

Profile of Elinor Ostrom

Born in Los Angeles in 1933, Elinor Ostrom experienced firsthand the value of sustainability at a young age. She grew up in an era of economic depression that led into a resource-consuming war, in a city where fresh water was a prized commodity. “My mother had a victory garden during the war,” she recalls, “so I learned all about growing vegetables and preserving them by canning, and that was a wonderful experience that a lot of urban kids don’t ever learn.” These early real-world lessons also revealed another important fact of life to Ostrom: that most people, when presented with a resource problem, can cooperate and act for the common good.

Ostrom, the Arthur F. Bentley Professor of Political Science at Indiana University (Bloomington, IN) and cofounder and codirector of Indiana University’s Workshop in Political Theory and Policy Analysis, has studied how self-organization and local-level management works to keep common resources, whether natural (e.g., forests) or man-made (e.g., police forces), viable. Combining data from diverse sources ranging from classical techniques such as surveys to modern advances such as satellite imagery, Ostrom has uncovered numerous principles that govern successful sustainability and that defy conventional beliefs.

Elected to the National Academy of Sciences in 2001 and a member of the PNAS Editorial Board, Ostrom discusses her insights for effective forest management in her Inaugural Article in this issue of PNAS (1). From the Amazon basin to the Arctic Circle, forests provide an abundance of resources (timber, fuel, minerals, food, and tourism) yet face rapid depletion. Using social and ecological measurements in conjunction with computational predictions of human decision-making, Ostrom highlights the conditions that allow for the most productive tenure arrangements, but she stresses that no single governance policy can control overharvesting in all settings. In a reverse of a popular idiom, her work underscores that it is critical to see the trees for the forest.

The Great Debate

Whereas most individuals find their path by playing to their strengths, Ostrom’s course in life was set by a perceived weakness: stuttering. To help her overcome this speech impediment, Ostrom’s high school placed her on the speech team. Her first assignments involved orating poetry, which received some playful ribbing from other team mem-



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bers, but soon she was debating and extemporizing with the best of them. “Debate was absolutely a fabulous thing to learn in high school,” she says, “especially for appreciating that there are at least two positions to every issue, and you have to understand the arguments on both sides, because on a debate team they assign a side to you.” Debating matters of policy resonated especially well with Ostrom. She recalls watching the Joseph McCarthy hearings on her family’s first television set and getting involved in a substantive disagreement with her mother. Perhaps not surprisingly, as soon as she was allowed to choose an undergraduate major at the University of California, Los Angeles (UCLA), Ostrom gravitated toward political science.

After graduating with her bachelor’s degree in 1954, Ostrom moved east and spent 3 years as an assistant personnel manager for a law firm in Boston. She arrived to a staff where everyone was Caucasian and Protestant or Catholic, but when she left, the office ranks included a diversity of ethnicities and religions. “I didn’t integrate the entire place by any means,” she says, “but I felt that I had made a difference.” She then returned to Los Angeles and began a job at UCLA’s personnel office. “Then I decided I would take one course a semester and get my master’s of public administration,” she says, “and I got trapped. My courses were so fascinating that I decided to quit my full-time job and go back to graduate school, at a time when women didn’t go to graduate school.”

For her dissertation, Ostrom discussed an issue quite pertinent to southern California: water management. In 1945, some individuals in western Los Angeles noticed that water quality from one of the key groundwater basins under the city seemed to be declining. Salt water was found to be intruding into the system. A few individuals formed a water association to try to solve this problem. “They bargained in the court; they created a new set of rules; they established a water replenishment district, and then started injecting water along the coast. It was incredible,” she says. “If the salt water intrusion had continued for a few more years, the basin might never have been recouped.” In what would become a long-term theme for Ostrom, this experience taught her how disparate individuals could collectively band together to protect a common resource.

In graduate school, Ostrom met her future husband, fellow political scientist and like-minded individual Vincent Ostrom. After a brief stint in Washington, DC, where Ostrom finished her dissertation while Vincent worked with the think tank Resources for the Future, they relocated to Indiana University in 1965, where Vincent accepted an offer from the political science department. Ostrom began looking for her own employment at the university and notes it was fortunate that Indiana University did not have any nepotism rules as in the University of California system. “If [Vincent] had gone back to UCLA as faculty, I would have been precluded from any position,” she explains. Ostrom’s first opportunity was not particularly spectacular. “They asked me to teach ‘Introduction to American Government’ on Tuesday, Thursday, and Saturday at 7:30 a.m.,” she says. “How could I say no?” But the position eventually evolved into a full-time, tenured track position.

Laying the Workshop’s Foundation

One of the first projects Ostrom undertook at Indiana University was an examination of an urban resource arguably as valuable as water: the police. At the time, a prevailing presumption for urban services like policing was that they underwent economies of scale and that a large centralized department would be most efficient for a city. Her project be-

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gan modestly enough, with a performance comparison of one large and three small police departments that differed in size but served comparable middle-class neighborhoods in Indianapolis. Similar projects then followed for neighborhoods in Chicago and St. Louis, which eventually paved the way for a large-scale comparison of 80 metropolitan areas. The end results of this 15-year collaborative effort revealed several important conceptual processes of urban policing and turned widely held presumptions on their head.

“The presumption that economies of scale were prevalent was wrong; the presumption that you needed a single police department was wrong; and the presumption that individual departments wouldn’t be smart enough to work out ways of coordinating is wrong,” Ostrom says. Most aspects of police work in fact experienced diseconomies of scale (2). “For patrolling, if you don’t know the neighborhood, you can’t spot the early signs of problems, and if you have five or six layers of supervision, the police chief doesn’t know what’s occurring on the street,” she explains. On the other hand, other areas such as dispatching and crime laboratories showed positive economies of scale, and technological advancements have helped those areas to improve (3).

On the whole, polycentric arrangements with small, medium, and large departmental systems generally outperformed cities that had only one or two large departments (4). Considering that there were discussions to reduce the number of police districts from 40,000 to approximately 400 at the time, with no data to support it, Ostrom’s research came at an opportune time. “I’m not thrilled with everything going on in modern policing,” she says, “but I do think in this regard we made a big difference.”

The integrative nature by which Ostrom acquired her data—combining theoretical models, official records, and innovative field research—underscores her deep commitment to the broader focus of issues such as resource management. She firmly believes that concepts from other social sciences, such as economics, should be applied to political theory. “However, the disciplinary huts of many modern universities do not really enable one to have effective intellectual exchange across disciplines,” she says. Such was the environment at Indiana University when Ostrom and her husband arrived. In an effort to remedy this limitation, they planted the seeds for what would become their greatest legacy to the university.

Principles, Not Rules

In 1969, the Ostroms began an informal seminar that met once a week (and still meets every Monday at noon) to discuss topics intersecting the fields of political science, economics, and sociology and to provide a forum for the exchange of ideas. Over the next few years, as attendance grew and Ostrom began conducting her collaborative studies on urban resources, she and Vincent thought their seminar was ready to expand. “The University of Chicago already had a tradition of having continuing enterprises for 7–10 years on a topic that wasn’t within a real discipline,” she recalls, “and that served as part of our inspiration.” Another inspiration rose from their interactions with furniture craftsmen, which also resulted in an article Vincent would later write on artisanship and artifact (5). “Learning science at a university was very much like learning a craft,”

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Ostrom says. “We teach our students the best of what we know. Essentially it’s a form of artisanship,” she says. With that artisan’s image in mind, the Workshop in Political Theory and Policy Analysis was born in 1973.

Settling into four houses in a historic district near campus, the Workshop became a center where Ostrom and her colleagues could coordinate their long-term policy projects. Like the artisan enclaves for which it was named, the Workshop soon outgrew its original aim. Postdoctoral fellows, graduate students, and undergraduates became interested in working in a cross-disciplinary study in a supportive environment. Curious individuals arrived from all corners of the university and beyond, and today the Workshop encompasses fields such as business, anthropology, and biological sciences. Meanwhile, visiting scholars of the Workshop, enraptured by its supportive atmosphere, often keep in close contact after they leave, extending the Workshop’s network. In 1981, the Workshop reached an international stage after Ostrom and her husband had the opportunity to spend some time at the Center for Interdisciplinary Research in Bielefeld, Germany. The two sister schools have remained close ever since.

While the first journey to Bielefeld cemented the Workshop’s far-reaching

status, Ostrom’s second trip in 1988, at the invitation of Nobel-winning economist Reinhard Selten, paved the way for her own groundbreaking work, at least in terms of public recognition. Ostrom had recently participated in a National Research Council study of common-pool resources, shared goods such as watersheds, irrigation systems, and fishing grounds. Through the project, she had collected a vast number of examples of shared resources from across the globe. Her desired goal was to compare how different common-pool resources were managed at local levels and to hopefully uncover the rules that defined successful common-property arrangements. “I tried like mad to find some common set of rules,” she says, “but I just couldn’t find them. I found private property that worked, communal property that worked, government property that worked, and all three that were failures.”

Taking a step back, though, Ostrom did spot the occurrence of multiple design principles. “Think about architecture,” she says. “Students learn design principles such as making entryways broadly accessible and keeping kitchen smells away from bedrooms. Then they have blueprints, which are very specific ways of applying those principles.” So although Ostrom discovered no set of common-pool resource blueprints, she found that ideas such as maintaining clearly defined boundaries and collective efforts to monitor inappropriate behavior repeatedly presented themselves in successful common-pool resource regimes. In 1990, her collected efforts appeared in her book *Governing the Commons* (6), a work that once again set aside conventional wisdom that either privatization or government control was the best arrangement for managing common property.

Beyond Panaceas

On the heels of *Governing the Commons*, Ostrom began examining specific types of common resources in more detail. “I started working with colleagues in Nepal, and together we developed a large database on irrigation and developed a whole series of studies just on that,” she says. The results of that work showed that farmer-managed systems tended to be superior to government-managed ones (7, 8). In 1992, the United Nations Food and Agriculture Organization (FAO) asked Ostrom to study forestry resources, and since then she has spent a considerable amount of time with the International Forestry Resources and Institutions (IFRI) program (9).

As in her previous studies, Ostrom has taken a comprehensive approach to

studying common resources, as summarized in her research on forests in her PNAS Inaugural Article (1). The most fantastic addition to her repertoire has been the use of remote satellite sensing, which allows for direct observations of how different management regimes affect forest area and conditions. Ostrom again notes that concepts such as local-level monitoring help ensure forest sustainability. This recurring theme of user-level management is especially promising for sustainability because it counters the gloomy future envisioned by the “tragedy of the commons,” the concept wherein human desires to maximize individual rewards inevitably destroy long-term resource viability, she says.

“Now I’ve seen in laboratory settings and the field settings that some people can be a real son of a gun, but most individuals are nuanced beings [who] can have real preferences about the welfare of others. If presented a situation where they can evolve trust and reciprocity, they will do so,” she says. This nuanced aspect is critical, however, because Ostrom is wary that some people may apply her findings too broadly. “Some people have told me that our work is the reason they are advocating decentralization,” she says, “but I’m not too happy with that because they’re advocating it in too simplified a way.”

Ostrom hopes to garner attention to the potential dangers of having set guidelines encompass all members of a

particular resource, be they forests or fisheries. She and several colleagues will in fact contribute their findings and thoughts in this regard in an upcoming PNAS Special Feature titled, “Beyond Panaceas.” She says, “The problem with these cure-alls is that they presume that humans do not have the ability to craft, even though they have a system of law and the courts that provides an arena to do so.” Ostrom knows this idea is another incorrect presumption. As someone who has spent more than three decades running an extremely successful workshop on cross-disciplinary policy analysis, she knows humans can craft solutions just fine in the right surroundings.

Nick Zagorski, *Science Writer*

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