



METHODS FOR NEXUS ASSESSMENT: TRENDS, NEEDS AND RECENT DEVELOPMENTS

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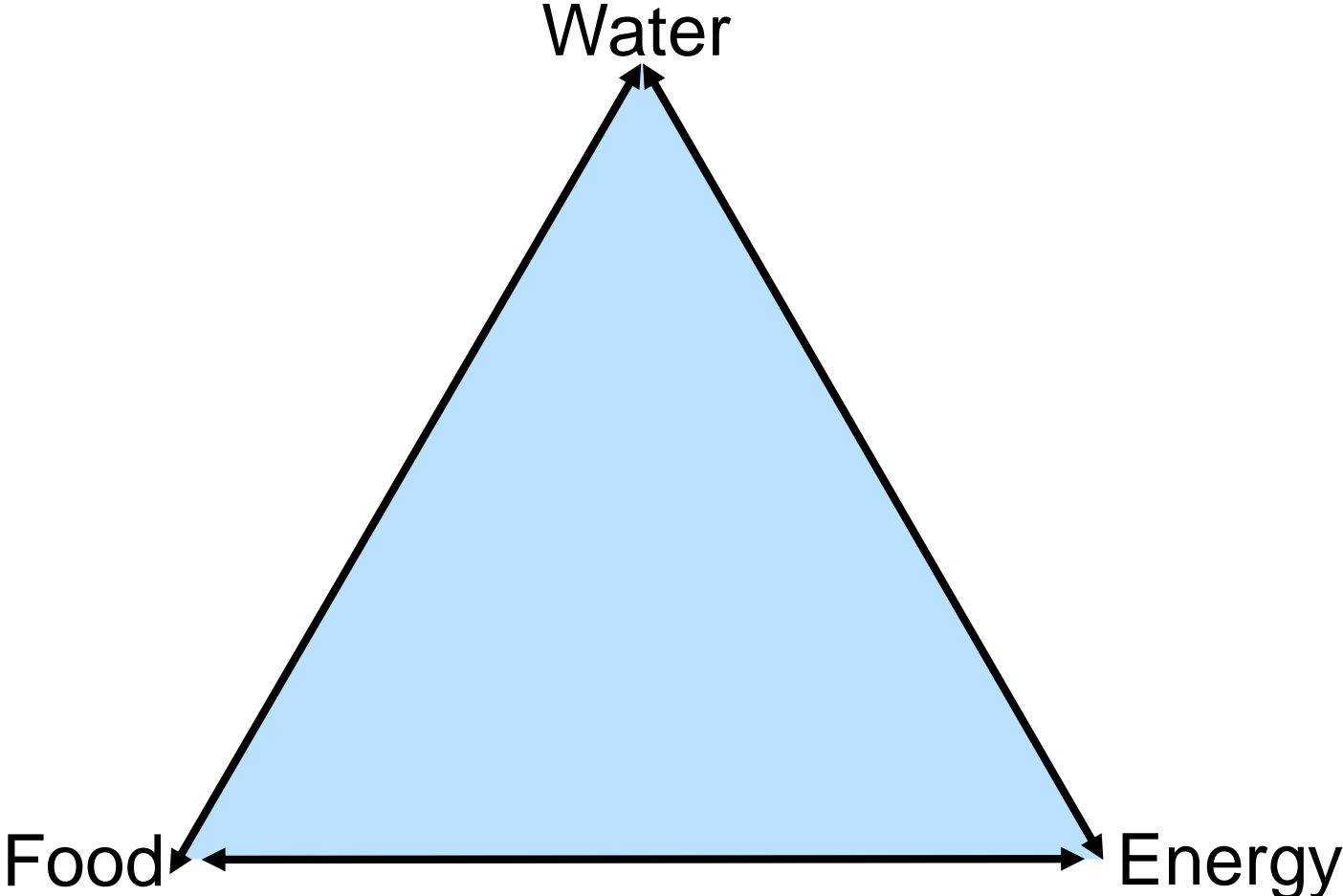
Roadmap

- Problem background: Nexus concept vs. methods
- Research question: What can be learned from applied nexus cases
- Methods: Review and analysis
- Findings
 - Desired features of methods
 - Examples of methods
- Next steps: Future research design



Nexus Concept \neq Method





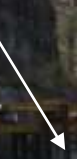
“...complex food-water-energy nexus security problems are so-called wicked problems to which there is no easy definition and no easy solution”

(Allouche, Middleton & Gyawali 2015, p. 621)





Hydropower



Agriculture



Water supply



Needs

- Relationships, interactions and feedbacks
- Effective implementation
- Political and social aspects
- Method accessibility
- Dynamic context



Research Aims

- Knowledge base
- Identify desired features
- Highlight best practices
- Inspire further improvements



245 → 77

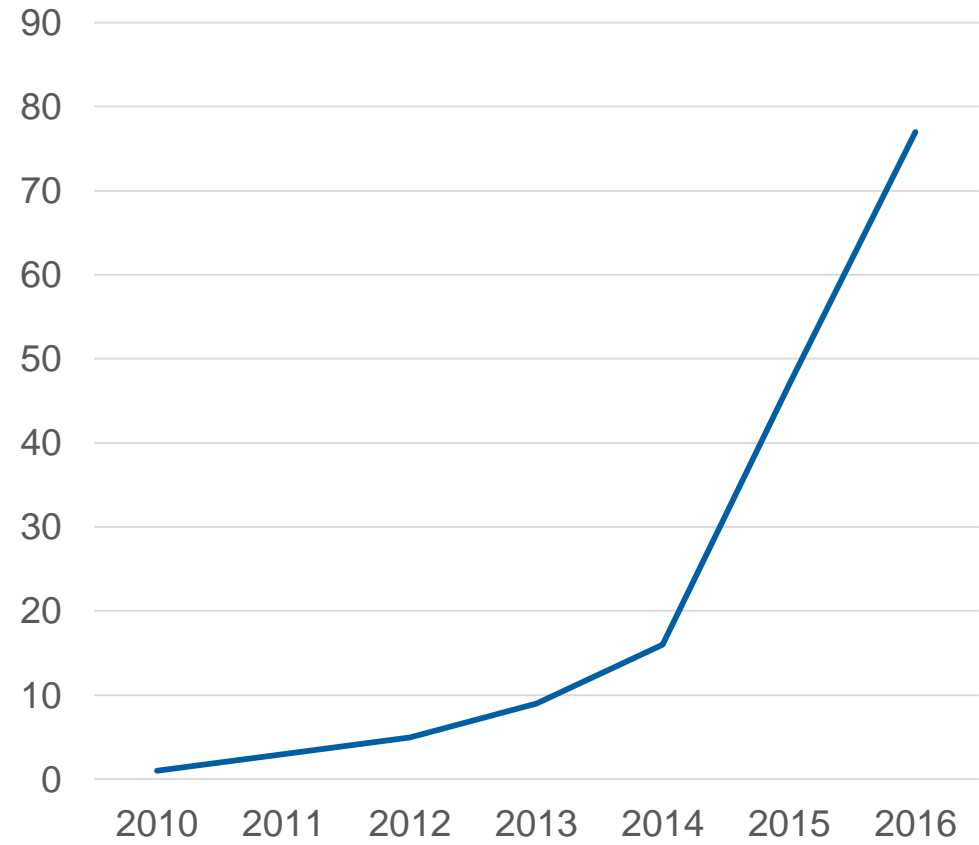


245 → **77 show methods**
→ **35 identify features**

Analysis

- Trends over time
- Journal discipline
- Scale of analysis
- Purpose of nexus assessment
- Method type and discipline
- Approach (quantitative, qualitative, mixed methods)
- Interdisciplinary or disciplinary methods





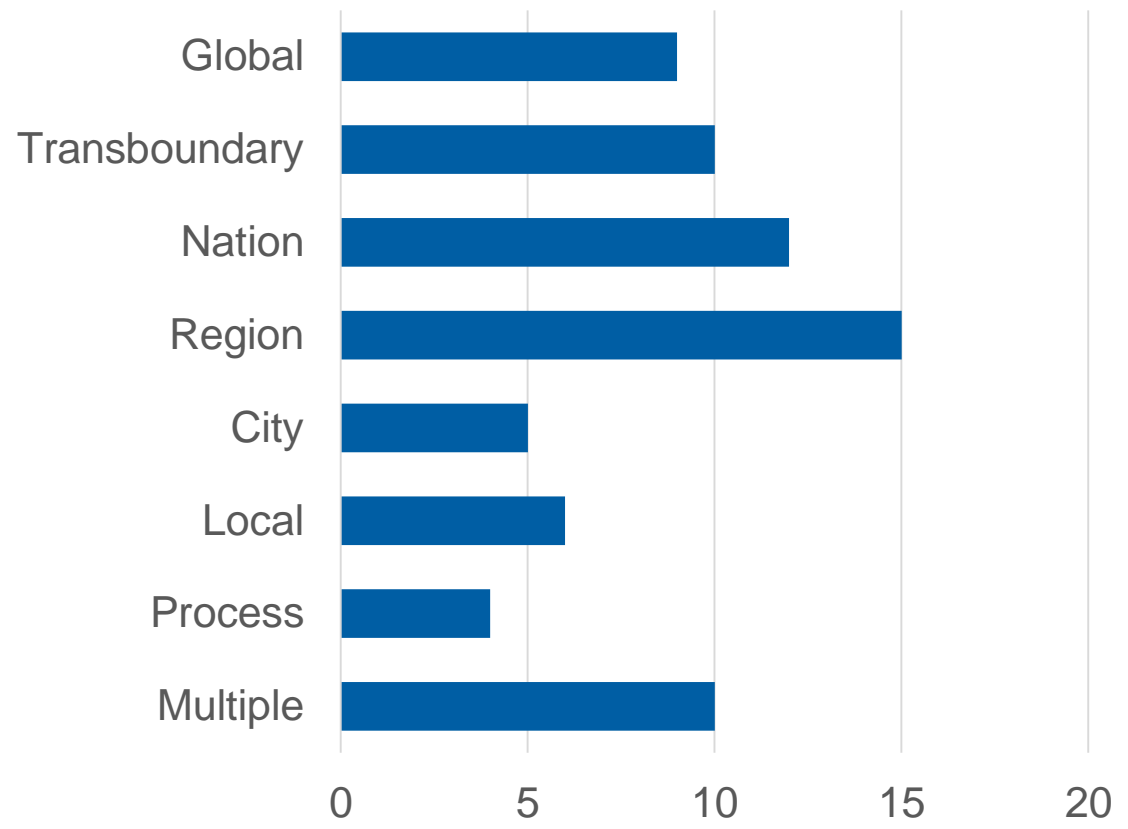
Nexus methods publications over time



40 different journals →

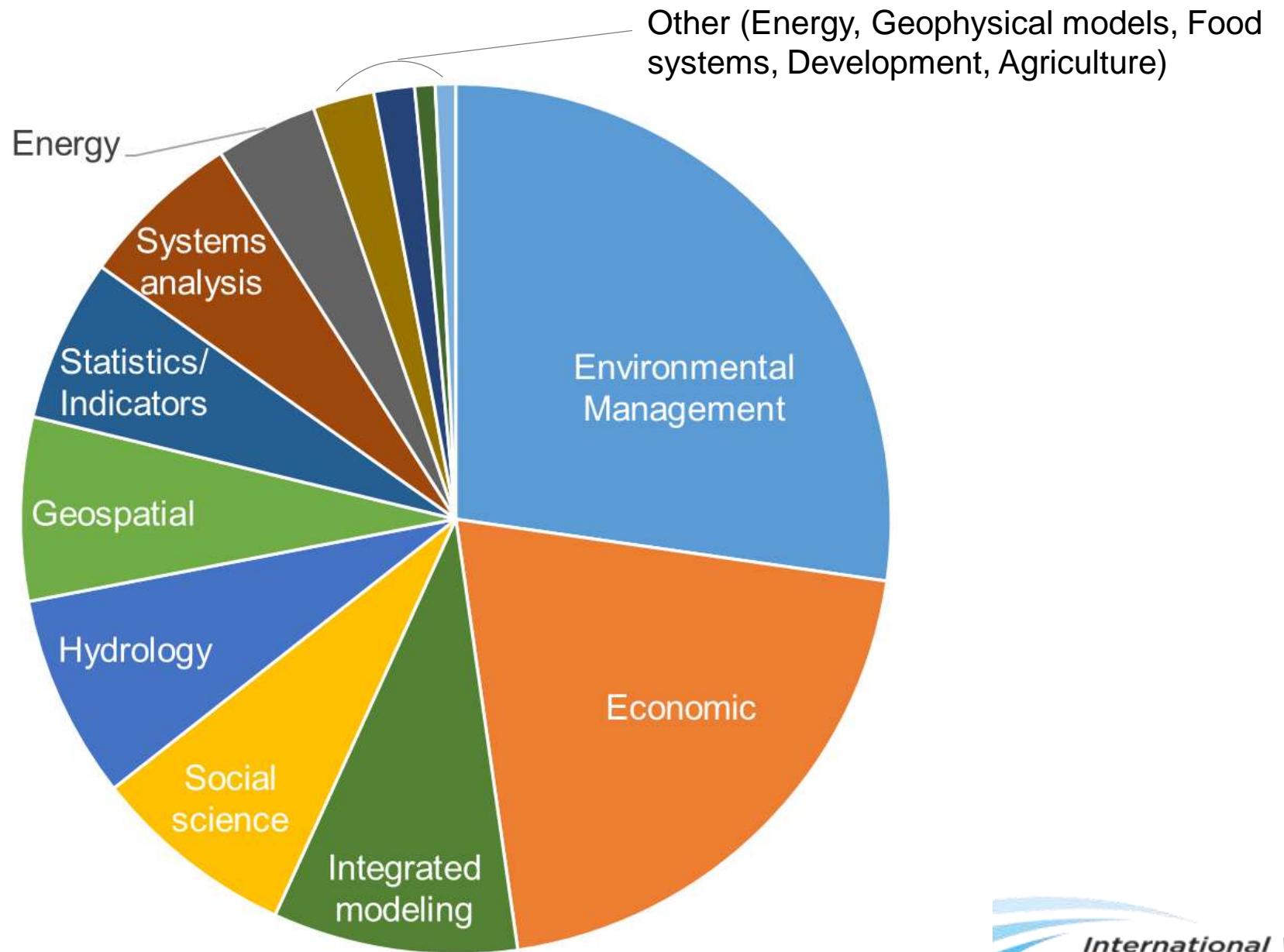
Water resources
Environmental science and policy
Energy
Engineering
Global change
Food systems
Social science





Scale of nexus assessment





Type of nexus method





- Interdisciplinary
- Single discipline



- Multiple methods
- One method



- Qualitative
- Quantitative
- Both

Approach



Aim of studies analyzed

- Resource efficiency
- Integrated policy
- Sustainability



ANALYTICAL FRAMEWORK



35 conceptual articles →

**ANALYTICAL
FRAMEWORK**



35 conceptual articles →

**INNOVATIVE
CONTEXT
COLLABORATION
IMPLEMENTATION**



**How do nexus assessments address
these key features?**



INNOVATIVE

Integrated modeling
Module-based
approaches
Systems thinking
Dynamic approaches
Quantative + Qualitative



CONTEXT

Historical and institutional
analysis

Mixed Methods

Discourse analysis

Case studies



COLLABORATION

Transdisciplinary
Interdisciplinary
Participatory
Iterative



Scenario analysis
Participatory
Site-specific
Case-by-case

IMPLEMENTATION



Conclusions

- New approaches that utilize quantitative and qualitative methods
- Address social and political dimensions
- Incorporate different knowledge bases and emphasize collaboration
- Recognize site-specific elements

- Next steps: need for a “toolbox” of options and best practices



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www.watersecuritynetwork.org
www.twitter.com/water_network

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