Sustainable Management of Common Pool Resources

Common pool resources, such as forests and fisheries, are finite – one person's use subtracts from what is available for others. While some common pool resources are small and localized, many have a global span with open access to any who wish to draw from them. Although researchers have warned that our common future is endangered if we do not find ways to conserve our global resources, massive degradation of earth's ecosystems and the services they provide has continued at alarming rates.

Figure 1. Examples of Common Pool Resources	
Fisheries	Irrigation systems
Forests	Groundwater basins
Lakes	Pastures and grazing systems
Oceans	The Earth's atmosphere

Is overharvesting and resulting collapse the inevitable future of global open access resources? SANREM researcher and Nobel Prize winner Elinor Ostrom has assessed both successful and failed efforts to govern common pool resources. Her research has identified several important barriers to sustainable management and determined critical design characteristics of successful resource governance. These findings suggest that although the obstacles are many and large, there is hope for sustainable governance of our common-pool resources.

No "cure-alls"

There will not be a single, comprehensive global solution to the dilemma of governing common pool resources because the resources themselves are different. Solutions that may work in some circumstances will fail in others. Top-down approaches will not succeed, and "quick fixes" may do more harm than good. Local niche solutions developed in collaboration with the resource users have the best chance of achieving sustainability. (See Figure 2)

Figure 2. Turtle Islands in the Philippines

The history of sea turtle egg conservation on Turtle Islands provides a tragic illustration of the importance of locally-adapted versus externally-imposed solutions. Egg conservation steadily increased for over a decade under the Pawikan Conservation project, a collaboration between outsiders and local fishers and officials. However, in 2001 the national government passed the Wildlife Resources Conservation and Protection Act. Informed by international conventions that emphasize the protection of endangered species, the law banned any collection of marine turtle eggs. The strict but unenforceable national law superseded the local conservation system, and turtle egg harvesting accelerated dramatically -- in just one year turtle egg conservation dropped from an estimated 80 percent to 40 percent.

Green sea turtles are endangered due to egg collection for food, pollution, and entanglement in fishing nets.

Basic requirements for governing diverse commons:

Accurate and relevant information – An accurate understanding of the relationship between humans and the environment is imperative for developing appropriate governance. Because many factors affect a commons change over time, data must be frequently updated and policies adapted accordingly.

Capacity to deal with conflict – Conflict among stakeholders is highly likely -- both resource users and their officials need access to low-cost, local conflict resolution arenas. Preparing for conflict can prevent an eruption of major problems, which could destroy the resource governance system.

Mechanisms for enhancing rule compliance – People will cooperate more with localized policies that are adapted to their culture. Rules must be monitored and enforced. The resource users will ideally have some monitoring responsibility and those monitors should be at least partially accountable to users or be users themselves. (See Figure.3)

Technological, physical, and institutional infrastructure Investment in the necessary infrastructure will enable and sustain good management of commons. However, an emphasis on infrastructure that is not adapted to the local context will likely cause more harm than benefit.

Adaptation and change – any arrangement to manage a common-pool resource must have the flexibility to fix errors and respond to new developments.

Figure 4. Community Timber in Uganda

Elinor Ostrom's SANREM CRSP research team studied a successful collaborative forest management group in Sango Bay, Uganda. The "Save the Forest" association, formed by residents of Mujanjabula and Mugamba settlements, carry out joint patrols with the National Forest Authority. They have also planted a community woodlot and plant trees for timber and medicinal purposes. The forests managed by the association have low levels of illegal activities and the forest conditions continue to improve. The SANREM team organized visits for leaders of other Ugandan forest communities to see and learn from Sango Bay's locally developed collaborative forest management.

Figure 3. The Maine Lobster Industry

Collaboration between local fishers and the state government of Maine has developed effective and sustainable management of the region's lobster industry, which is in better condition now than it was in the nineteenth century. Conservation laws passed by the state legislature protect juvenile lobsters and breeding stock and also limit the number of traps. Fishers created territorial rules assigning fishers to locations in harbors near where they live, which allow the fishers to effectively monitor each others' catches. Efforts to create a similar system to limit lobster overharvesting in the Caribbean have so far been unsuccessful.

Other characteristics of successful governance schemes:

- Clearly defined boundaries of the resource system and clearly defined harvestable resource units
- Proportional equivalence between benefits and costs for the users, taking into account the local context
- Collective-choice arrangements that include many of the individuals affected by harvesting and protection rules in the group who can modify these rules (See Figure.4)
- Graduated sanctions
- External government authorities recognize the rights of users to organize and develop their own institutions
- Nested management arrangements for resources that are parts of larger systems

More information: Ostrom, E. 2008. The challenge of common-pool resources. Environment 50(4): 8-21. http:dx.doi.org/10.3200/ENVT.50.4.8-21

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