Implications of orchestration for polycentric governance systems

The case of multifunctional water use in the canton of Zurich, Switzerland

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Impacts of climate change on the water resources in Switzerland

Annual water resources will not substantially change

> Seasonal:
  — decline in summer
  — increase in winter
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> Reasons:
  — increasing temperatures

Climate scenarios CH2018
1981-2010

2060
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- Seasonal:
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- Reasons:
  - increasing temperatures
  - decline of precipitation in summer

- In spring and summer time:
  - increase demand of water for the nature
  - increase demand of water for irrigation

→ Need for new dynamics in environmental and agricultural governance of water resources
Governance of complex natural resource systems

Polycentric governance

— **Polycentric governance systems** have a higher capacity to deal with complex natural resource systems (Ostrom 2010; Pahl-Wostl, Knieper 2014; Carlisle, Gruby 2017).

— Polycentric governance systems operate more effectively with **modest levels of coordination or ordering** (Zürn, 2010; Betsill et al., 2015; Mayntz, 2015; Dorsch and Flachsland, 2017; Abbott, 2018).

Problem

— Accumulating evidence shows: polycentric coordination is **vulnerable to internal** (e.g. number and constellation of participants) **and external factors** (e.g. changing environmental circumstances, **steering attempts from other actors**) (Galaz et al., 2012).

→ Orchestration influence (benefits) of polycentric governance systems
Research questions

1) What factors transition a weak polycentric governance order into a stronger polycentric governance order or vice versa?

2) How do processes of orchestration shape the degree of polycentric order and affect the outcome for complex natural resource systems?
Method

- Qualitative case study approach

- Selection of one case of multifunctional water use in the canton of Zurich, Switzerland

- Semi-structured interviews; transect walks; document analysis of legal materials; concessions; general literature on the case; national, cantonal and regional strategies

- Qualitative content analysis
Frameworks

> **Polycentric governance** (McGinnis, 1999; Ostrom, 2010; Pahl-Wostl et al., 2014; Carlisle et al., 2017; Jordan et al., 2018)

Polycentric governance

- Multiple, overlapping decision-making centers with some degree of autonomy
- Choosing to act in ways that take account of others through processes of cooperation, competition, conflict and conflict resolution

(Carlisle et al., 2017)
Polycentric governance

Polycentricity is a **matter of degree**

<table>
<thead>
<tr>
<th>Degree of polycentricity</th>
<th>Weak polycentric coordination</th>
<th>Polycentric coordination</th>
<th>Polycentric order</th>
<th>Strong polycentric order</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Key characteristics</strong></td>
<td>Information sharing</td>
<td>Informal arrangements</td>
<td>Joint investments</td>
<td>Joint projects, evolution of rules</td>
</tr>
</tbody>
</table>

- Defined by features such as communication dynamics, degree of formalization, and network structural patterns.

- **External and internal factors affect** the ability of actors to maintain a certain degree of polycentric order.

(Galaz et al., 2012)
Orchestration

Orchestration is an indirect mode of governance in which
> a lead organization (the orchestrator) enlists
> intermediary actors and organizations (the intermediaries) to influence
> the behavior of other actors (the targets)
in accordance with the orchestrator’s goals.

(Abbott und Hale 2014)
Case study
Furttal (Canton of Zurich, CH)

Source: Own research
Catchment of the Furtbach with water rights for irrigation

Each farmer/golf-parc: own concession

3 types of concessions:

- Furtbach
- Side streams from the Furtbach
- Ground and spring water

Environmental and agricultural problem (changing external factor)

> In dry seasons:
  — More irrigation (nitrate leaching in soils, phosphorus input from soil erosion, pesticides,…)
  — Flow of the Furtbach ≈ wastewater from the treatment plants

> Water quality (substances and temperature)
> Water quantity

**Consequences**

> Expiry of concessions → no renewals of the concession
> New sources of water for irrigation
> Only 1 concession for all
> More efficient irrigation techniques
Results

1) What factors transition a weak polycentric governance order into a stronger polycentric governance order or vice versa?
Landowners

Municipalities

Engineering office

BLW

BAFU

AWEL

ALN

Water Supply Company

Landowners
Technical solution
Landowners
BLW
BAFU
AWEL
ALN
Municipalities
Engineering office
Water Supply Company
NGOs
Landowners
External factors

> Environmental problems (water quality and quantity)

> Public policies and property rights
  — Public policies and property rights
  — Different **sectoral instruments** to support projects or to grant subsidies:
    - “Program for sustainable use of natural resources “
      (Federal Office for Agriculture)
    - “Pilot Program: Adaption to climate change”
      (Federal Office for the Environment)
    - “New Regional Policy”
      (State Secretariat for Economic Affairs)
  → External flow of funding

> Orchestration
2) How do processes of orchestration shape the degree of polycentric order and affect the outcome for complex natural resource systems?
Processes of orchestration

Initiating
> The canton (O.) enlist like-minded farmers (I.) through persuasion and the offer of support

Supporting
> The canton (O.) strengthens their governance impact by providing support:
   — deploy material support (financial contributions)
   — information and guidance (administrative assistance)
   — activate specific policy instruments (to defend their use interests, external flow of funding)
   — mobilize pressure and assistance from third parties (AWEL, BLW)

Shaping
> The canton (O.) shapes and steers the goals, structures and activities of the farmers (I.) to keep them in line with its own goals and priorities
> To ensure that publicly adopted mandates and norms are observed
How do processes of orchestration shape the degree of polycentric order?

> Stronger polycentric order around the “target”
  — orchestrators encourage and facilitate the formation of new units
  — Some relations become stronger for a smaller set of actors (executive board, cooperative)
  — Formalization of partnerships (cooperative)
  — Institutionalized mechanisms for problem solving and conflict resolution (cooperative)
How do processes of orchestration shape the degree of polycentric order?

> Weaker or inhibited polycentric order for the rest of the system
  — Inhibit self-organization of the farmers
  — Inhibit cooperation and collaboration of the farmers with other actors like the operator of the surf parc, other irrigation-actors (less mutual adjustment)
  — Pursue specific governance goals (limits experimentation and learning)
How do processes of orchestration affect the outcome for complex natural resource systems?

- The underlying environmental and agricultural problems have been solved
- Other use interests were excluded
- A sustainable solution for the whole region in consideration of all use interests and of climate change has not been discussed

- High adaptive capacity?
- Good institutional fit?
Conclusion

- Polycentric governance orders are **vulnerable to external factors**
- They can transition degrees of polycentric governance orders:
  - Environmental problems
  - Public policies (flow of finance) and property rights (concessions)
  - Processes of orchestration
- **Processes of orchestration:**
  - O. steer and coordinate through intermediaries
  - O. strengthen their impact by providing support
- Processes of orchestration **shape the degree of polycentric order:**
  - Stronger polycentric order around the “target”
  - Weaker or inhibited polycentric order for the rest of the system
Conclusion

> Processes of orchestration affect the **outcome for complex natural resource systems**
  — No approach for a sustainable solution for the whole region in consideration of all use interests and of climate change

Analysis of polycentric governance processes should also look for strategic actions that

> catalyse and incentivise organisational formation
> promote ordering and coordination
Thanks

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