

How to Use The IAD Framework: An Application to Elinor Ostrom's *Governing the Commons*

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This summary is organized around
10 analytical steps identified in
“How to Use the IAD Framework,”
Mike McGinnis, Aug. 25, 2012

[<http://mypage.iu.edu/~mcginnis/howtouseIAD.pdf>]

1. Decide if your primary concern is **explanation of a puzzle**
(why does outcome X occur in cases like Y, but not Z?)

or **policy analysis**

(what is likely to happen if current policy A would be replaced by policy B?
What would need to be done in order to implement B?).

Puzzle: Garrett Hardin concluded that all commons are doomed to exhaustion, unless managed by a central authority or divided up into private parcels, yet many such commons persist for very long periods of time. How can that happen?

Policy: What can be done to improve the sustainability of common pool resources? Can similar processes of monitoring and adaptive learning occur in different ways under diverse ownership schemes and governance arrangements?

2. Summarize 2-3 plausible alternative explanations for why this outcome occurs, or why your preferred outcome has not been realized; express each as a dynamic explanation process.

- a. **Tragedy of the (Open Access) Commons:** Resource levels are determined by exogenous forces, since no one has taken responsibility to replenish resources or maintain relevant infrastructure, or if such efforts prove to be insufficient to avoid collapse.
- b. **Privatized Commons:** Individual property owners manage and maintain their own private property in a cost-efficient manner, but need not be concerned about anything beyond that.
- c. **Centrally managed commons:** Rules for use and maintenance of resources are set and enforced by external actors, and local herders respond to those incentives.
- d. **User-managed commons:** All (or most) of the rules for use and maintenance of resources are set and/or enforced by local users.

Note: These are alternative institutional arrangements/processes, not explanations.

3. Identify the focal (or core) action situation(s), the one (or a few) arena(s) of interaction which you consider to be most critical in one or more of these alternative explanations.

1. **Appropriation** of resource, combined with its natural renewal or replenishment.
2. **Maintenance** of resource, including any infrastructural improvements.
3. **Rule-making**, the collective process of formulating rules and procedures for individual participation in appropriation and maintenance activities.
4. **Monitoring** of how closely actual appropriation and maintenance activities satisfy applicable rules and procedures, **and sanctioning** rule violators.

Note: All four of these core processes would need to be completed in any of the institutional alternatives listed on the previous slide.

4. Systematically examine categories of the IAD framework to identify and highlight the most critical (1) actors in positions, (2) rules in use, (3) attributes of communities, (4) types of goods, (5) evaluative criteria, and (6) feedback loops in these focal action situations.

- 1. Appropriation:** Actors (users) may extract resource units from common-pool resource system for personal use (consumption, exchange, or production), may or may not follow rules on level, time, and technology of extraction, may or may not be closely connected to each other in a tight community, and may or may not be able to observe information on quality and quantity of resource available for use.
- 2. Maintenance:** Actors (users and/or others) may or may not contribute time, money, and/or effort to collective activities to replenish resource and/or to construct and maintain infrastructure for resource extraction, may or may not follow rules on level, time, and technology of effort, may or may not be closely connected to each other in a tight community, and may or may not be able to observe information on quality and quantity of resource available for use.

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3. **Rule-making:** External authorities and/or local actors may or may not participate in formulating formal or informal specifications of who has legitimate access to resource system, as well as limitations on level, time, and technology of extraction. Rule-makers may or may not be the same people as those who appropriate or maintain resources, and are generally not able to directly observe compliance with the rules they have written.
4. **Monitoring and Sanctioning:** Those actors who can directly or indirectly observe appropriation and maintenance activities and determine if relevant rules have been violated and then decide whether to impose sanctions on rule violators, may or may not be same people as those who appropriate or maintain resources or who write these rules.

5. Follow the information flow in each of these focal action situations. What sources of information are available to which actors under which circumstances, and what might prevent them from using that information to change the outcomes that result?

- a. **Institutions are all about processes, and decision processes require information.**
- b. **Evaluative processes** (involving individuals, organizations, or informal groups) can take place in any action situation, and evaluations may occur before, during, or after the making and implementation of any of their key points.
- c. **Evaluation** requires access to information, which may or may not be available to local actors or external rule-makers in a timely fashion.
- d. Information may or may not be available in a **timely** manner. Appropriators and those involved in maintenance activities should be able to observe short-term variation in resource availability, but some changes may occur more quickly or more abruptly than they can monitor and evaluate incoming information. Also, actors may not have extensive records on longer-term trends or on the system's viability as a whole; systemic conditions and resource availability may change more quickly than they can adjust their behavior.
- e. Rules tend to change more slowly than the individual choices of appropriators and those involved in maintenance. This disjuncture may lead to significant lags between the emergence of new challenges and the initial response.

6. Locate adjacent (or supplemental) action situations that determine the contextual categories of the focal action situation, that is, outcomes of adjacent situations in which collective actors are constructed and individual incentives shaped, rules are written and collective procedures established, norms are internalized and other community attributes are determined, goods are produced and inputs for production are extracted from resource systems (that may need replenishment), and where evaluation, learning, and feedback processes occur.

- In some situations, the same set of actors may play dominant roles in all four of the core action situations. In such an “idealized” situation of a **user group** as a **self-governing community**, those who appropriate resources are also responsible for replenishing or maintaining that resource, as well as making and enforcing rules on both appropriation and maintenance, and on the way these rules are written and outcomes evaluated. Such “perfect isolation” is hard to imagine in most sectors of a modern political economy, but it does present a standard for comparison.
- Analysis of many, especially smaller-scale, common-pool resource extraction regimes can be completed with little or no explicit reference to any of these supplemental action situations adjacent to the focal action situations. This was the case for most of the studies reviewed by Ostrom. But not for other settings.

6. Locate adjacent (or supplemental) action situations

- **Constitutive Processes:** One important function not explicitly identified in the list above is the **construction of collective actors** who have the authority to act, or whose members act as if they have such authority.
- **Dispute Resolution:** Action situations in which disputes among any of the actor types engaged in focal action situations are brought to some resolution. An especially relevant concern is whether or not “dispute deciders” take into account the interests of the community as a whole in their evaluation of disputes arriving at disputes, or if they rely exclusively on the merits of arguments made on behalf of directly involved parties.
- **Knowledge:** New scientific knowledge is typically generated by researchers not directly involved in focal activities. However, indigenous actors may have access to substantial bodies of local knowledge that may or may not be consistent with current scientific findings.
- **Market Conditions:** The economic value of extracted resource units may vary widely, depending on trends in any of the markets to which these resources are connected, including markets that may be distant from the place of extraction.
- **Political Regime Changes:** Victories by new leaders or political parties or regimes may result in fundamental changes in the rules governing the types of organizations or informal groups that are authorized or allowed to make decisions regarding appropriation, maintenance, rule-making, monitoring, sanctioning, and forming new collective entities.
- **Cultural and Demographic Change:** Driven primarily by exogenous changes in livelihoods and cultural trends, which are unlikely to directly manipulable by any actors, especially in the short term. In some setting these changes may reflect subtle influences on local practices driven by longer-term tendencies driven by globalization.

8. Compare and contrast the ways these linked and nested action situations are interrelated in the processes emphasized by each of your alternative explanations.

Do the same actors write, implement, and enforce rules?

How do outcomes of other action situations shape processes of information flow and evaluation in the focal action situation(s)?

Which incentives or values are reinforced or undermined by outcomes of action situations?

- In **Hardin's tragedy of the (open-access) commons**, only the appropriation/ and natural replenishment action situations are explicitly considered.
- In a **centrally managed commons**, the rule-making function is undertaken by official authorities, who may write rules regarding both appropriation and maintenance. These rules are likely to be based on the recommendations of outside experts instead of those familiar with local conditions. **Any central authority** would need regular access to real-time accurate information on the extent to which resource users follow the rules enacted by this authority. Ostrom's findings suggest that **local monitors** would be needed to make externally imposed rules be effective.
- In a **privatized commons**, appropriation and maintenance activities would be undertaken by each private owner separately, perhaps in conjunction with other owner/users. Exchange of extracted resources would be governed by contract law and other provisions of market regulation. Responsibility for monitoring and sanctioning would typically fall upon police and courts. Externally-driven market dynamics would be an especially important consideration for this case.
- In most of the cases of long and enduring institutions for **community-based management** of common-pool resources discussed in Ostrom's *Governing the Commons*, essentially **the same set of actors is directly involved in all four focal action situations.**

Don't Overlook Chapter 6 (from Lin's Dissertation!)

- The example of **groundwater governance in southern California** involved a diverse array of organizational actors at multiple levels of aggregation
- **Critical contributions made by constitutive, judicial, scientific processes (occurring in adjacent or supplemental action situations!)**
 - Scientific experts in **USGS** clarified danger of saltwater incursion, facilitated cooperation
 - A new law empowered groups to establish new entities, with taxing authority, and allowed to run programs like freshwater infusion
 - **Users used courts to impose constraints on themselves**, by setting up **special water districts**, which restricted use and levied taxes, and resolved disputes over details
 - Raymond Basin actors negotiated agreement based on **mutual prescription** (proportional cutbacks), hold-outs challenged in court, lost, appealed, lost again
 - West Basin Water Assoc. established, sued in 1945, city of Hawthorne as hold-out, decided upon proportional cutbacks, and courts forced hold-outs to comply
 - Combined West-Central Basins District Authority formed to limit pumping, replenish water levels, inject freshwater barrier
 - **Watermaster** played critical role in all legal agreements – source of information and dispute resolution, but not enforcement or sanctioning
- **New institutions were built by an incremental, sequential, self-transforming process of learning and joint discussions, within supportive state (home-rule)**

Design principles specify conditions for the decision processes in common property institutions applied to resource management issues, but each of these conditions may have been established and/or maintained by the **outcomes of multiple action situations.**

- Ostrom concluded that all of the long and enduring institutions in her cases satisfied eight **design principles**. Each of the design principles can be interpreted as attributes of one or more of the core and supplemental action situations identified above. For example, (1) clear boundaries can emerge from constitutive processes, competition among neighboring groups, and local resource knowledge. (2) rule-making will have wide participation if those suffering grievances have dispute resolutions processes available for redress, (3) long-term sustainability can't persist unless appropriation and maintenance rules become congruent with local conditions and values, (4) monitoring done by monitors responsible to the core users will generate useful knowledge, (5) sanctioning applied in a graduated fashion can reinforce shared community values, (6) processes for the resolution of disputes that are widely available and operate at a reasonable cost in time and effort can also reinforce shared values, (7) constitutive processes that can be carried out relatively easily facilitate the establishment and operation of limited-task teams, and (8) organizations established by legitimate constitutive processes will have sufficient autonomy to make meaningful allocations of resources.
- Subsequent research has highlighted other contributing factors that were also present in most of the cases examined by Ostrom, specifically, of **leadership, a shared concern for long-term outcomes, access to timely information, and trust and reciprocity norms**. These additional requirements can be connected to core and supplementary processes if (1) effective leadership is demonstrated in all settings, (2) long-term concerns are incorporated in dispute resolution and other evaluative processes, (3) information is available in a timely fashion for all monitoring and evaluative processes, and (4) trust and reciprocity norms are reinforced by participation in most or all of these processes.

9. Identify the most critical steps for more detailed analysis, by isolating components of adjacent action situations that determine the context currently in place in the focal action situation(s), and that if changed would result in fundamental changes in outcomes.

But remember if you change one contextual factor in one action situation, then you must also incorporate all relevant changes in closely related action situations.

(Ceteris paribus is more complicated in institutional analysis!)

- **Monitoring** turned out to play a surprisingly important role in much of Ostrom's analysis. This means that **evaluation of any policy reform cannot be complete without careful consideration of the means through which these new rules will be monitored, and who will be responsible for conducting and overseeing this monitoring.**
- Processes of **resource extraction and replenishment/maintenance** are very closely related, and it may be critical that the same actors are involved in both sets of activities. Otherwise, it is difficult to give those involved in the former activities the appropriate incentives to complete the latter.
- Different combinations of biophysical conditions, cultural predilections, and rules in use will construct fundamentally different settings for all of the key processes of appropriation, maintenance, rule-making and monitoring and sanctioning, as well as the supplemental action situations identified above.
- The strongest evidence comes from studies with clear research designs allowed for direct comparisons between similar cases. Among the best studies are
 - Comparisons of agency and farmer managed irrigation systems in Nepal
 - Comparisons of protected forests in similar ecological settings but managed under different types of property rights
 - Remote images of the boundaries of protected areas, some of which show sharp demarcations between ecological conditions under different regimes and other boundaries which are more difficult to see

10. Draw upon principles of research design or evaluative research to **select cases** for further analysis by whatever **methods** are best suited to that purpose.

Follow relevant conventions when writing up your conclusions;

DO NOT describe this process of discovery in detail.

- Ostrom's analysis was based on **multiple methods**: a systematic comparison of existing case studies, supplemented by new field research as well as innovative use of game models and laboratory experiments.
- Many of the conditions in Ostrom's list of eight design principles tend to be more easily realized in **tightly-knit communities of users whose livelihood are critically dependent on the continued availability of particular resources** than they can be in larger and more technically complex sectors of a modern political economy.
- All focal and supplemental action situations are **dynamic**, and the feedback processes most critical for each remain a promising subject for future analysis. In particular, more attention could be devoted to understanding processes of **learning** at the individual, group, and organizational levels and their interactions. Of particular importance is consideration of the **time scales** at which endogenous changes and exogenous shocks operate in dynamic resource systems.
- When analyzing proposals to cope with the complexities of **global climate change**, Ostrom emphasized that many different positive and negative externalities can be realized at all levels of aggregation from neighborhoods to the world as a whole. Thus, groups at all levels need to be involved in devising and monitoring practices that can contribute to this overall effort. A full representation of the detailed structure of such a multi-level and polycentric package of policy proposals remains a topic for future research.