Diagnostic Questions for Solving Complex Social-Ecological Problems
A Tool for Community-Based Collective Action

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BACKGROUND & PURPOSE

In order to resolve complex social-ecological problems, the right actors (e.g., individuals, groups, communities, government agencies) need the right set of capacities. They also need to communicate and cooperate with one another. Formal policies and governments can play a significant role in enabling and constraining their ability to do this.

This worksheet consists of diagnostic questions for you to ask in order to explore the strengths and weaknesses of the current policies that govern a particular problem you want to address. These questions are based on "design principles" (common features) believed to be important in a wide range of cases.[1]

There are two major sets of these design principles:

(1) **Principles of State-Reinforcement** include authority, responsibility, operational resources, and flexibility/stability

(2) **Principles of Cooperation** include communication, shared decision-making, monitoring, enforcement, and equity

These principles reinforce one another. An ideal solution will likely address every design principle and ensure the principles work well together. But each situation is unique. Think of this worksheet as providing suggested guidelines—not rules—that can help inform your thinking about the problem you want to address. You will need to revisit the questions repeatedly as you learn new information about the central problem and as the situation evolves over time.

You can use these questions to…

- Discuss the problem with others to learn how they perceive the problem
- Pool your knowledge to identify what you do and do not know about the problem
- Evaluate the current governance of the problem
- Identify leverage points for the improvement of governance
- Reach a consensus or agreement about solution paths

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[1] See research by Elinor and Vincent Ostrom (E. Ostrom, 1990; V. Ostrom, 1994; cf. Cox et al., 2010), Ashutosh Sarker (2013), and Daniel DeCaro (DeCaro et al., 2017; cf. Cosens et al., 2017).

DIAGNOSTIC QUESTIONS

GENERAL QUESTIONS:	
(1)	**Problem:** What is the main problem you are trying to solve?
(2)	**Stakeholders:** Who are the actors involved in the current governance of the issue? Who needs to be involved in developing a solution?
(4)	**Goal:** What is your main goal in addressing this problem?
(5)	**Minimum Required Actions:** What are the most fundamental actions that must be taken in order to adequately address this problem?

STATE-REINFORCEMENT QUESTIONS:	
(1)	Who has: Authority, Responsibility, Resources? Are these adequate and appropriate?
(2)	Who should have: Authority, Responsibility, Resources?
(3)	Are there important kinds of: Flexibility, Stability? Are these beneficial or not?

COOPERATION QUESTIONS:
(1) **Boundaries:** Are the (a) physical, (b) ecological, and (c) jurisdictional (i) boundaries and (ii) dynamics of the focal problem well-defined and well-known by the important actors?
(2) **Communication:** Are the important actors communicating? Is this communication adequate and appropriate?
(3) **Shared Decision Making:** Are the important actors making important decisions together? Are these decision processes adequate and appropriate?
(4) **Monitoring:** Is the dilemma situation being adequately and properly monitored? Are actors' actions being adequately and properly monitored?
(5) **Enforcement:** Are important rules and agreements adequately and appropriately enforced?
(6) **Equity:** Are costs and benefits being shared equitably among the key actors, including those with relatively more power and those with relatively less power?
(7) **Accountability:** Are the proper actors held accountable to one another and/or to constituents?

PROCESS

PART 1: THE PROBLEM

The first step is to understand the problem, who is involved, your goals, and the minimum required actions to resolve it.

Question	Advice/Examples
(1) **Problem:** What is the main problem you are trying to solve?	Be as specific as possible in describing the central problem.
(2) **Stakeholders:** Who are the actors involved in the current governance of the problem? Who needs to be involved in developing a solution?	Try to think of every organization, group, and individual person who has a "stake" in the problem. Who does this problem affect? Who do you perceive to have power in the situation?
(3) **Goal:** What is your main goal in addressing this problem?	What is your overarching goal in addressing this problem? What would an ideal outcome look like?
(4) **Minimum Required Actions:** What are the most fundamental actions that must be taken in order to adequately address the problem?	For example, if the central problem is a lack of green space access, then greenspaces must be made accessible.

PART 2: ACTOR CAPACITIES

Next, it is important to consider who *currently has* particular kinds of authority, responsibility, and resources within the focal problem AND who *should have* particular kinds of authority, responsibility, and resources.

At this point, you will begin to more clearly identify each actor's current and potential role(s) in the solving the problem, as well as the strengths or weaknesses in (a) each actor's capacities and (b) the overall existing governance of the problem. You may find that particular actors lack crucial capacities or that they have too many or too strong capacities.

Generally speaking, an actor or process is more effective when it has sufficient authority, responsibility, and operational resources to make decisions, problem-solve, and act. Important rules and procedures also need to have an appropriate balance of flexibility and stability.[2]

	Question	Principle	Definition	Examples
(1)	Who has: Authority, Responsibility, Resources? Are these proper, appropriate?	Authority	Permission act in order to make decisions and implement solutions.	Decision-making, rulemaking, enforcing, communicating, financing, providing.
		Responsibility	Duties or requirements assigned to or possessed by the actor.	Decision-making, rulemaking, enforcing, communicating, financing, providing.
		Resources	Financial and non-financial resources needed for the actor to operate and fulfill its responsibilities.	Funding, facilities, equipment, property, labor, expertise, data, etc.

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[2] See: (DeCaro et al., 2017; Sarr et al., 2021; cf. Cosens et al., 2017)

(2)	Who should have: authority, responsibility, resources?	Authority	See above	See above
		Responsibility	See above	See above
		Resources	See above	See above
(3)	Are there important kinds of flexibility/stability? Are these beneficial or not?	Flexibility	Policies or processes are context-specific and/or there are clear mechanisms through which they can change.	Range of minimum and maximum requirements, time limits for policies (sunsets)
		Stability	Policies or processes are fixed and/or there are not clear mechanisms through which they can change.	Moratoriums on change, fixed or universal rules and standards

PART 3: COOPERATION

Many complex problems cannot be resolved adequately without cooperation among multiple different government and non-government actors. Such cooperation can take many forms.

Cooperation is more likely to be successful when: the social and ecological dimensions of the problem are well-defined and well-known; key actors communicate, collaborate on important decisions, and monitor the situation and each other; crucial rules and agreements are enforced; and the costs and benefits of the problem, and its governance, are shared equitably among the key actors.[3]

	Question	Further Explanation & Examples
(1)	**Boundaries:** Are the (a) physical, (b) ecological, and (c) jurisdictional (i) boundaries and (ii) dynamics of the focal problem well-defined and well-known by the important actors?	Physical boundaries: households, neighborhoods, cities, communities Ecological boundaries: reach of affected waterways, air quality, soil quality, biodiversity, wildlife Jurisdictional boundaries: dominion of laws, norms, policies, and actors. Think about whether everyone knows and understands the processes that govern the problem AND knows and understands each actor's roles and capacities.
(2)	**Communication:** Are the important actors communicating? Is this communication adequate and appropriate?	This includes any method of information exchange (phone, video, email, in-person meetings, notes, records, reports). Is the amount of communication sufficient? Is communication occurring frequently enough? Is it occurring through proper methods? In the proper tone?
(3)	**Shared Decision Making:** Are the important actors making important decisions together? Are these decision processes adequate and appropriate?	There may be multiple overlapping (or disconnected) decision making processes. Be clear about the kinds of decisions that are being made, and how.

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[3] See: (E. Ostrom, 1990; Ribot et al., 2006; Kemper & Blomquist, 2010; cf. DeCaro et al., 2017)

(4)	**Monitoring:** Is the problem being monitored? Are actors' actions being monitored?	What about the problem needs to be monitored, and who is best suited to monitor?
(5)	**Enforcement:** Are important rules and agreements being enforced?	Are the specific rules/policies that actors are supposed to comply with enforced? How and by whom?
(6)	**Equity:** Are costs and benefits being shared fairly/equitably among the key actors, including those with relatively more power and those with relatively less power?	Costs/Benefits include responsibilities, effort, finances, risks, rewards, etc.
(7)	**Accountability:** Are the proper actors held accountable to each other and/or constituents?	It may be helpful to think in terms of upward (holding superior authorities accountable), downward (holding stakeholders with less authority accountable), horizontal (holding peers accountable)

COMMON FORMS OF DISFUNCTION

(1) Adaptive capacity without cooperative capacity

Well-designed systems ensure both adaptive capacity and cooperation:

State-reinforcement principles provide powers to actors. Cooperation principles provide checks and balances on these powers, helping to build trust and efficacy among actors who might otherwise compete with each other.[4] A common form of disfunction is when a particular actor receives strong state-reinforcement (e.g., authority, operational resources, flexibility), but has no responsibility to cooperate with other actors.

❖ Important stakeholders may try to collaborate but lack essential cooperative capacities.
❖ Many government organizations possess particular powers but lack responsibility to cooperate with other necessary stakeholders.

(2) Too much responsibility

It is common for particular actors to be assigned responsibility to resolve some aspect of a dilemma without being given proper authority or operational resources to fulfill the responsibility.

❖ This is probably the most common form of false decentralization and democracy.

(3) Too little responsibility

Sometimes an actor possesses sufficient authority and operational resources to help resolve a dilemma but lacks responsibility to do so.

❖ This is a common criticism of government agencies in general. Without adequate responsibility, they may refuse to act when action is politically 'risky' or simply undesirable to them.

(4) Underfunded/Undersupplied

Sometimes an actor has sufficient authority and responsibility to act but lacks important operational resources.

❖ Many organizations are underfunded or undersupplied.
❖ An actor may be too reliant on a particular provider or source of resources, threatening the actor's resilience and autonomy.

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[4] See: (DeCaro et al. 2017)

(5) Too fiscally dependent or independent

Actors need an appropriate balance of internal and external operational resources. Actors who lack resources for self-sufficiency may become co-opted by outside sponsors. Actors who are entirely self-sufficient may become unresponsive to the needs and perspectives of other stakeholders.

❖ The proper balance of external support vs. self-sufficiency depends on the situation.

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