

Design Patterns for Customizing Irrigation Governance

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IASC 2011 Panel: Customizing Commons: Methods for Diversifying Institutional Design

Panel Abstract

- How can communities customize commons governance to fit their needs? What processes and tools can help?
- This panel looks at methods useful for communities, and those working with them, in deliberately crafting governance of shared resources.
- It is particularly concerned with learning about techniques and approaches that help in dynamically adapting commons governance to fit community circumstances and goals.

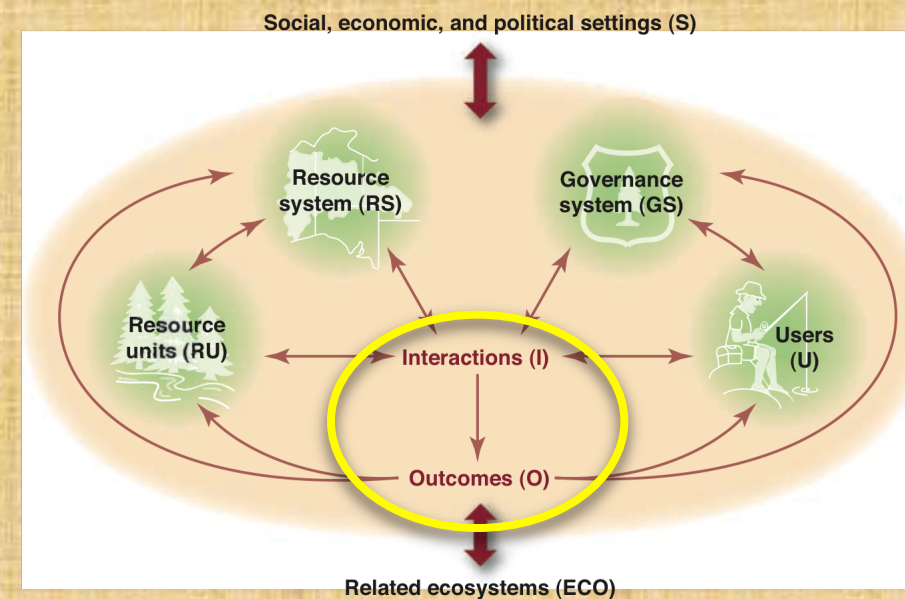


Fig. 1. The core subsystems in a framework for analyzing social-ecological systems.

From: Elinor Ostrom 2009 General Framework for Analyzing Sustainability of Social-Ecological Systems. *Science* 325, 419

Pathways for Problem-solving: Exploring the Adjacent Possible

- Beyond panaceas, and beyond diagnostics:
 - From critique to construction: Assessing and crafting *remedies*
- Understanding institutional design space
 - Regions of danger and desire; attractive landmarks, *design patterns*
- Escaping social traps; solving social dilemmas
 - Transmuting games, navigating to win-win
- What reforms are within reach? Where could we go?
 - Multilinear institutional evolution; *Positive path dependence*
- Emergent and deliberate self-organization (Kauffman)
 - Transition networks; Mapping the *adjacent possible*
- Tools for *institutional artisanship*
 - Diversifying institutional design
 - Customizing commons
 - Crafting co-evolving societies

Design Patterns For Customizing Irrigation Governance

Overview

How can experience with good solutions for institutional design be shared in ways that help customize governance for diverse situations?

- Designing for Institutional Diversity
- Institutional Design Principles
- Design Patterns
- An Example: Graduated Sanctions
- Sharing Patterns in the Semantic Web

Designing for Institutional Diversity

- How to go beyond panaceas to customized solutions crafted by institutional artisans
- Empirical research reveals enormous diversity in local practices, and commonalities
- These have been synthesized in proposed principles for institutional design
 - Ostrom et al.
 - Trawick et al.

Institutional Design Principles - Ostrom et al.

- 1a. CLEARLY DEFINED USERS: Clear boundaries between legitimate users and non-users must be clearly defined
- 1b. CLEAR RESOURCE BOUNDARIES: Clear boundaries define a resource system and separate it from the larger biophysical environment.
- 2a. RULES FIT LOCAL CONDITIONS: Appropriation and provision rules are congruent with local social and environmental conditions.
- 2b. BENEFITS PROPORTIONAL TO INPUTS: Benefits obtained by users are proportional to the inputs required from them.
3. PARTICIPATION IN MODIFYING RULES Collective-choice arrangements: Most individuals affected by the operational rules can participate in modifying the operational rules.*
- 4A: USERS MONITORED: Monitors who are accountable to the users monitor the appropriation and provision levels of the users.
- 4B: RESOURCES MONITORED: Monitors who are accountable to the users monitor the condition of the resource.
5. GRADUATED SANCTIONS: Appropriators who violate operational rules are likely to be assessed graduated sanctions (depending on the seriousness and the context of the offense) by other appropriators, by officials accountable to these appropriators, or both.*
6. LOW-COST CONFLICT RESOLUTION Conflict-Resolution Mechanisms: Appropriators and their officials have rapid access to low-cost local arenas to resolve conflicts among appropriators or between appropriators and officials.*
7. RIGHTS TO ORGANIZE Minimal recognition of rights to organize: The rights of appropriators to devise their own institutions are not challenged by external governmental authorities.*
8. NESTED ENTERPRISES: Appropriation, provision, monitoring, enforcement, conflict resolution, and governance activities are organized in multiple layers of nested enterprises.*

Principles of Community Irrigation

Trawick et al.

1. AUTONOMY OVER WATER - the local community or farmer organisation has and controls its own water flows.
2. CONTIGUOUS IRRIGATION - fields receive water allotments in an order that is systematic and uninterrupted in terms of the movement of water utilisation through space.
3. UNIFORM TECHNIQUE AND FREQUENCY OF IRRIGATION - everyone receives water from any major source with the same frequency, or has an equal chance of getting that opportunity within a specified period of time.
4. PROPORTIONAL RIGHTS AND DUTIES - individual water rights are related proportionally to land ownership, as are accompanying duties to contribute to the operation and maintenance of the irrigation system.
5. TRANSPARENT RULES - the rules for allocation and use of water are known to all users and compliance is capable of being monitored by all.
6. REGULARITY - (CONSISTENCY) the rules for allocation are always the same under scarcity, with no exceptions allowed and unauthorised expansion of the system prohibited.
7. GRADUATED SANCTIONS - penalties for rule violations are severe but vary according to the gravity of the offence.

Design Principles: New Solutions, or New Problems?

- Do institutional design principles become new panaceas, checklists, predefined menus to be imposed?
- If not, what are the alternatives? How to move from diagnosis to participatory prescription?
- Design Principles as questions for discussion
 - Who is included or excluded? How are benefits and costs shared? Who monitors? What happens if someone doesn't follow the rules? ...
- Design Patterns as tools for crafting commons
 - Time-tested examples of good practices
 - Attractive landmarks in a design space of multiple possibilities
 - Better default starting points for institutional design
 - not “one best way” but options to consider and customize

Design Patterns

- A Pattern Language for Architecture.
 - Christopher Alexander, Sara Ishikawa and Murray Silverstein, with Max Jacobson, Ingrid Fiksdahl-King and Shlomo Angel
- 253 patterns distilled from vernacular architecture
- From regional planning to window details
 - CITY COUNTRY FINGERS
 - ... MOSAIC OF SUBCULTURES
 - ... NEIGHBORHOOD BOUNDARY
 - ... FOUR STORY LIMIT
 - ... SACRED SITES
 - ... PROMENADE
 - ... COMMON LAND
 - ... HIERARCHY OF OPEN SPACE
 - ... SMALL WORK GROUPS
 - ... SITTING CIRCLE
 - ... POOLS OF LIGHT ...

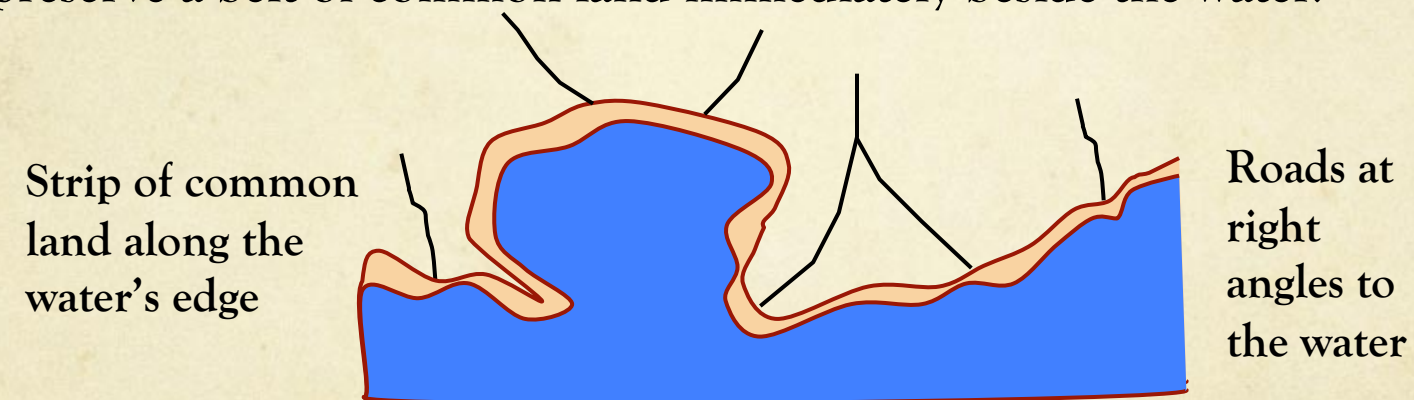
25 ACCESS TO WATER

... water is always precious. Among the special natural places covered by SACRED SITES (24) we single out the ocean beaches, lakes, and river banks, because they are irreplaceable.

People have a fundamental yearning for great bodies of water. But the very movement of people toward the water can also destroy the water

- Either roads, freeways, and industries destroy the water's edge... or it falls into private hands
- People will build places *near* the water because it is entirely natural; but the land immediately along the water's edge must be preserved for common use

Always preserve a belt of common land immediately beside the water.



* * *

The width of the the common land will vary with the type of water and the ecological conditions. ... PROMENADE (31). In another case it may be a swath of dunes...

Abridged from Alexander et al. 1977 *A Pattern Language*. 336-34

Pattern Template

EVOCATIVE PATTERN NAME

Context: may be part of

* * * *

Problem

- Forces to be considered
- Ways the pattern may appear

Solution

Diagram

Examples of the pattern in use

* * * *

Related patterns: alternative solutions; may contain

Notes

Sources

An Example: Graduated Sanctions

GRADUATED SANCTIONS

... in enforcing rules

Penalties are necessary, but overly strict punishments are unworkable

- Customary governance often relies on subtle sanctions, e.g. gossip, reputation
- People may break rules due to ignorance, misunderstanding, ambiguous wording, or special circumstances
- Punishing neighbors and relatives is difficult, but sometimes necessary

Start with warnings and then mild penalties, with more severe punishments for repeated, deliberate violations

Initial violations may be met with verbal explanations and warnings, followed by small fines (token or symbolic), with substantial fines only imposed after repeated offenses

Related to: RESOURCES MONITORED

A More Specific Example:

COLLECT FEES AT HARVEST

... as part of irrigation resource mobilization, in rice-growing societies

• * * *

Watermasters and canal guards sometimes have crucial roles in delivering irrigation water, that require compensation, but collecting fees can be time consuming and socially stressful

- Rural incomes are low and irregular
- Formal WUAs often establish routine monthly cash dues,, with poor results
- Pursuing individual fee collection is unpleasant, and often creates tension and avoidance
- During harvest, farmers usually happy and have rice (paddy) or income from selling rice

Collect fees at harvest time, in kind, in the field, particularly for services such as from canal guards and watermasters

**Threshing floor
built in fields**

**Pile of
Rice stalks**

Watermasters may visit families in the field or at home, while the harvest is going on or recently completed, and collect a fee, often in kind, that compensates for their services. This may be a traditionally specified amount per unit of land or crop, or a quasi-voluntary donation that lets the giver express how satisfied they are with the services

* * * *

Related patterns: CONTRIBUTIONS IN KIND, TARGETED RESOURCE MOBILIZATION,
SEASONAL CANAL CLEANING,

Semantic Web

- Wikis
- Structured information
- Semantic Mediawikis
- <http://designingcommons.referata.com>

Conclusions

- Diversifying institutional design
- Design Patterns
 - To explain and share good examples
 - To expand the options for consideration
 - As tools for crafting commons
- Possible next steps
 - <http://designingcommons.referata.com>
 - Patterns for institutional design principles
 - Patterns for water distribution: warabandi, proportional division, upstream first, bethma, atars, ...