Summary Prepared by Jonathan Blavin, Junior Fellow.

COPING WITH TRAGEDIES OF THE COMMONS: LOCAL LESSONS, GLOBAL CHALLENGES

Professor Elinor Ostrom
Co-Director, Center for the Study of Institutions, Population, and Environmental Change
Workshop in Political Theory and Policy Analysis
Indiana University

On February 25, 2000, Professor Elinor Ostrom spoke in the Managing Global Issues Seminar Series. She presented a broad overview of research that is being carried out on the earth's global common spaces—that is, domains that are not a part of any particular state, but are "shared" by all states. Traditional global common spaces are the world's oceans, Antarctica, the atmosphere, and outer space. She argued that with the advancement in modern technology, new common spaces such as the Internet have emerged. Professor Ostrom's presentation focused on the gap between scholarly research on the commons and national and international policies towards commons.

The Basis of Current Policies

Professor Ostrom began her presentation by describing the theoretical underpinnings of current policy recommendations on managing the global commons. Current policies are entrenched within the belief that users of commons inevitably become trapped in tragic overuse as described by Garrett Hardin's famous essay, "The Tragedy of the Commons." Hardin's essay describes a traditional English village pasture open to all, where herdsmen can freely graze their cattle. Each herdsman, however, has the incentive to graze as many cattle as possible in order to obtain greater profits from their sale. The consequence is that the herdsmen become trapped in a race to increase their herd on what is a finite piece of pasture land, and herein lies the tragedy. The carrying capacity of the pasture eventually is exceeded and the negative effects of overgrazing becomes a detriment to all users.

In conceptualizing Hardin's description of the tragedy of the commons, Professor Ostrom defined common-pool resources as those that generate limited amounts of highly valued resource units. In other word's, one person's use subtracts from the quantity of resource units available to others. For many such resources, it is also difficult to exclude beneficiaries. Faced with the tragic overuse of commons, current policy prescriptions maintain that an external authority must impose new rules on the commons. These prescriptions are limited to two possible outcomes: common spaces become owned by the government or are turned into private property.

Professor Ostrom highlighted the basic assumptions of contemporary policy prescriptions. She first argued that such prescriptions present a narrow model of the individual. Resource users are believed to be norm free, short-term maximizers of selfish gains. Conversely, government officials are assumed only to be interested in maximizing public interest. Current policies also rely heavily on the feasibility of designing optimal rules through modeling and analysis. Finally, such policies maintain that governing organizations require a central direction. Professor Ostrom argued that all three basic assumptions are incorrect and provide a poor foundation for public policy. The narrow model of the individual does not take into account resource users who genuinely care about preserving common spaces for the long term, or government officials who are interested in maximizing their own gains. Furthermore, although utilizing models is helpful in developing policy recommendations, model analysis becomes increasingly difficult in complex, global environments.

Successful Self-Organized Instances of Commons Management

Professor Ostrom countered these policy assumptions by describing instances where local and regional resources are managed in a sustainable manner by users. Examples include the lobster fisheries in Maine as well as farmer managed irrigation systems in Nepal, India, the Philippines, Korea, and Taiwan. There is a great deal of empirical research that goes against the assumptions underlying contemporary policy prescriptions. Within the academic world, consensus exists on certain attributes of common pool resources and users that are conducive to an increased likelihood that self-organized management will occur. These characteristics are listed below.

Characteristics of a Resource Conducive to Self-Organized Management

- *Feasible improvement:* Resource units are not at a point of deterioration such that it is useless to organize or so underutilized that there is little advantage from organizing.
- *Indicators:* Reliable and valid indicators of the condition of the resource system are available at a relatively low cost.
- *Predictability:* The flow of resource units is relatively predictable.
- *Spatial extent:* The resource system is sufficiently small, given the transportation and communication technology in use, that Users can develop accurate knowledge of external boundaries and internal microenvironments.

Characteristics of Users Conducive to Self-Organized Management

- *Salience:* Users are dependant on the resource system for a major portion of their livelihood or value it highly for other purposes.
- *Common understanding:* Users have a shared image of how the resource system operates and how their actions affect each other and the resource system.
- *Discount rate:* Users use a low discount rate in relation to future benefits to be achieved from the resource.
- *Distribution of interests:* Users with higher economic and political assets are adversely affected by a lack of coordinated patterns of appropriation and use.
- *Trust:* Users trust one another to keep promises and relate to one another with reciprocity.
- *Autonomy:* Users are able to determine access and harvesting rules without external authorities countermanding them.
- *Prior organizational experience:* Users have learned at least minimal skills of organization through participation in other local associations or learning about ways that neighboring groups have organized.

The different attributes of resources and users are linked to one another; their collective consequences affect the benefits and costs of institutional change for self-organized management. In general costs tend to be higher when a resource is very large or boundaries are difficult to mark; a resource is unpredictable; users have not developed trust and reciprocity; and users do not have prior experience with self-organization. On the other hand, benefits tend to be higher when users are dependent on a resource and users have a low discount rate. In sum, the attributes of common pool resources and of individual users affect both benefits and costs. If the immediate perceived costs of organizing outweigh the long-term perceived benefits to those who make local rules, overuse of a resource will occur, possibly leading to a tragedy of the commons.

The institutional capacity of a regime is also an important variable in the management of common pool resources. In particular, larger institutions facilitate self-organization when they provide or recognize accurate information, arenas in which participants can engage in discovery and conflict

resolution processes, and finally mechanisms to back up local monitoring and sanctioning efforts.

Theoretical Advances

Although there are still some theoretical puzzles that have not yet been fully resolved within scholarly circles (such as how the size or the heterogeneity of a group of users affect managing commons), nevertheless important theoretical advances have been made within the field. In particular, there have been great strides in theories of human behavior and social relations. Researchers now understand human rationality as being embedded within a particular social context. Humans draw upon their inherited capability to learn social rules. These findings go against the policy assumptions that defined Users solely as self-interested, resource maximizers.

Furthermore, in studying social relations amongst groups, it has become apparent that reciprocity is a social norm that is supported by trust and reputation. Rules have also shown to be important tools for improving relations in future commons issues. These theoretical advances highlight the complexity of human behavior and provide a more sophisticated view of common pool resource management.

Challenges and Lessons for
Global Common Resource Pool Management

The global commons (i.e. oceans, atmosphere, Antarctica, Internet, etc.) present more complex challenges than self-organized, local/regional commons management. Overall, global commons management requires more people and higher transaction costs. Furthermore, the involvement of national governments—instead of local communities—can either help or hinder global commons management. The addition of different societies with different cultures can improve commons management, adding diverse ways of coping with problems, but such diversity can also decrease the likelihood of finding shared interests.

The global commons are also frequently interlinked. Solving global warming by planting new trees might complicate efforts to preserve biodiversity. Tackling two global commons simultaneously might be mutually exclusive. Additionally, accelerating rates of global change—such as population growth or technological advancements—can have positive and negative consequences. And finally, unanimity is required for international treaties—without the involvement of all relevant parties the possibility of strategic holdouts increases.

There are, however, important lessons that are transferable from self-organized commons management to global commons management. Professor Ostrom presented a summarized list of key lessons. First, there is a need to pay special attention to measuring variables in empirical studies so that growing theoretical consensus is empirically grounded. Second, it is not whether all attributes are favorable but the relative size of the expected benefits and costs as perceived by participants that most influences the chances of self-organized management. Finally, external authorities can enhance or impede the likelihood and performance of self-governing institutions. For successful external interventions in commons management, parties need to respect the time and place of local users; involve local users in the physical design of new infrastructure (physical capital); involve local users in the design of rules (social capital); provide funds for the purchase of materials that enhance local resources; require users to contribute time and effort; take the time to develop a coherent management strategy; and finally teach long-term skills rather than short-term fixes.

Recommendations for the Future

When users cannot communicate and have no way of gaining trust through their own efforts or with the help of a larger political system, the tragedy of the commons is likely to occur. If users can engage in face-to-face bargaining and have autonomy to change their rules, they may organize and beat the tragedy of the commons. Whether they do this depends on attributes of the resource system and the users themselves. Long-term success ultimately rests on whether the institutions designed are consistent with design principles underlying robust, long-living, self-governed systems.

In order to better combat the tragedies of the commons and to create an effective framework for global commons management, researchers, policy makers, and resource users must engage in the following activities.

Researchers Need to Do:

- in-depth case studies to understand complex interactions in field settings
- large N studies to test relative importance of diverse variables
- experimental studies of focused questions
- over-time studies given dynamic nature of problem

Policymakers Need to Develop:

- legal environments that enable users to take responsibility
- sources of accurate information about resource conditions
- fair, low-cost courts and other conflict- resolution mechanisms
- programs that increase benefits that local users can achieve
- efforts to find mutual interests across national lines

Resource Users Need to:

- create associations to share information
- search for ways of increasing the benefits of working together
- find ways of reducing the costs
- draw on cultural endowments and knowledge of local resources to find innovative institutions that fit local conditions