

ISEE-Degrowth
2025



This research was funded in whole or in part by the Austrian Science Fund (FWF) [10.55776/EFP5]

Provisioning systems as socio-ecological research concept: A review of an emerging field

Session: Socio-ecological Provisioning Systems, 25.06.2025

Simon Graf, PhD Student

simon.graf@boku.ac.at

Graf, Simon¹, Wojewska, Aleksandra N.⁴, Baumgartner, Anrdre¹, Streeck, Jan¹, Staritz, Cornelia⁴, Schaffartzik, Anke³, Maile, Felix⁴, Krausmann Fridolin¹, Zimm, Caroline², Pungas, Lilian³, Ware, Sarah³, Siwar, Ortiz⁵, Huber, Florian⁵, Jihoon, Min², Giljum, Stefan⁵, Wiedenhofer, Dominik¹, Haberl, Helmut¹

1.Institute of Social Ecology, BOKU University, Vienna, Austria

2.International Institute for Applied Systems Analysis, Laxenburg, Austria

3.Department of Environmental Sciences and Policy, Central European University, Vienna, Austria

4.Department of Development Studies, University of Vienna, Austria

5.Department of Ecological Economics, University of Economics and Business, Vienna




Why **Provisioning Systems**?

What does it need to transform towards a good life for all within planetary boundaries?

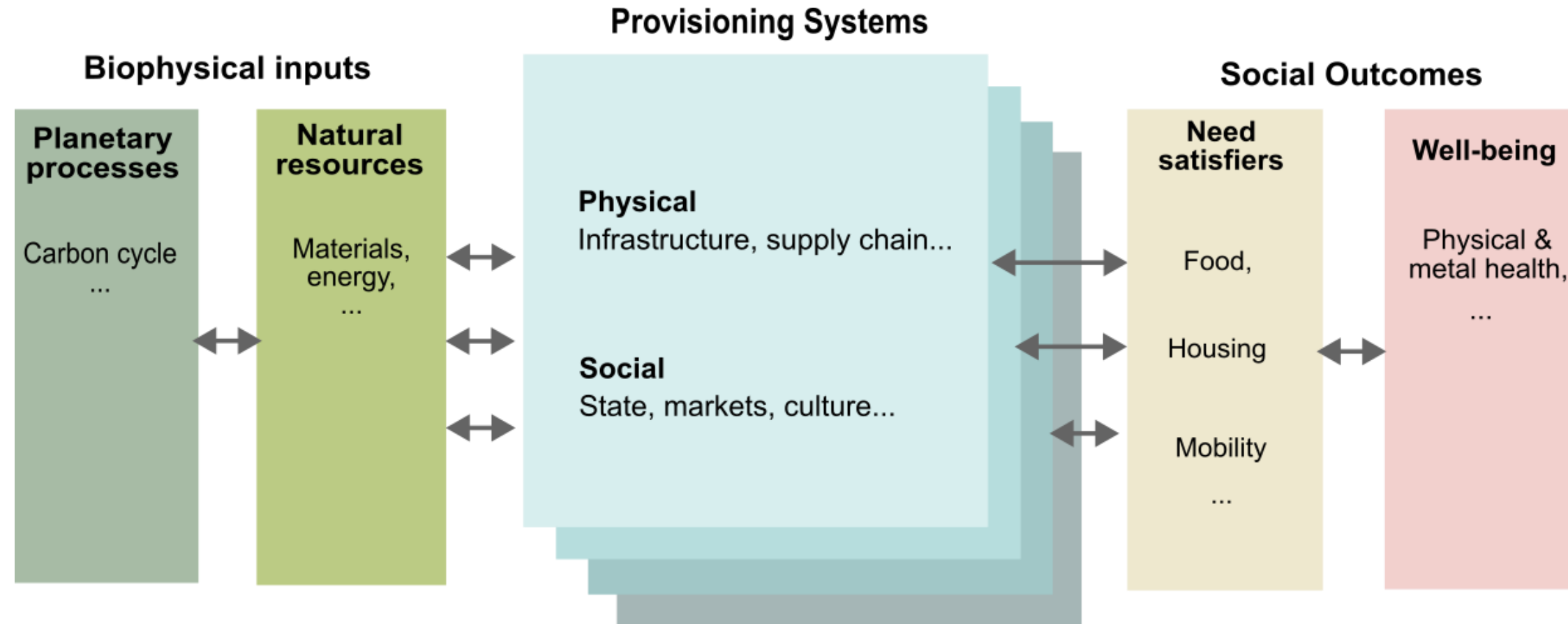
(Following O'Neill et al., 2018 & Schaffartzik et al., 2021)

- Go **beyond GDP** to define societal “success” with "well-being".
- Evaluate the social and bio-physical safe and just **operation space**.
- Incorporate both, **material use** and social **power relations** throughout the **supply chain**.
- Identify levers and barriers to actively **transform systems** towards a sustainable mode.



Provisioning systems are emerging out of the Degrowth and Ecological Economics communities to address these features.

What are **Provisioning System (PS)**



Adapted from: Steinberger, O'Neill & Lamb. See www.Lili.leeds.ac.uk

Provisioning Systems as economic building blocks:

A **provisioning system** is defined by its social outcome (i.e. Food PS) and includes all physical and social elements necessary for the mediation of natural resources to this specific outcome.

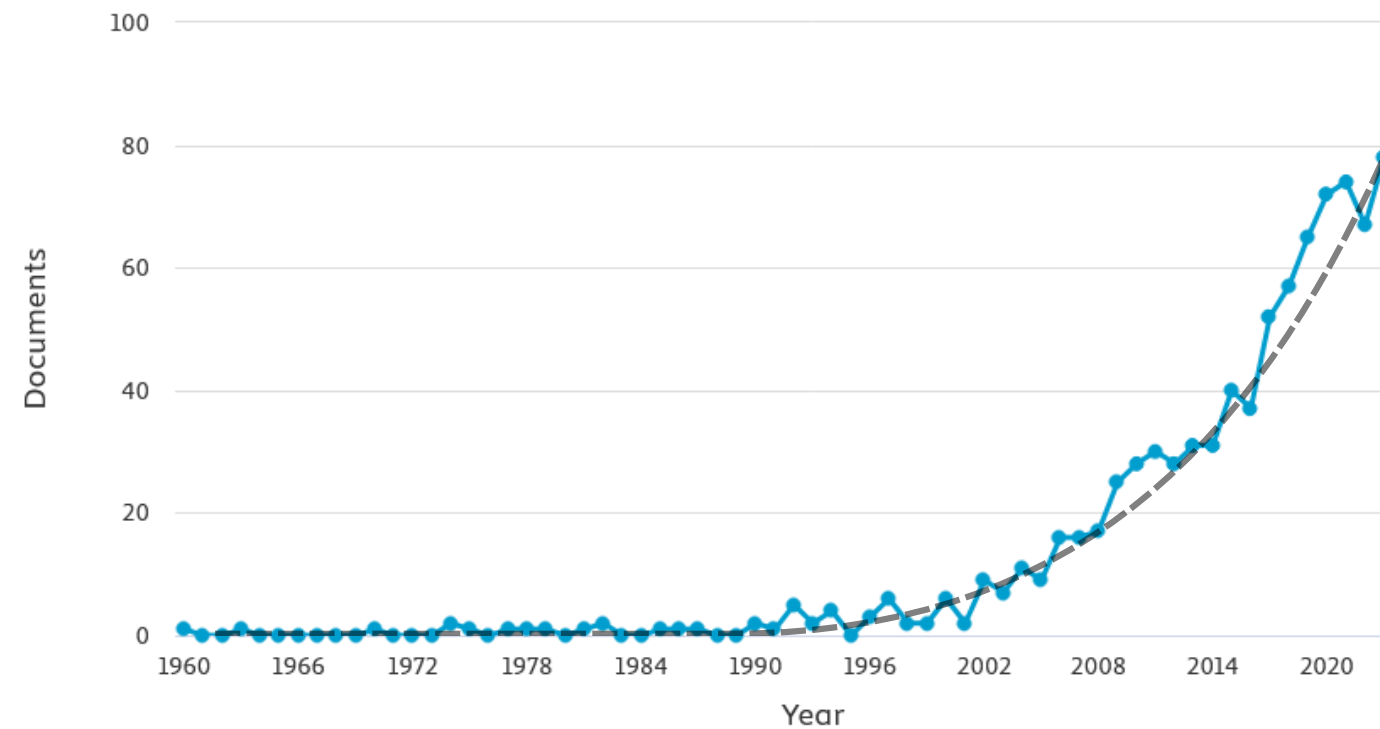
(following Fanning et al. 2020)

Provisioning Systems as a Concept:

“Provisioning Systems” act as **interdisciplinary research concept**, bridging natural and social sciences.

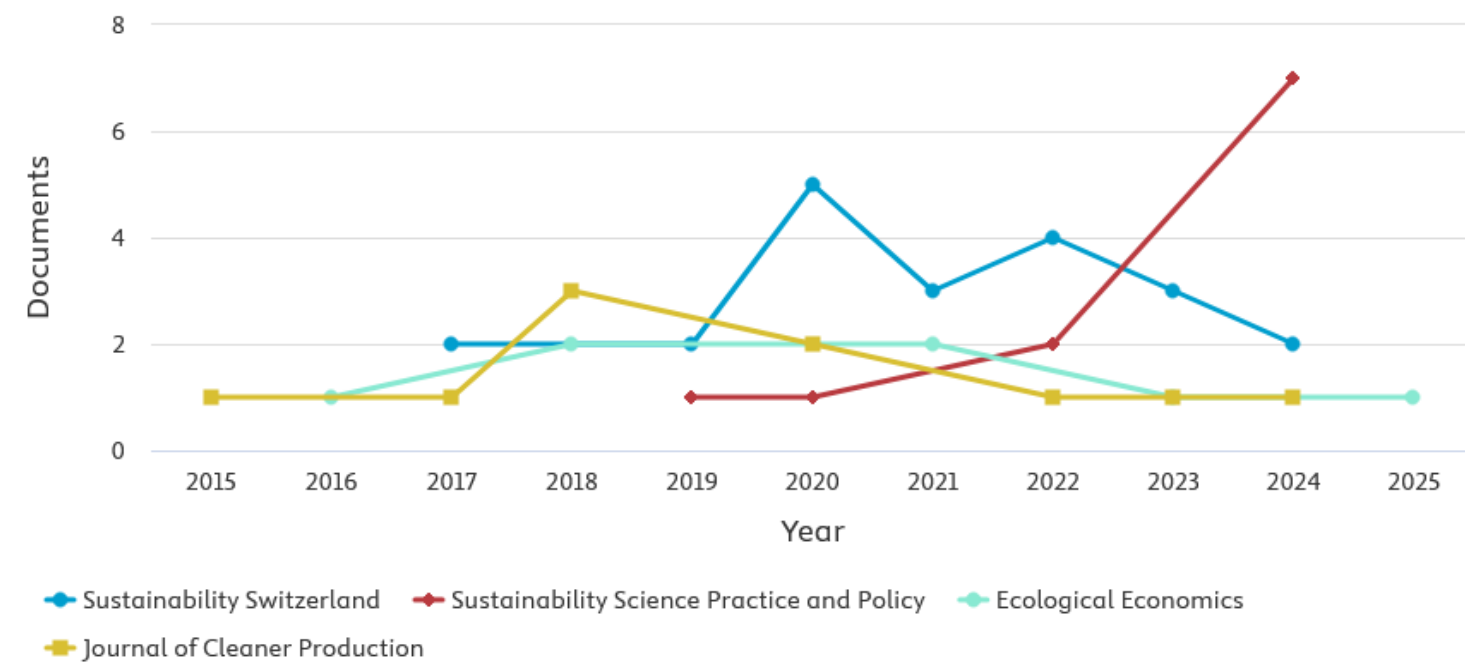
The concepts draws on **human needs, equality & well-being** and **planetary boundaries** to integrate social and ecological limits.

Publication Statistics



Publications

There appears an **exponential increase** in publications, peaking in 2024 with 80 publications.



Journals

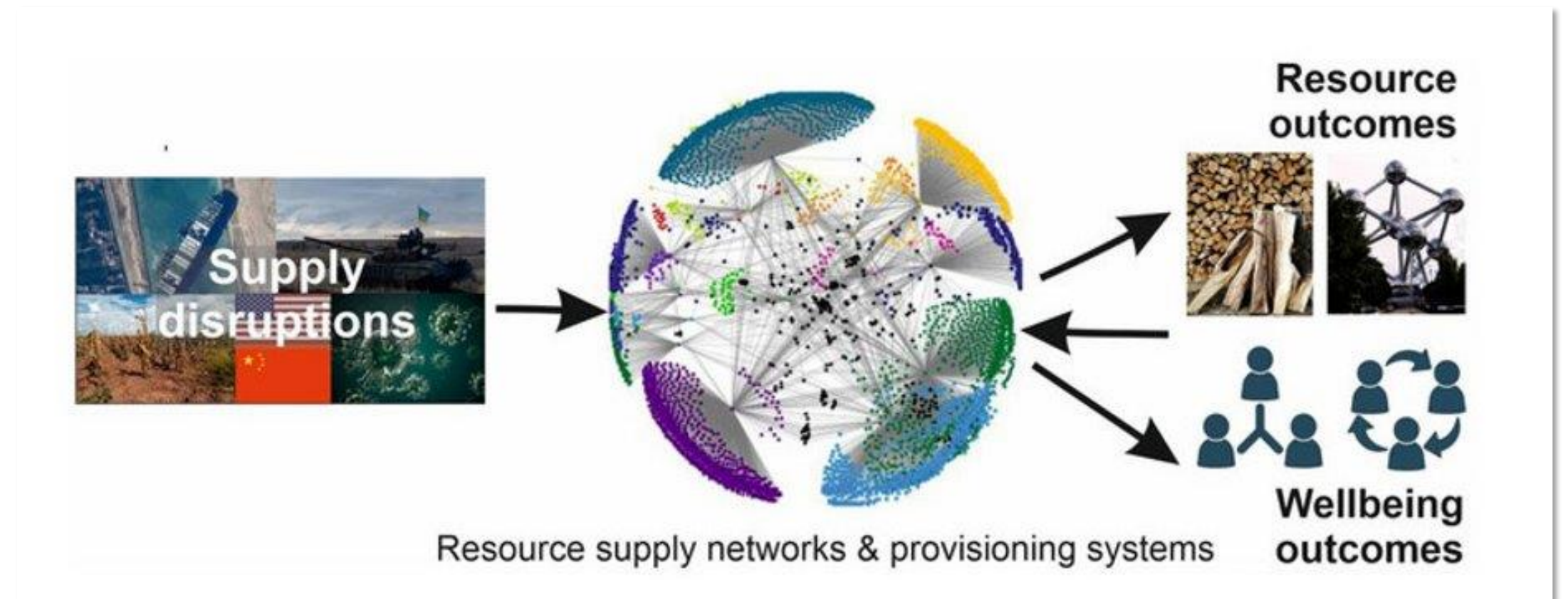
“**Ecological Economics**” played an important role until 2021, then “**Sustainability: Science, Practice and Policy**” takes a larger part.

Research context: REMASS



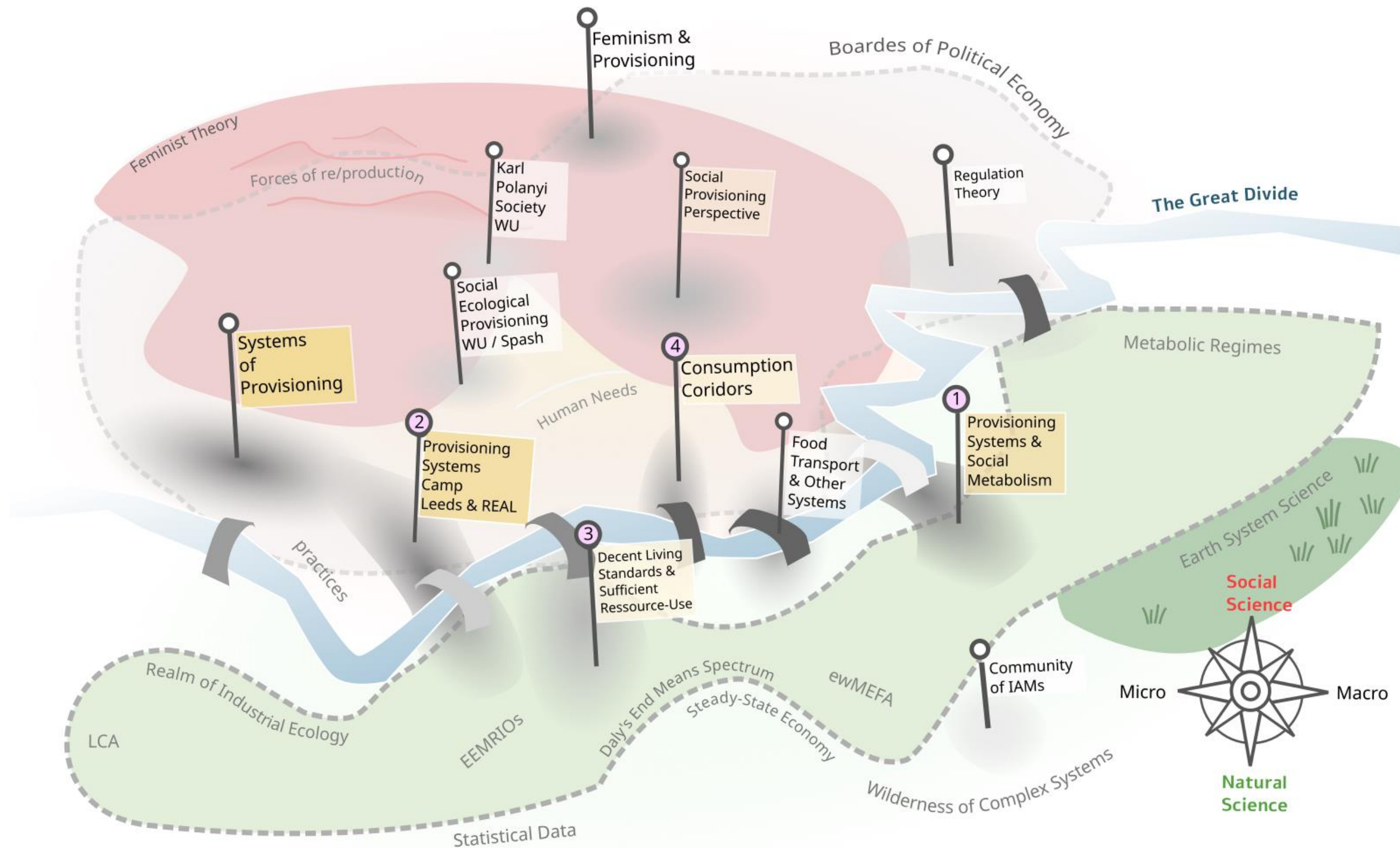
Assess **Resilience** and **Malleability** of **Social Metabolism**.

Develop a dynamic, non-linear understanding of social metabolism, interlinked with actors and institutions.



Provisioning Systems (PS) act as the central „glue“ in REMASS to **bridge social and natural science**.

Utilizing Provisioning Systems



Graphic by Simon Graf and Dominik Wiedenhofer. A first hypothesis to test.

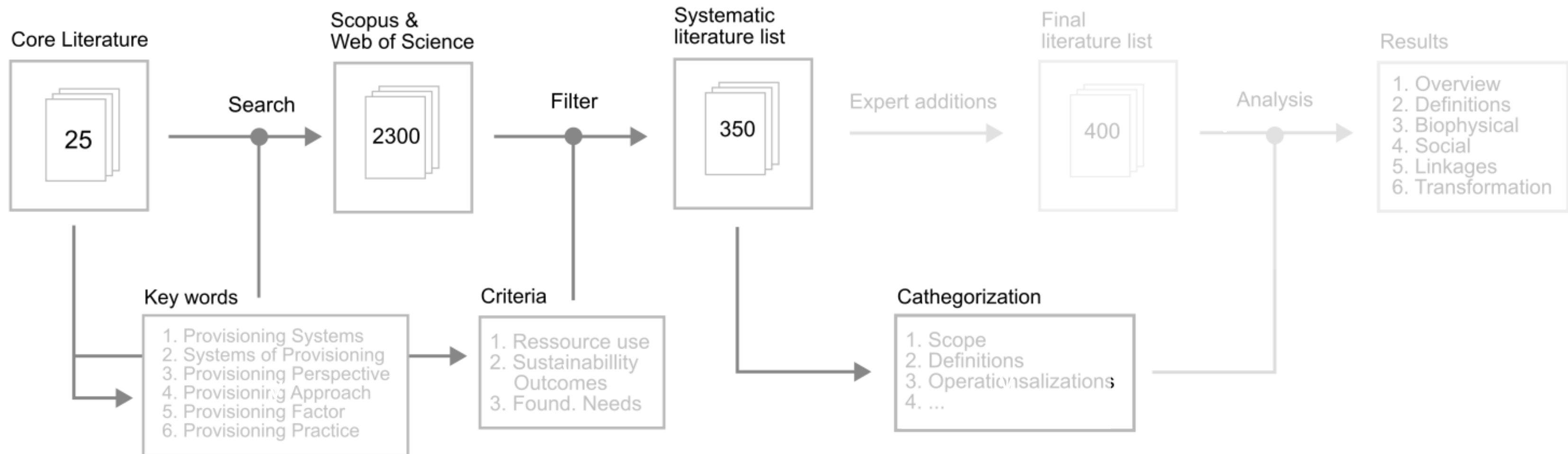
Challenges

- Landscape is highly heterogeneous, young and dynamic.
- **Bio-physical** dimensions are often lacking.

Research questions to be addressed...

- I. How are biophysical and socio-economic aspects of PS conceptualized and operationalized?
- II. What are the main PS research strands, and how do they link to production-consumption systems research?
- III. Where do PS studies share or lack common methods and frameworks?

Research design: **Systematic review**



We focus on works which **refer to “provisioning”**.



ISEE & Degrowth Conference 25 – 6 PS Sessions

- Only 3 of 24 studies refer to the term “provisioning” explicitly.
- Around 7 of the works fit well all criteria (4 of them in this session)

Study selection criteria

1

Criterion

Biophysical **resource use** in relation to provisioning.

Findings

- Explicit vs. implicit resource use is often difficult to distinguish.

2

Social and / or **sustainability outcomes** of provisioning.

- Strongest emphasized

3

Provisioning related to **foundational needs**.

- Needs are contested.
- No commodified goods & services, management, technical provisioning.
- Works often do not relate to basic needs, especially outside PS Core.

Housing



Sustainability: Science, Practice and Policy

ISSN: 1548-7733 (Online) journal homepage: www.tandfonline.com/journals/tsus20

Greening *Red Vienna*: lessons for social-ecological housing provision

Andreas Novy, Benjamin Baumgartner, Simon Grabow, Leonhard Plank & Hans Volmary

Food

Sustainability Science
<https://doi.org/10.1007/s11625-024-01547-w>

SPECIAL FEATURE: ORIGINAL ARTICLE

Agriculture (re-)territorialisation: Balancing the promotion of local products and international trade in Europe



Check for updates

Forgotten fish and food reterritorialization: a Swedish citizen- and professional initiative to re-embed seafood

Viktor Vesterberg¹ · Maris Boyd Gillette¹

Received: 23 May 2023 / Accepted: 15 July 2024
© The Author(s) 2024

Energy



Energy Research & Social Science

Volume 101, July 2023, 103134

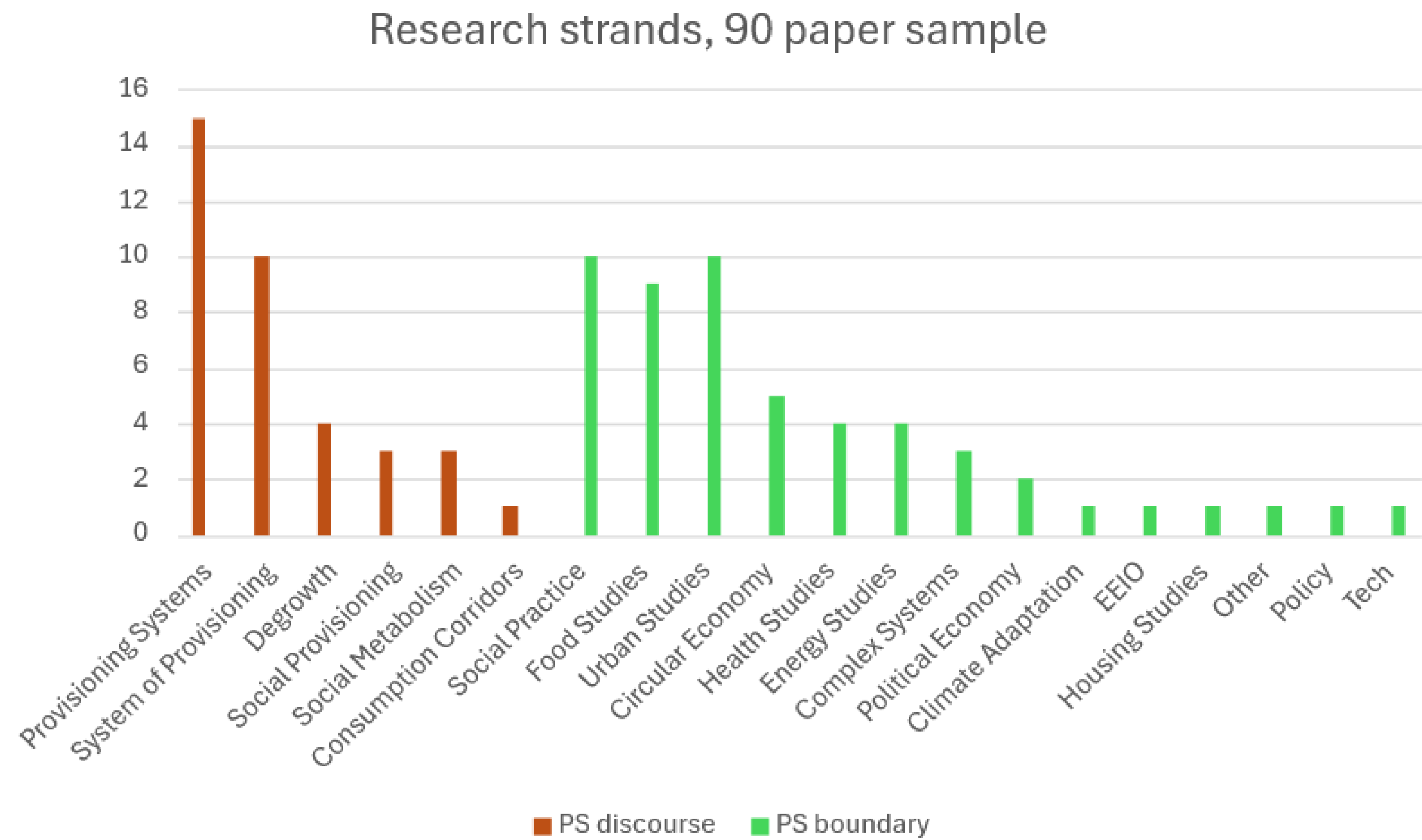


Original research article

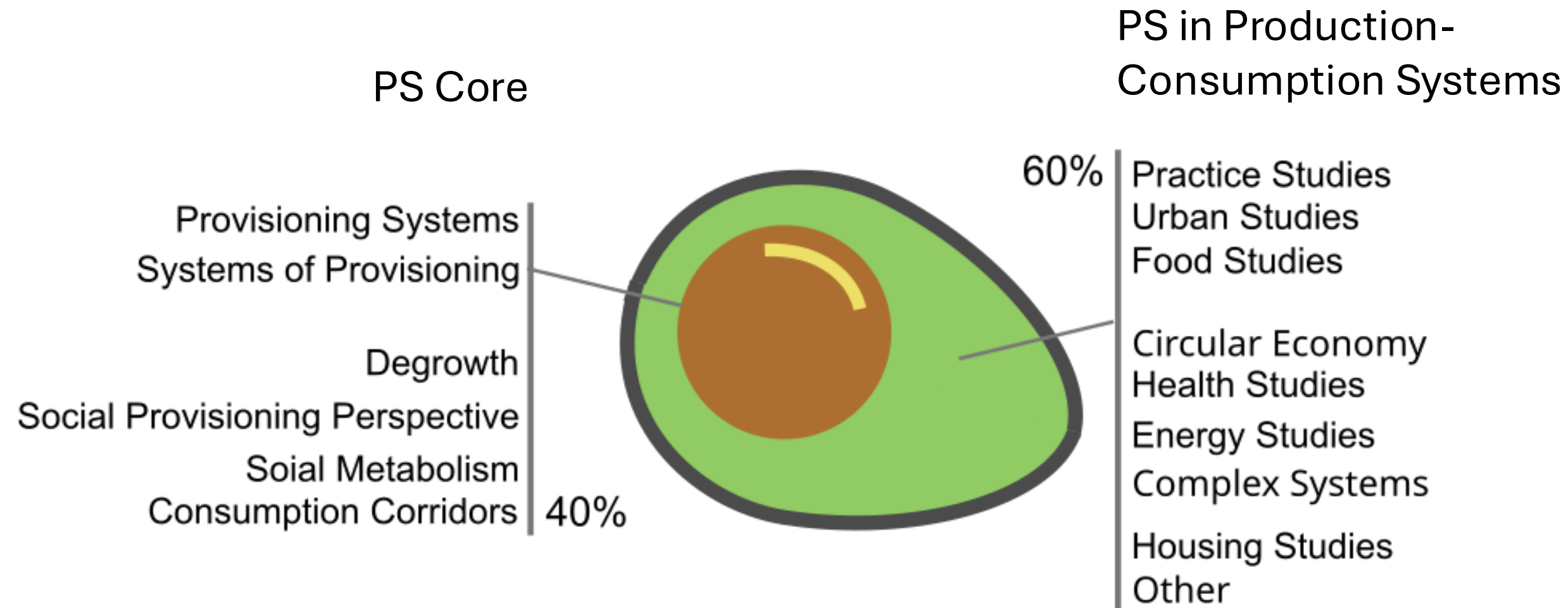
Green growth for whom, how and why? The REPowerEU Plan and the inconsistencies of European Union energy policy

Rubén Vezzoni

Main Research Strands and **Boundary Fields**



Main Research Strands and Definitions



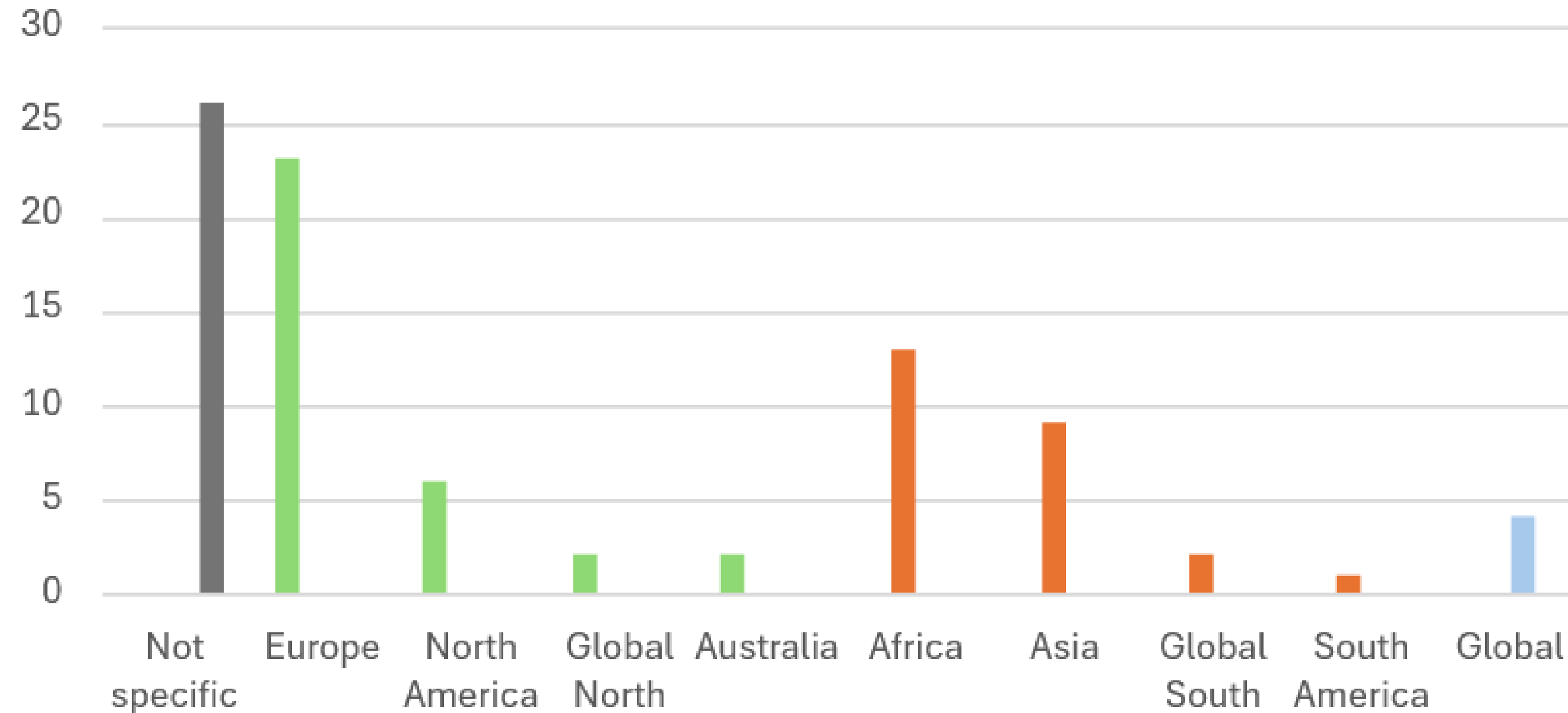
Definitions

- Definitions and references are mostly missing.
- Way forward: Concept vs. synonym?

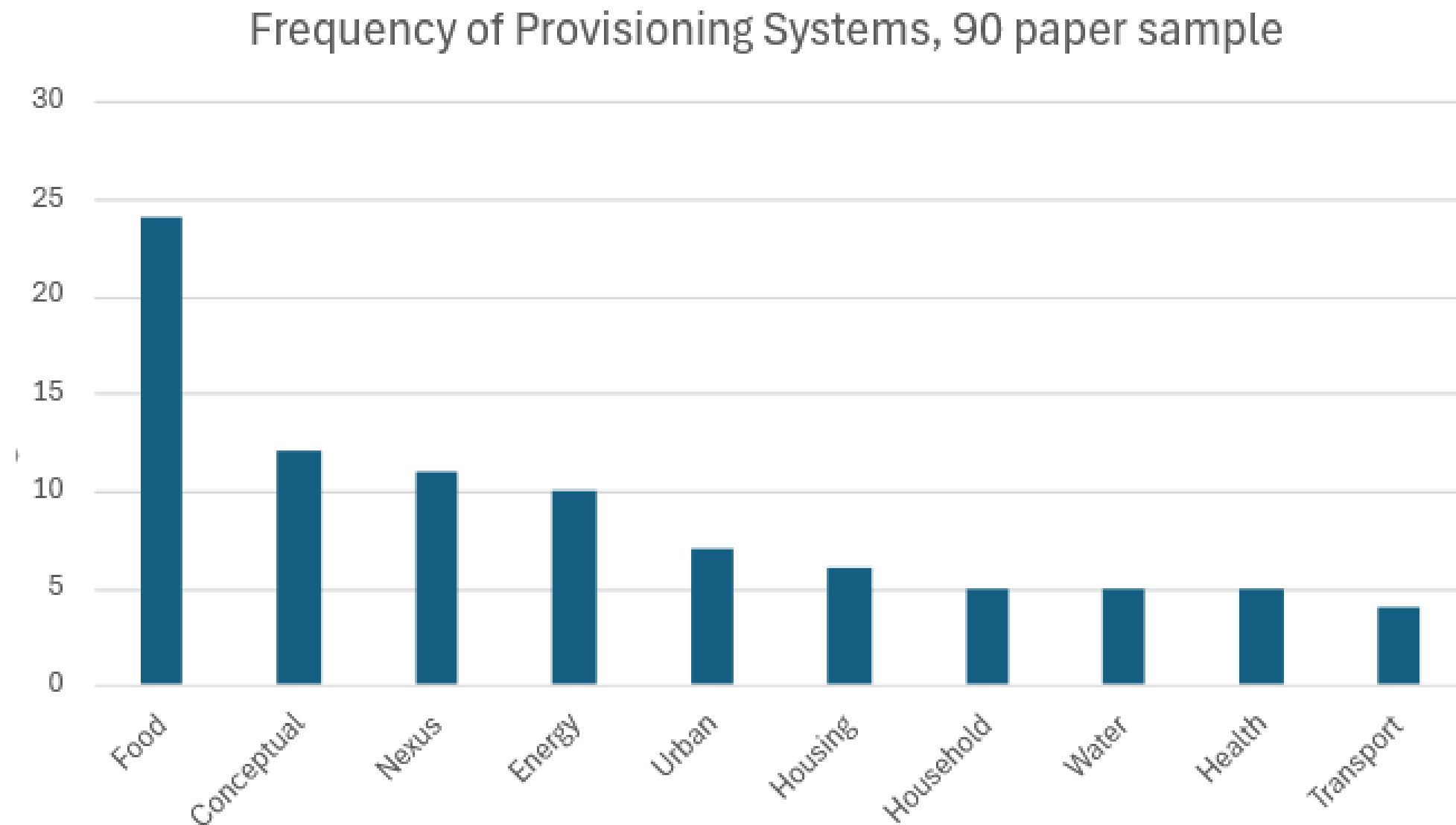
Avocado: The seed is ready to grow -> Transfer knowledge

Studied Regions

Continents of studied regions (90 paper sample)



Most present **Provisioning Systems**



Scale

- Practices (i.e. often farming, household)
- Technologies (i.e. solar vs. hydro)
- Community, urban
- National
- Global

Regions of case studies

- 37% Global North
- 28% Global South
- 4 % Global
- 29% Non-Specific

Take away and next steps

Preliminary findings

- Dynamic development of the PS landscape
- Avocado: production-consumption literature to learn from!
- Bio-physical dimensions need to be strengthened.
- Foundational needs often not further discussed.
- No common definition.

Next steps: Categorize and analyse

- Bio-physical dimensions.
- Socio-economic dimensions.
- Linkages, methods and frameworks.
- Transformative measures.
- Map the Provisioning System landscape.
- Discuss integration across the fields.

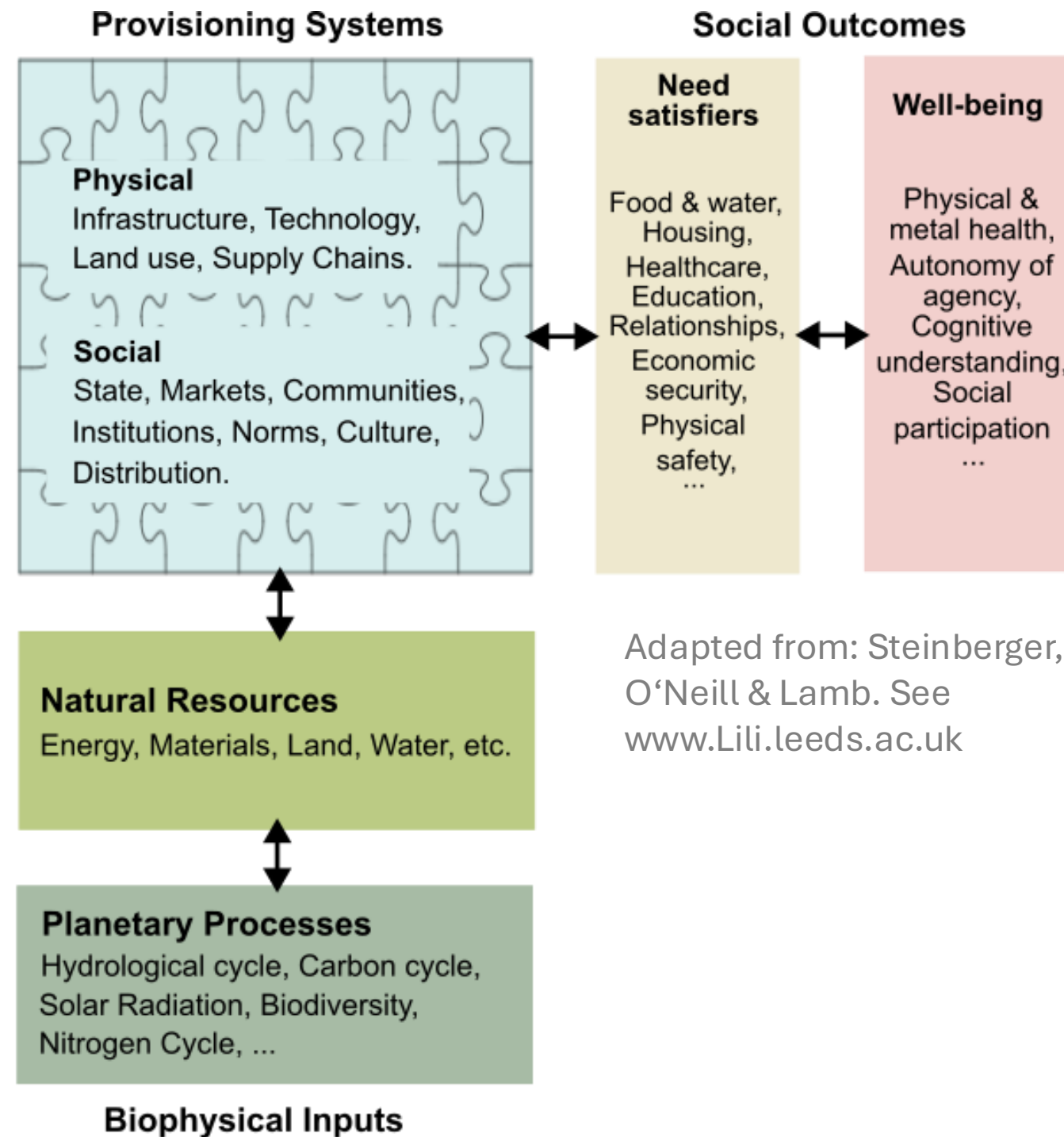
[Merci BOKU]

References

References

1. O'Neill, D.W., Fanning, A.L., Lamb, W.F. *et al.* A good life for all within planetary boundaries. *Nat Sustain* **1**, 88–95 (2018). <https://doi.org/10.1038/s41893-018-0021-4>
2. Schaffartzik, Anke & Pichler, Melanie & Pineault, Eric & Wiedenhofer, Dominik & Gross, Robert & Haberl, Helmut. (2021). The transformation of provisioning systems from an integrated perspective of social metabolism and political economy: a conceptual framework. *Sustainability Science*. 16. 10.1007/s11625-021-00952-9.
3. LiLi, Living well within Limits project, <https://lili.leeds.ac.uk/>
4. Fannin Andrew L. g, Daniel W. O'Neill, Milena Büchs, Provisioning systems for a good life within planetary boundaries, *Global Environmental Change*, Volume 64, 2020, 102135, ISSN 0959-3780, <https://doi.org/10.1016/j.gloenvcha.2020.102135>.
5. Novy, A., Baumgartner, B., Grabow, S., Plank, L., & Volmary, H. (2024). Greening *Red Vienna*: lessons for social-ecological housing provision. *Sustainability: Science, Practice and Policy*, 20(1). <https://doi.org/10.1080/15487733.2024.2312674>
6. Vesterberg, V., Gillette, M.B. Forgotten fish and food reterritorialization: a Swedish citizen- and professional initiative to re-embed seafood. *Sustain Sci* (2024). <https://doi.org/10.1007/s11625-024-01547-w>
7. Rubén Vezzoni, Green growth for whom, how and why? The REPowerEU Plan and the inconsistencies of European Union energy policy, *Energy Research & Social Science*, Volume 101, 2023, 103134, ISSN 2214-6296, <https://doi.org/10.1016/j.erss.2023.103134>.

Additional slide: PS, Degrowth and Eco-Eco



Adapted from: Steinberger,
O'Neill & Lamb. See
www.Lili.leeds.ac.uk

“**Degrowth** is a planned reduction of **energy and resource** use designed to bring the **economy** back into **balance with the living world** in a way that **reduces inequality** and improves **human well-being**.”

Jason Hickl, 2021

Ecological Economics, especially the ideas around the steady state economy; and the **feminist theory on provisioning** appear to be central for the development of Provisioning Systems.