

Integrating Social Power and Political Influence into Models of Social–Ecological Systems

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Abstract

Shaping policy for environmental sustainability depends upon decision-makers conceptualizing problems in ways that are either shared or similar enough to communicate about, diagnose, and act. The quality of this shared mental model of a social–ecological system (SES) is paramount to its effectiveness. Fundamentally, the mental model must integrate multiple kinds of knowledge about the system. If the decision-making body's assumptions about, description of, and solution for a problem do not to reflect the many ways stakeholders know a system, then the products of that decision-making process are viewed as illegitimate. Sustainability policy must fit the often subtle social order of the communities expected to implement it. In this essay, we discuss how a systems-based perspective can be a versatile tool for tackling these challenges of knowledge integration and decision-making in the context of a complex SES. Using social theory of Pierre Bourdieu, we construct a conceptual model that illustrates a route for integrating locally known social complexities (power, influence) gleaned from stakeholder interviews (N = 57). Stakeholders and end-user groups may dismiss any model that they perceive fails to satisfactorily account for specific, locally salient social nuances. Our approach leverages the overlapping notion of “capital” in social and ecological theory to demonstrate how reciprocal interactions between human and ecological systems can be adopted into tools for reaching viable solutions to SES problems.

Keywords: Sustainability science, Social capital, Power, Boundary object, Water resources management, Floodplain development, Riparian ecology

1. Introduction: Integrating Different Ways of Knowing

One of the challenges for transdisciplinary sustainability-science research is to integrate different kinds of knowledge into usable forms relevant to the diverse audiences tasked with addressing sustainability problems. Bringing scientific, technical, experienced, and tacit views of a system into alignment with each other is critical for developing a shared body of assumptions from which to make decisions. Shared conceptualizations of a system must be salient, legitimate, and credible to all parties' perspectives involved in planning if those policies made are to satisfy the persons expected to implement them (Clark et al., 2011). This task moves past multidisciplinary and interdisciplinary efforts at social and biophysical science collaboration. Combining scientific and lay knowledge into an accessible—and politically acceptable—representation of a system that then becomes a tool for deliberating about environmental problems and making decisions requires treating local social and political complexities with the

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