



# Provisioning systems and their implications for the transformation of the stock-flow-service nexus. Space, time and the role of the state.

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# Outline

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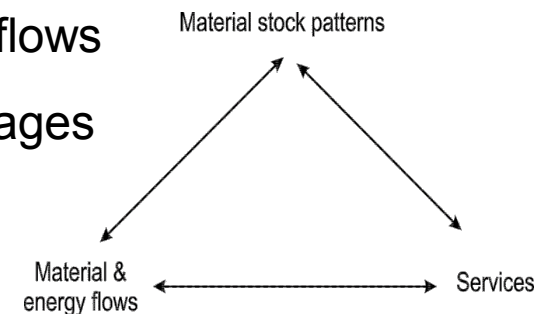
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1. Introduction
2. Provisioning systems in Political Economy
3. Our understanding of provisioning systems
  - Frankfurt School of Social Ecology
  - Space & time
  - Conflicts and the role of the state
4. Entry points for empirical research

# 1. Introduction



- Material stocks (e.g. infrastructures, buildings, dams) enable certain modes of production and living
- Increasing amount of resources used to build-up material stocks → obstacle for transformation towards sustainable resource use levels
- Stock-Flow-Service nexus focuses on societal services (e.g. mobility, shelter) provided by certain stocks and flows
- Provisioning systems important for analyzing interlinkages between
  - biophysical and socioeconomic processes
  - systemic societal processes and the preferences, interests and the power relations of certain actors – in particular the state – involved





We argue that how provisioning systems are constituted is crucial for understanding the stock-flow-service nexus and decisive for analyzing options for its transformation.

The provisioning of societal services by material stocks and flows is space and time sensitive. Thus, they have to be addressed within the processes of capitalist uneven development which is shaped by states and the international state system.

⇒ not purely economically driven

⇒ contested and implemented via state rule

## 2. Provisioning systems in Political Economy

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### Systems of Provision (Fine and Leopold 1993, Fine 2002)

- production, distribution, marketing, consumption
- cultural and material dimension
- 10 Cs
- From clothing, food and advertising to financialisation of housing, water supply in Great Britain

### “Living well within limits”

- provisioning systems are physical (infrastructure, technology, land use, supply chains) and social (state, markets, communities, institutions, norms, culture, distribution)
- shall fulfill basic human needs and link biophysical flows to well-being

# What can we learn from these debates?



- Analysis of actors & institutions incl. their interests and power relations
- SoPs are historically and culturally specific, contingent
- State is important but not conceptualized
- Aim to combine biophysical metrics with qualitative approaches
- Importance of qualitative research to specify human needs

## What's missing?

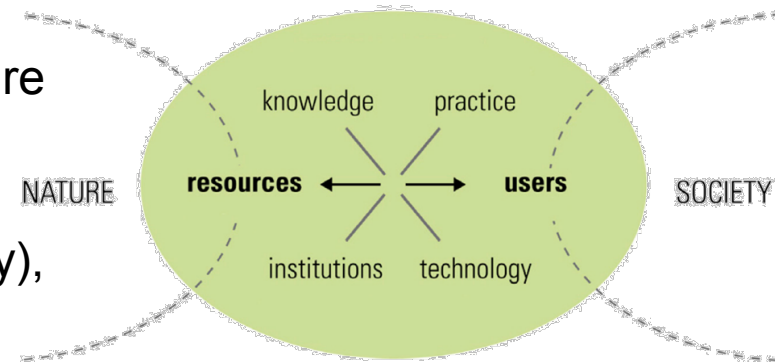
- How are needs/values/interests defined? How are stocks/functions/services constructed/implemented? => technology, institutions, knowledge, practices
- Where and for how long are stocks constructed? => spatial/temporal dimensions

# 3. Frankfurt School of Social Ecology



## Provisioning Systems as

- heuristic model for conceptualizing and studying social-ecological systems (SES)
- representation of societal relations to nature (SRN): material and cultural-symbolic dimension
- provide services (nutrition, shelter, mobility),
- regulated by society
- with different scales of regulation: micro (individual), meso (organizational and institutional), macro (societal)



(Hummel et al. 2017)

Provisioning: „any benefit societies draw from natural resources“ (Hummel et al. 2017: 20)



- Key components of provisioning systems: actors and ecosystem functions (or resources)
- Contextual factors of the dynamic interplay between management and services: knowledge, practices, institutions, technology
- Historically variable, regionally and culturally defined, intersectoral coupled (e.g. nutrition relies on transport)
- Highlight the role of power and gender relations, institutional arrangements, political-economic regimes
- Services are relative, depend on the fact how actors assess/depend on them and how they benefit from them
- Services can transform into disservices which harm certain groups of society



# Frankfurt Concept of Social-Ecological Systems (SES)

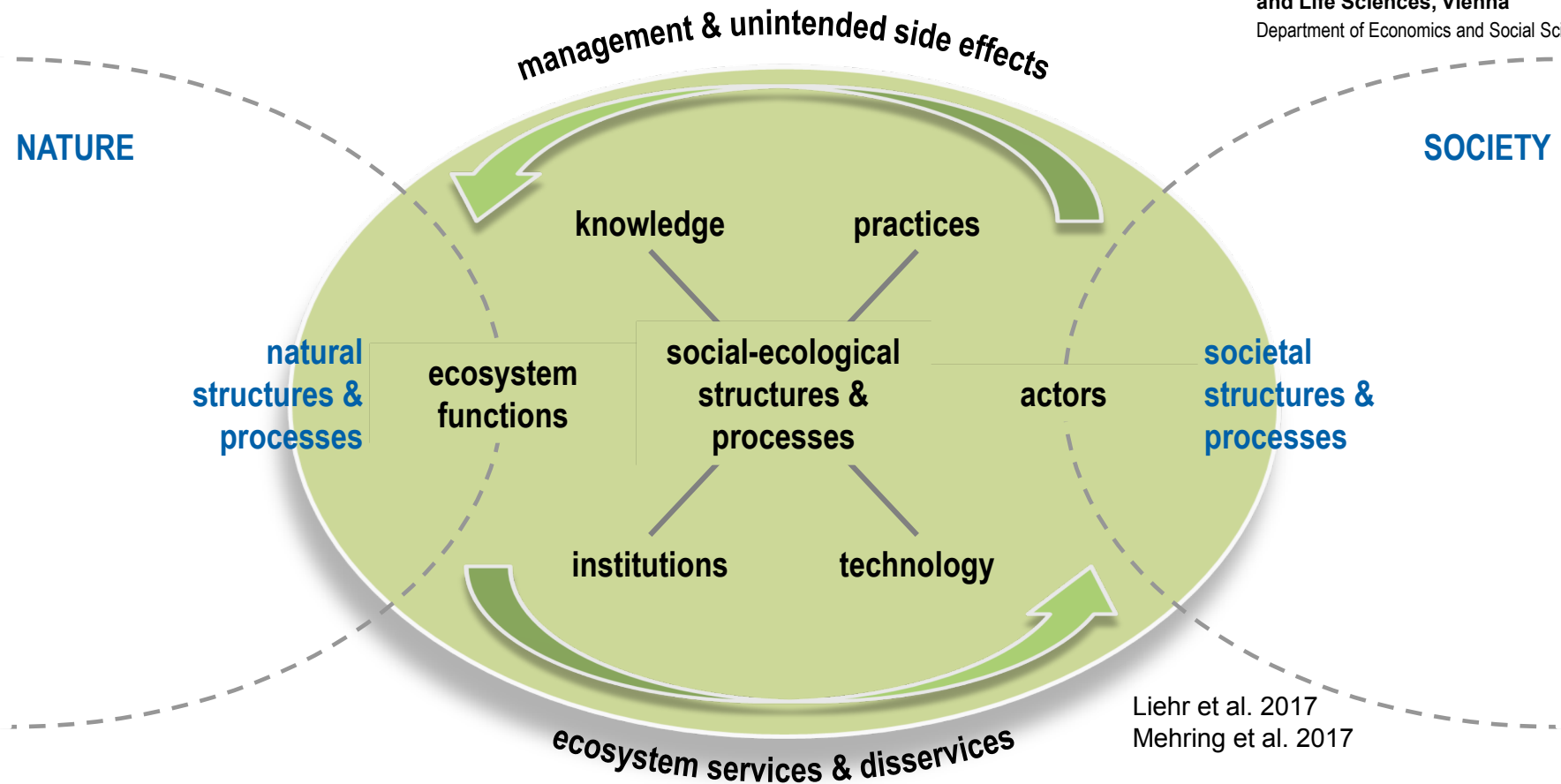
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# Dynamic interactions in SES

(with exemplary social-ecological structures and processes)

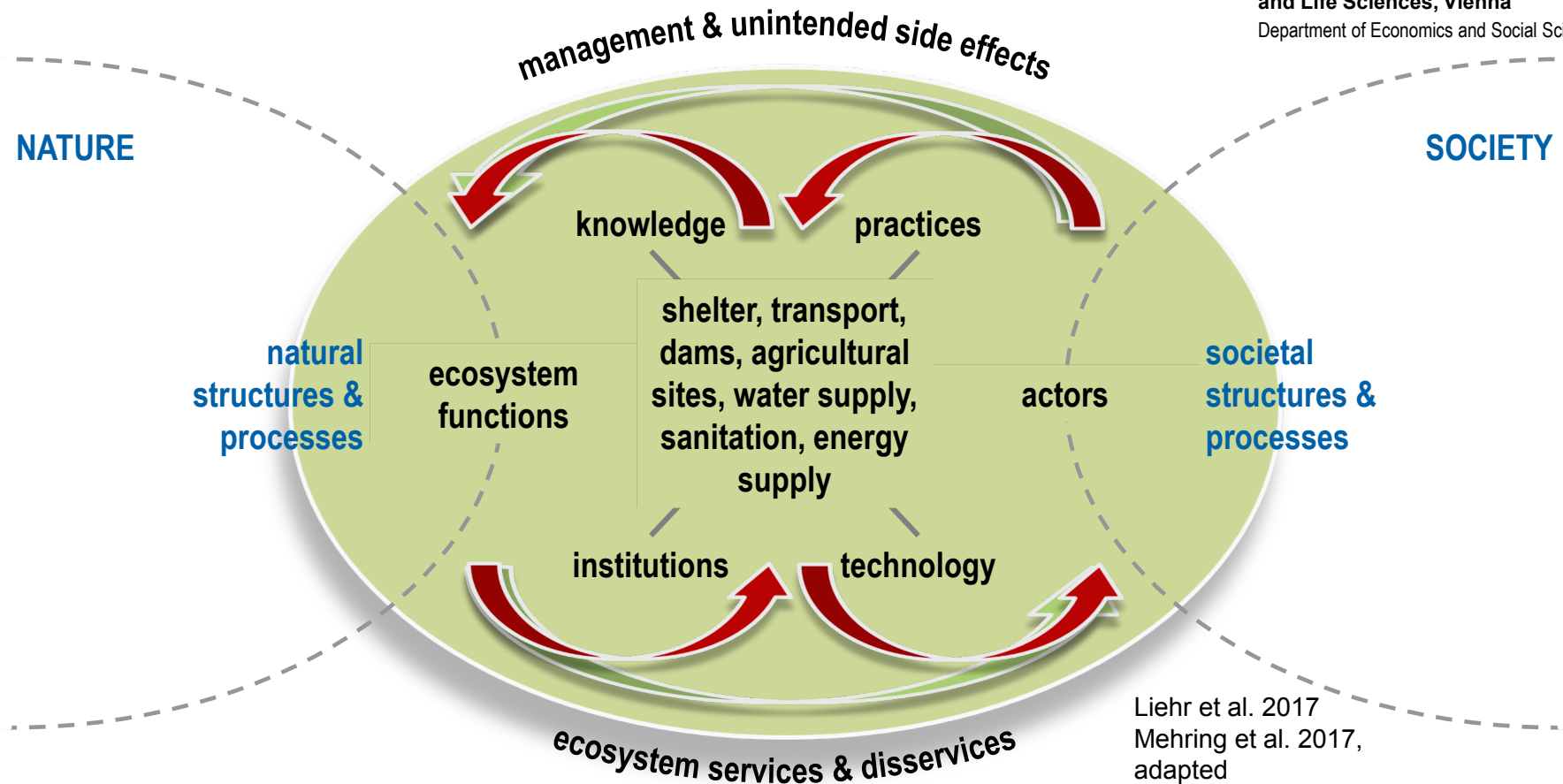
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Liehr et al. 2017  
Mehring et al. 2017,  
adapted

# How SES can be used?

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Roles of SES in operationalizing the transdisciplinary research process:

- Helps to outline the problem by defining the epistemic object,
- Helps to structure the research process in terms of formulating research questions and developing the research design,
- Helps to construct analytical modelling approaches

# Time & Space



- Globalization reshapes societal relations (including SRN), leading to spatial rescaling processes
- Materialized in infrastructure projects
- Spatial reorganization can be understood with Harvey as spatial and temporal fix:

“I note, for example, that capitalism has to fix space (in immovable structures of transport and communication nets, as well as in built environments of factories, roads, houses, water supplies, and other physical infrastructures) in order to overcome space (achieve a liberty of movement through low transport and communication costs).” (Harvey 2003, 116)

- Only temporal existence of infrastructure (see Schumpeter: creative destruction)
- Capitalist (economic) and geopolitical-territorial (political) dimension

# Conflicts and the role of the state

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- State not only an actor/regulatory authority
- But also a societal relation and terrain of social struggles
- Different interests inscribed (Jessop: strategic selectivity), which create services and disservices
- In general: states provide infrastructure to keep economic growth engine running
- But different state projects possible: services change over time - from warfare to welfare to the neoliberal competition state (see Folkers 2017 on Daseinsvorsorge)
- Today: shift towards geopolitical-territorial logic (research hypothesis)?

## 4. Entry points for empirical research



- Geo-political strategies/conflicts, e.g. around energy infrastructure (e.g. pipelines; discussion on centralized or decentralized systems)
- Analysis of different state projects and their economic & geo-political logic (e.g. Marshall Plan, Belt&Road Initiative BRI)
- Interdependencies within the SFS-Nexus: how different services mutually depend on each other (e.g. urban patterns, housing and mobility, use mapping to visualize spatial dimensions)
- Structure and agency: (weak) transdisciplinary perspective to analyze interests and shaping options of actors involved (e.g. for housing and transport system)

# THANK YOU!

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