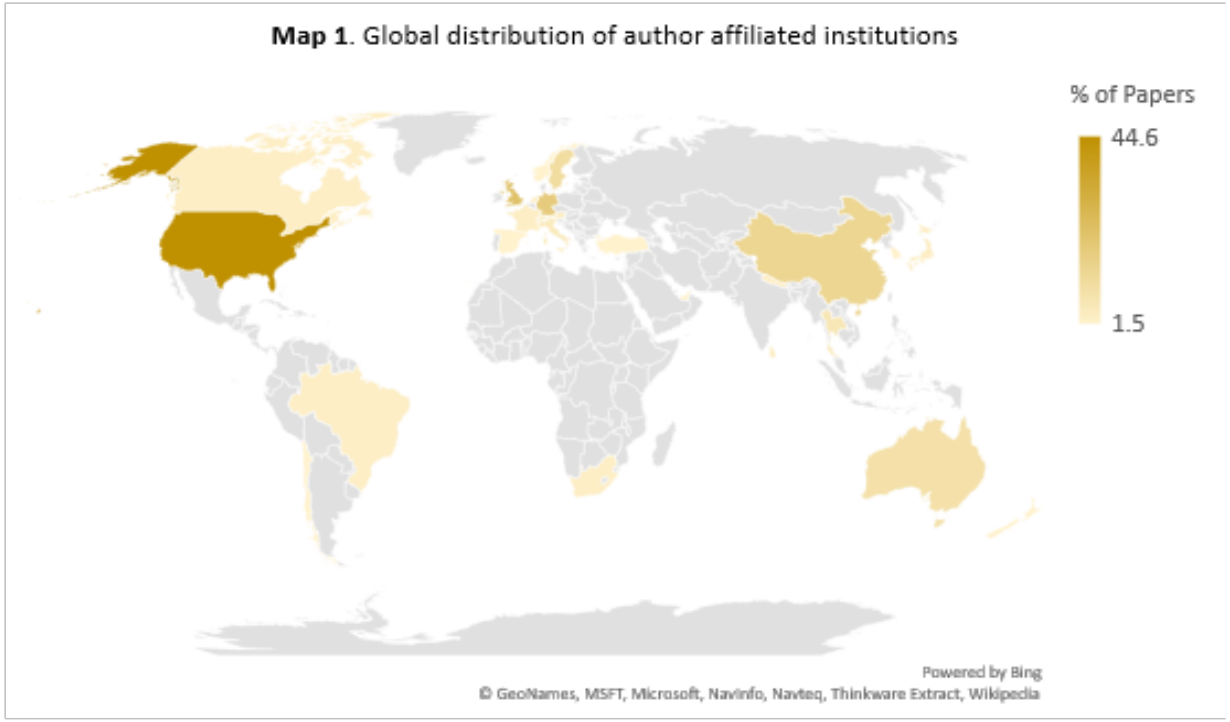
La Plata River (South America)

- Paraguay, Uruguay, Argentina, Brazil and Bolivia
- Agricultural production for export markets: soybean
- Hydroelectric dams: energy production for regional use

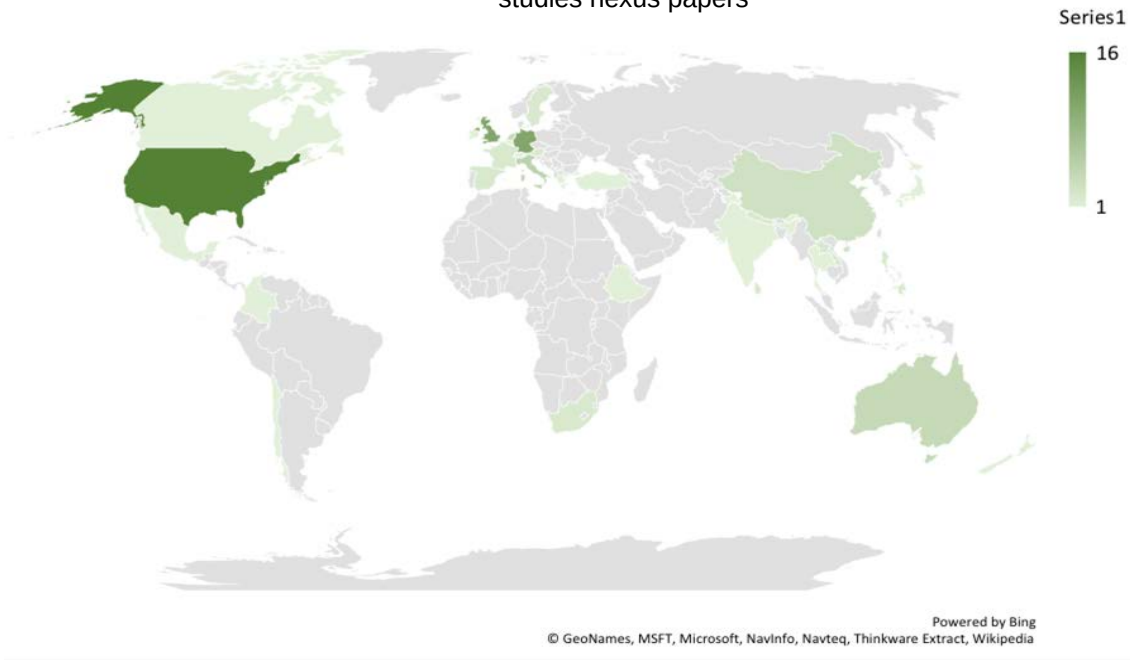
Pangani Basin (East Africa)

- Kenya & Tanzania
- Agriculture and fisheries
- Hydroelectric power stations
- Other water-consuming activities: mining
- +500 conflicts among water users

Review of nexus publications: Early analysis I



Map 1. Global distribution of author affiliated institutions



Map 2. Global distribution of author affiliated institutions in Global studies nexus papers

Review of nexus publications: Early analysis II

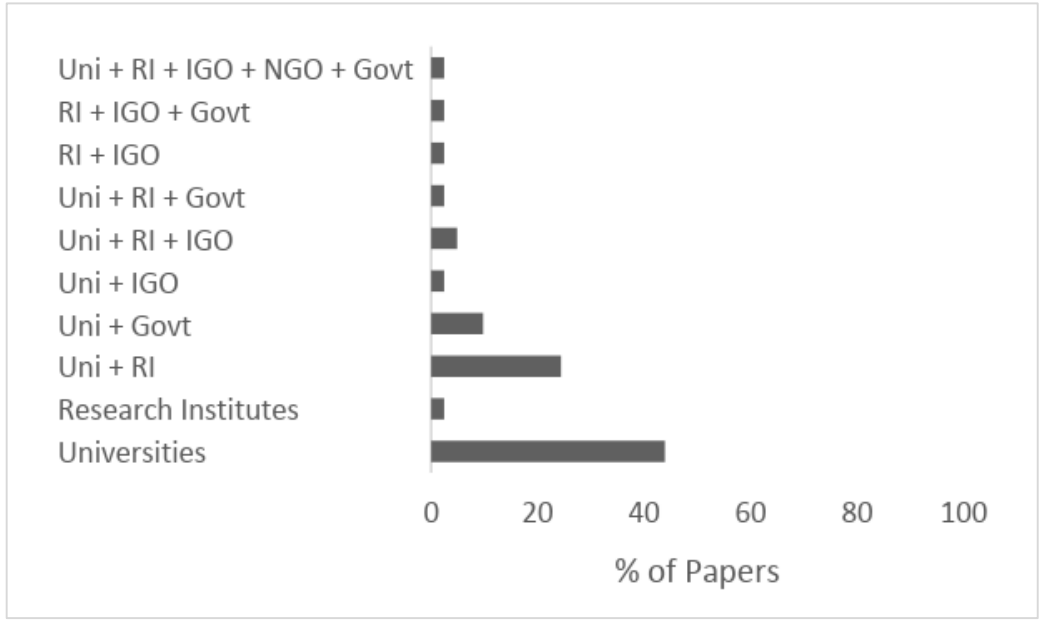


Fig 2. Institutional affiliations for theoretical nexus publications.

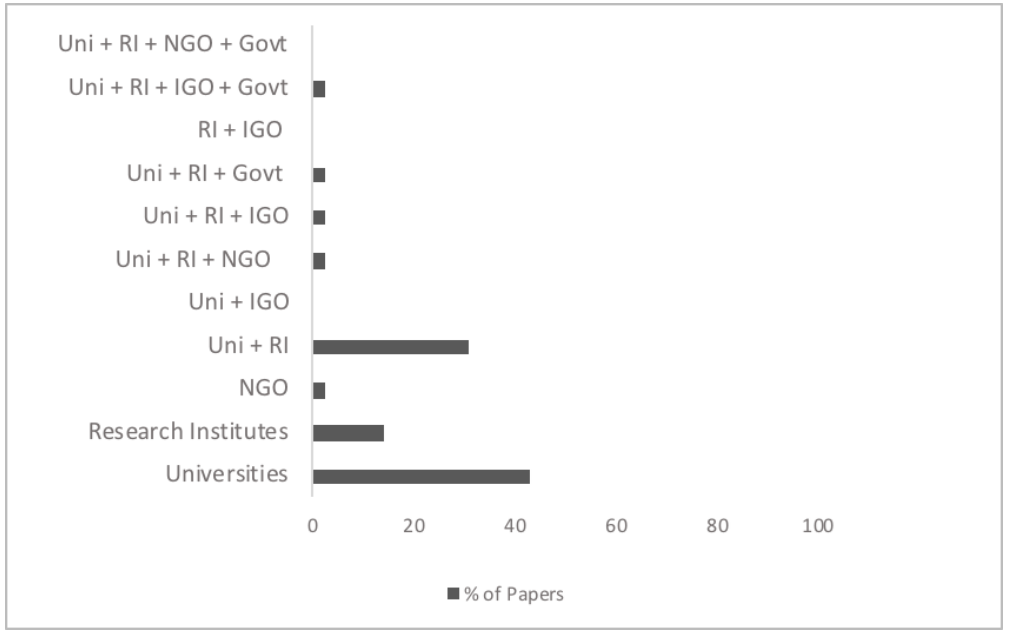


Fig 3. Institutional affiliations for global nexus publications.

Review of nexus publications: Early analysis III

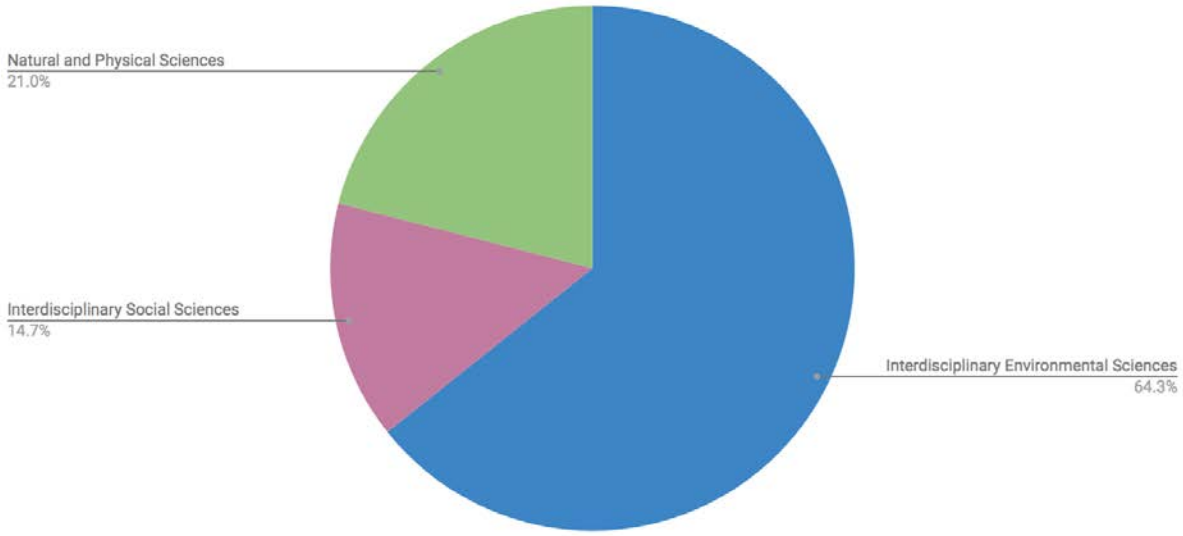
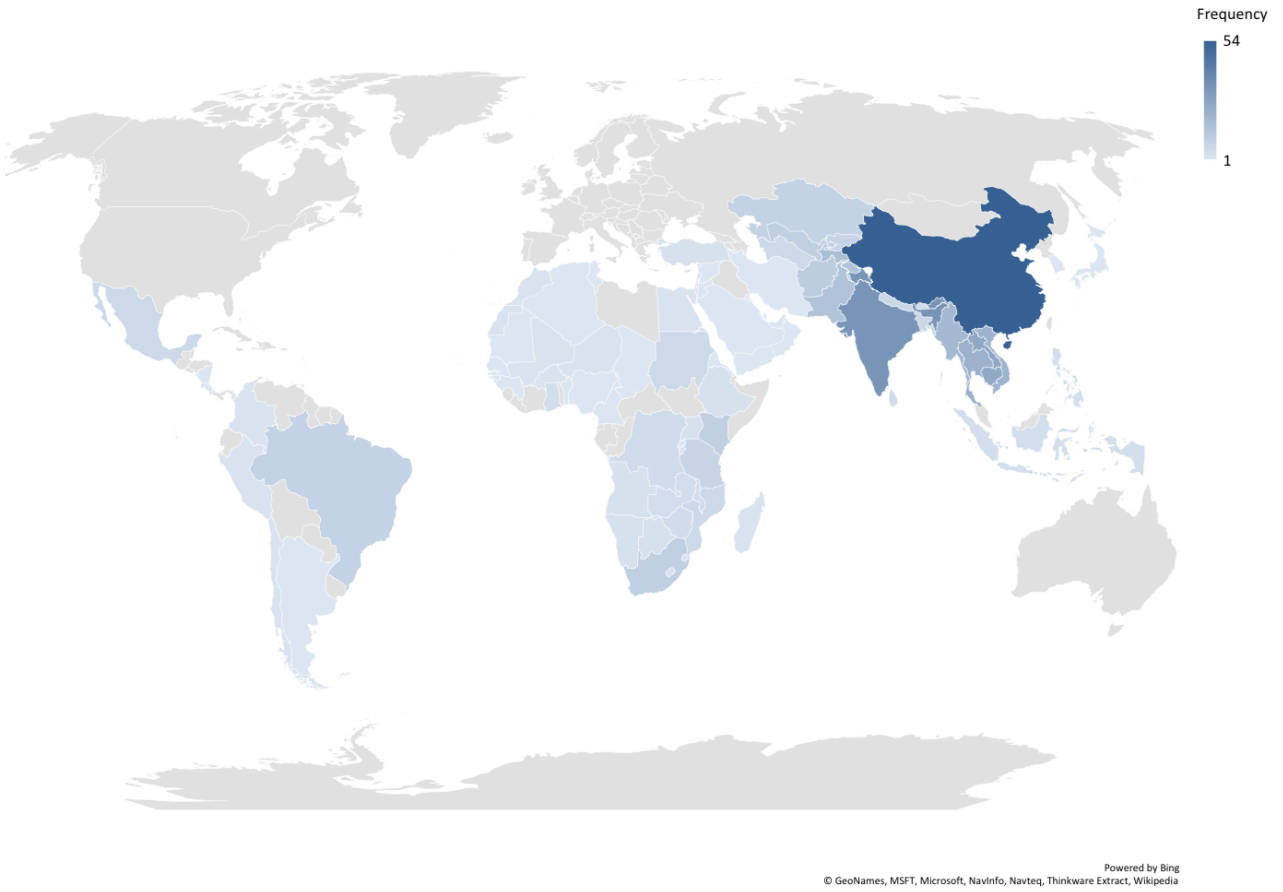


Fig. 5. Publications on empirical studies of WEF nexus according to area of study (Total number of publications=238)

Map 3. Global distribution of WEF nexus case studies
Latin America, Africa and Middle East, and Asia



Preliminary conclusions & Research Questions

- How - if at all - is the WEF nexus regulated in the selected cases?
- What are the conflicts and tensions identified by the literature in the selected cases? What are the key drivers?
- What are the environmental and social costs associated to the different cases and which groups are affected by them?

Governing the W-E-F nexus: a research agenda

- Aim: Comparative analysis of the differences and commonalities in governing the transboundary nexus within LAMICs

  - What is the role and capacity of the State in regulating the nexus?
  - What are the existing regional governance mechanisms, if any? What areas/sectors of the nexus are they governing?

Thank you

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