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Power asymmetries and transformative capacity in common-pool resource governance: decision-making trade-offs and the distribution of environmental burdens. Evidence from France.

At a time of accelerating ecological disruptions driven by human activities, sustainable management of common-pool resources (CPRs) has become a critical challenge. Global warming and environmental degradation raised pressures on ecosystems and reshape institutional contexts in which they are managed. Thereby, assessing the capacity of governance systems to preserve CPRs and foster significant changes in the resource-use practices has become crucial. CPR governance systems may be conceptualized as social-ecological systems (SES) in which both ecological and social dynamics are intertwined. Ecological and social subsystems interact through feedback loops (Berkes, 2017): governance decisions produce ecological outcomes, and ecological drivers shape governance constraints and opportunities. In addition, the SES framework conceives resource units, users and governance systems as distinct but interconnected entities which produce system-level outcomes (Ostrom, 2009). Consequently, understanding the capacity of governance systems to produce significant ecological changes in CPR uses requires connecting institutional and ecological processes.

Elinor Ostrom (1990) identified recurrent design principles associated with systems where local communities successfully manage common-pool resources. These principles include collectively crafted rules governing resource allocation, monitoring and sanctioning mechanisms, and conflict-resolution procedures. Such sustainable commons governance relies on the stability of rules and on the predictability of the distribution of costs and benefits of collective efforts, among users (Ostrom, 1990). However, growing ecological pressures disrupt arrangements that were designed under conditions of relative environmental predictability. Contemporary environmental governance systems (like collaborative, polycentric or adaptive governance) are promoted as suitable compromises to uncertainty. Collaborative governance, for instance, is a consensus-oriented arena, promoting collaboration over competition, where public and private stakeholders deliberate (Ansell and Gash, 2008). Such participatory governance may enhance collaborative problem-solving against environmental challenges. However, collaborative processes do not automatically lead to effective environmental outcomes. Yet participatory governance mechanisms are not neutral: they are structured by power asymmetries (Barnaud and van Paassen, 2013) which can include or exclude some participants but also shape interests that are represented and discourses that prevail (Purdy,

2012). As a result, governance arrangements designed to sustainably manage CPRs may not achieved producing significant and sustainable changes in CPR use practices. One explanation lies in the influence of power asymmetries on decision-making trade-offs and on the scope of adopted measures potentially constraining transformative changes (Pahl-Wostl, 2020). For example, empirical research suggests that ecological outcomes of decisions taken by French river basin committees may differ according to their composition and distribution of influence among stakeholders (Baudoin and Gittins, 2021). Nevertheless, the relationship between power asymmetries, their influence on decision-making processes and ecological outcomes remains insufficiently explored within environmental governance research (Mcllwain, Holzer Baird and Baldwin, 2023).

An organization can be understood as a structured space of interactions among stakeholders who hold a degree of autonomy and pursue strategies according to their interests. In the strategic actor framework developed by Michel Crozier and Erhard Friedberg (1977), power is rooted in the capacity of a stakeholder to influence the exchange and control zones of uncertainty within negotiated interactions. Collective trade-offs within CPR governance can thus be interpreted as the outcome of strategic interactions through which actors seek to preserve or expand their degree of autonomy. Governance system may stabilize around a negotiated equilibrium, reflecting the relative influence of the involved stakeholders. Hence, they may have limited incentives to support trade-offs which would require substantives changes in resource-use practices. Environmental transformation may be restricted by the strategic stabilization of existing power configurations. Furthermore, competitions over CPR are not only material. They are also rooted in divergent perceptions of the problem (Adams and al., 2004). Stakeholders' understanding of the ecological issue shape the definition of the problem and the acceptable solutions. Therefore, power asymmetries shape problem definition, decision-making processes and implementation (Morrison and al., 2019), influencing the distribution of the environmental burdens and sectors bearing adjustment costs. Consequently, although governance systems are more confronted to ecological pressures that may disrupt existing arrangements, they may at the same time maintain the existing equilibria rather than producing ecologically significant changes. By shaping decision-making trade-offs, power asymmetries can limit the capacity of the system to transform CPR-use practices.

Nonetheless, from a management and organizational perspective, theoretical developments on environmental governance have paid less attention to the nature of the tensions within decision-making processes facing growing ecological pressures, the sharing of environmental burdens

with their ecological consequences and the ability of governance to generate ecologically significant changes in practices.

Thereby, **why and how do power asymmetries within a CPR governance shape the capacity of the system to produce ecologically significant changes in resource-use practices?**

This research aims to better understand the capacity of environmental governance systems to produce changes in practices that are ecologically significant and distributed among stakeholders, under increasing ecological pressures. The empirical case investigates the French water governance.

A brief introduction to the empirical case: The French water governance is a common-pool resource governance system which is organized at the hydrological river basin level, a coherent ecological unit to manage water. Each river basin is governed by a basin committee bringing together water users, local authorities and representatives of the State. These stakeholders deliberate to reconcile territorial water needs with resource preservation, and they meet similarly at the sub-basin level to operationalize these orientations. French water governance has historically been organized around what Sylvain Barone (2024) calls a "myth of conciliation": this frame maintains stakeholders and their interests together, but it minimizes the differentiated environmental impacts of specific uses Over time, French water policies have integrated ecological objectives, but the ecological outcomes of this ecological shift remain modest. In 2019 less than a half of waters were classified as having good ecological and chemical status[1] and the 2022 drought highlighted tensions among users as groundwater levels remained low in various regions. Water preservation requires modification in practices, but pressures persist and compromise the meeting of the targets. However, preservation efforts must be distributed differently among stakeholders because water uses exert differentiated impacts on the resource. Therefore, decisions regarding the distribution of environmental efforts may be promoted or opposed by French water users (Vivière, 2025). These distributive decisions are indeed collectively deliberated within governance arenas where stakeholders have unequal resources and influence. This directly questions the capacity of the French water system to

[1] Ozenne, J., Sertin, F. (2025). *Rapport d'information sur l'état des cours d'eau*. Assemblée nationale, Commission du développement durable et de l'aménagement du territoire. URL < https://www.assemblee-nationale.fr/dyn/17/rapports/cion-dvp/l17b2070_rapport-information#_Toc256000000>

orchestrate a significant ecological transition as power asymmetries are embedded within deliberative arenas and are then likely to shape trade-offs allocating environmental burdens.

Methodological design: This research intends to analyse how power asymmetries within French water governance shape decision-making trade-offs through which environmental burdens are distributed and how they may condition the governance's capacity to generate ecologically significant changes in water-use practices under increasing ecological pressures. The main hypothesis is that water preservation depends both on the nature of the environmental adopted trade-offs and on how the associated costs and benefits are shared among stakeholders. A trade-off related to an environmental effort may be defined as any decision (or non-decision) that share environmental costs and benefits of water preservation. Such trade-offs include adopted measures, regulatory constraints, objectives and financial allocations. The suggested mixed-method design combines a quantitative analysis of basin committee decision-making documents with a qualitative comparative study of three sub-basin level. To ensure analytical coherence, the research focuses on water quality, an issue for which longitudinal ecological data are available.

The two following empirical parts aim to identify how power asymmetries operate in the institutional design of decision-making arenas. It covers six major river basins: Seine-Normandie, Loire-Bretagne, Adour-Garone, Rhône-Méditerranée-Corse, Rin-Meuse, Artois-Picardie. Drawing on Morrison and al. (2019), the study mobilizes three dimensions of power: power by design (referring to institutional rulemaking and the architecture of decision-making), framing power (referring to the construction of problems, norms and priorities), and pragmatic power (referring to the interpretation and implementation of decisions).

Decision-making trade-offs: The composition of basin committees, formal voting rules and institutional arrangements will be examined (power by design). It will be confronted to framing power, thanks to an analysis of at least ten years of basin committee reports with the last orientation official document, using Natural Language Processing (NLP) methods. The purpose is to stress lexical registers used to define water issues and ecological pressures, dominant logics, distribution of speaking time, patterns of polarization or consensus, and their evolution over time.

Budget allocation: To access pragmatic power, budgetary data intervention programs, financial allocations will be categorised to identify how funding is shared across sectors. This will allow

the identification of a distributive pattern of environmental efforts, for which stakeholders may bear adjustment costs. It will be compared to the results of the previous part.

Comparative case studies of three sub-basins: This component attempts to identify the mechanisms through which power asymmetries translate into concrete decisions and implementation outcomes. Specific attention will be paid to strategies of action and resistance mobilized by stakeholders during both deliberation and implementation phases. The analysis will examine how problems, responsibilities and solutions are defined in local arenas. The three sub-basins will be selected on their different paths as regard their water quality outcomes to enable comparison of governance configurations associated to different ecological trajectories. Data collection will include direct observations of meetings and semi-structured interviews with local stakeholders including public authorities (Water agency, river basin public agency, regional health agency, prefecture); local authorities (city, public water utilities); economic stakeholders (agriculture, industry, tourism); non-economic stakeholders (environmental and consumer associations). Interviews will address stakeholders' activities and strategic positionings, experiences of deliberation, perceptions on pollution and mitigation, governance competencies, implemented programs. Specific attention will be given to negotiations occurring outside formal deliberative arenas to capture informal dynamics that may not appear in formal places.

Both empirical components will be confronted to ecological data of the evolution of water quality (chemical and ecological status). The intent is to identify coherent configurations linking power asymmetries, distributive trade-offs and ecological paths.

Expected contribution: This research seeks to conceptualize transformative capacity of a common-pool governance system as its capacity to adopt and implement distributive environmental trade-offs able of producing ecological significant changes in CPR-use practices. By combining structural, discursive, budgetary and process-tracing analyses, the research aims to contribute to the empirical study of power within environmental governance systems. It intends to highlight configurations of power asymmetries that either stabilize the status quo or enable transformative environmental change in CPR-use practices.

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