

A Framework for Thinking about Actors, Institutions, and Power in Nature-Society Systems

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Understanding how change happens—or fails to happen—in nature-society systems requires examining three elements of nature-society systems: **actors** who exercise agency, the **institutions** that shape their behavior, and the **power** dynamics that determine whose interests prevail. These elements fundamentally shape how nature-society systems co-evolve—determining who has access to natural and anthropogenic resources, how those resources are used or conserved, which problems get addressed, and whose vision(s) for the future are pursued. This document provides a framework for analyzing these interconnected elements, drawing heavily on the work of Stephen Lukes (1974) and John Gaventa (1980).

Core Concepts

Actors

In sustainability science literature, actors have been conceptualized as coming from both the natural and social subsystems—with some scholars including nonhuman organisms and their assemblages as actors alongside people, communities, firms, and states. What actors have in common is agency: the ability to choose or decide. For our purposes in this unit, we focus primarily on social actors—people, communities, firms and other organizations, states, and comparable entities—who have not only the ability to directly consume or produce resources but also the ability to articulate goals, and construct narratives. These social actors are the ones who create, reinforce, and change institutions. Characteristics of social actors that have proven salient for sustainability science include their values, beliefs, empathy, interests, capabilities for learning and innovation, and power.

Institutions

Institutions are the rules of the game that dictate which actions are permissible, expected or forbidden. Institutions include formal rules, informal norms, rights, culture, and widely shared beliefs that help to shape the behavior of actors in their relationships with one another and with nature. Institutions are created, reinforced, and changed by actors. Much of the analytic work in sustainability science seeks to evaluate how specified changes in institutions—say, the imposition of a carbon tax—have affected or are likely to affect the prospects for achieving sustainability goals.

Power

Power is the ability of actors to affect the beliefs or actions of other actors. Power can both constrain and enable what people think and do. Power mediates the relationships among actors, institutions, resources, and goals. Actors can either work within inherited power structures or attempt to change those structures. Actors with more power can more easily change or maintain existing structures to further their power.

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The Three Dimensions of Power

To understand how actors use power to work within or change institutional arrangements, we employ a three-dimensional framework of power, originally developed by Steven Lukes (1974) and empirically demonstrated by John Gaventa (1980) in his classic study of coal country Appalachia. This framework illustrates the mechanisms through which power operates in nature-society systems:

Dimension	Definition	Mechanism in Nature-Society Systems
First Dimension: Compulsion	Actor A has power over actor B to the extent that he can compel B to do something that B would not otherwise do.	This dimension of power is derived from ownership of or access to natural and anthropogenic resources and/or flows of benefits from those resources. For example, the ability of colonial governments to extract vast quantities of resources and labor from others was predicated on military and economic power derived from control over resources.
Second Dimension: Exclusion	Actor A has power over actor B to the extent that A can exclude B from decision-making arenas and restructure rules and norms to further A 's own interests.	This dimension of power is derived from the ability to shape institutional structures including rules and norms. For example, the ability of Canadian energy interests to block collaborative governance efforts to protect local common pool resources was predicated on their ability to limit the scope of negotiations and eliminate from consideration potential outcomes that would negatively impact the interests of industry.
Third Dimension: Influence	Actor A has power over actor B to the extent that A can influence or shape B 's aspirations and beliefs.	This dimension of power is derived from the ability of actors to influence the goals, aspirations, values, and even knowledge systems that privilege the well-being of some actors over others. The third dimension of power often prevents observable conflict from arising. For example, the ability of powerful corporations to stymie efforts to regulate greenhouse gases and toxic chemicals is predicated on their ability to influence public beliefs about the threats (or lack thereof) posed by climate change and pollution.

How the Three Dimensions Interact

These three dimensions of power are not independent but rather reinforce one another in creating and maintaining development pathways. Figure 1 illustrates this dynamic relationship.

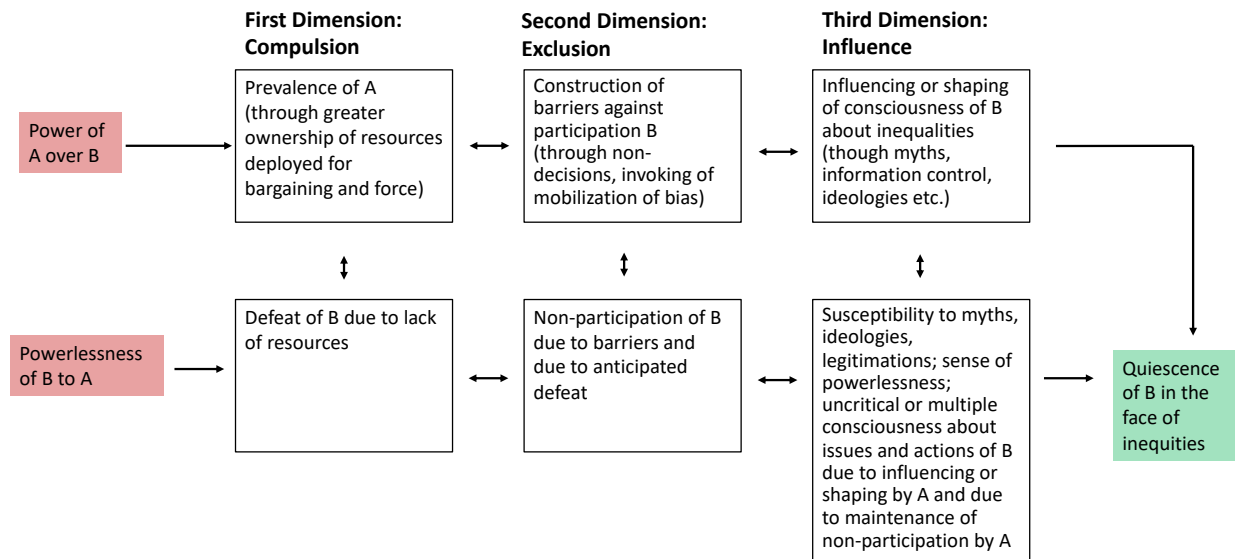


Figure 1: The Three Dimensions of Power (Adapted from Gaventa, 1980, p. 21)

As shown in the figure, when powerful actors begin to lose their grip on one dimension of power, they often mobilize their control over the other two dimensions to protect their interests until they can reestablish control over all three dimensions. The arrows indicate how each dimension reinforces the others:

- An actor with **compulsion** power (control over resources) can use those resources to gain **exclusion** power (changing institutional rules to favor themselves)
- **Exclusion** power allows actors to shape which issues are even considered legitimate topics for discussion, reinforcing their **influence** power
- **Influence** power shapes what other actors believe is possible or desirable, reducing challenges to the powerful actor's **compulsion** power

Actors, Institutions, and Power in Dynamic Interaction

Understanding the role of actors and their agency in nature-society systems requires examining how actors, institutions and power interact:

1. **Actors exercise agency through their use of power:** Actors—whether individuals, communities, firms, or states—make choices that shape nature-society systems. However, their ability to realize their goals depends on their power relative to other actors in the system.
2. **Actors mobilize three forms of power:** As detailed above, actors exercise power through control over resources (compulsion), institutional rules (exclusion), and goals/narratives (influence).
3. **Institutions both enable and constrain:** While powerful actors shape institutions to serve their interests, institutions also create the "rules of the game" that all actors must navigate. Less powerful actors often must work within inherited institutional structures they had little role in creating.
4. **Path dependency emerges from reinforcing dynamics:** The three dimensions of power reinforce one another over time, creating development trajectories that become increasingly difficult to change. Powerful actors use their control over resources to shape institutions, which allows them to influence narratives, which in turn protects their resource control.

Implications for Sustainability

This framework helps explain both why unsustainable patterns persist and how change might be possible:

Persistence of unsustainable patterns: When powerful actors benefit from unsustainable practices, they use all three dimensions of power to maintain the status quo:

- Controlling access to resources needed for alternatives (compulsion)
- Shaping rules to favor existing practices (exclusion)
- Influencing beliefs about what is normal or inevitable (influence)

Possibilities for transformation: Change requires challenging power across all three dimensions:

- Gaining access to resources (addressing compulsion)
- Changing institutional rules and creating new decision-making spaces (addressing exclusion)
- Shifting narratives and beliefs about what is possible (addressing influence)

We will explore the possibilities for transformation in more depth in Part 3 of this course.

Further Reading on Understanding Actors, Institutions and Power in Nature-Society Systems

Foundational Texts on Institutions and Institutional Change

1. **North, D. (1990).** *Institutions, Institutional Change and Economic Performance*. Cambridge: Cambridge University Press.
The foundational text on how institutions shape economic and social outcomes. Chapter 1 provides essential concepts for understanding institutions as "rules of the game".
2. **Ostrom, E. (2005).** *Understanding Institutional Diversity*. Princeton: Princeton University Press.
A comprehensive framework for analyzing institutions. Part II of the book focuses on parsing institutions in order to better understand nature-society systems.

Foundational Texts on Power

3. **Lukes, S. (1974).** *Power: A Radical View*. London: Macmillan.
The seminal work establishing the three-dimensional framework of power that underpins our approach to understanding power in nature-society systems. Essential reading for understanding how power operates beyond observable conflict.
4. **Gaventa, J. (1980).** *Power and Powerlessness: Quiescence and Rebellion in an Appalachian Valley*. Urbana: University of Illinois Press.
The classic empirical application of Luke's three-dimensional power framework, demonstrating how the dimensions reinforce each other in maintaining inequality. Particularly relevant as it examines the same region featured in our Appalachian case study.

Contemporary Applications: Actors, Institutions and Power in Sustainability Science

5. **Clement, F. (2010).** "Analysing decentralised natural resource governance: Proposition for a "politicised" institutional analysis and development framework." *Policy Sciences*, 43(2): 129-156.
Proposes modifications to Ostrom's Institutional Analysis and Development (IAD) framework to better incorporate power dynamics, particularly relevant for understanding natural resource management.
6. **Kashwan, P. (2016).** "Integrating power in institutional analysis: A micro-foundation perspective." *Journal of Theoretical Politics*, 28(1): 5-26.
Develops a framework for understanding how power operates within and through institutions in environmental contexts, bridging political economy and sustainability science.
7. **Avelino, F. (2017).** "Power in sustainability transitions: Analysing power and (dis)empowerment in transformative change towards sustainability." *Environmental Policy and Governance*, 27(6): 505-520.
Examines how different forms of power enable or constrain transformations toward sustainability.

8. **Brisbois, M.C., Morris, M., & de Loë, R. (2019).** "Augmenting the IAD framework to reveal power in collaborative governance – An illustrative application to resource industry dominated processes." *World Development*, 120: 159-168.

Explicitly integrates the three dimensions of power into institutional analysis, showing how power operates through governance arrangements.