Goodman Institute
Turning Ideas Into Policy

Environmental goals are more reliably achieved when government's role is made smaller.

The New Resource Economics

Using Private Property, Economic Incentives, and Markets to Solve Environmental Problems

John Baden is an intellectual entrepreneur. Together with his colleagues in Bozeman, Montana, he pioneered a new approach to environmental policy. It harmonizes three values: ecology, prosperity and liberty.

The conventional approach is to assume that government ownership and government regulations are necessary correctives to perceived "market failures." The new approach recognizes that "government failures" are a curse that can be just as bad and sometimes worse. (For example, government-subsidized dams diverting ecologically-valuable water to subsidized crops.)

John Baden, Ph.D., founder and chairman of the Foundation for Research on Economics and the Environment (FREE)

Under the banner of the New Resource Economics, scholars have shown that important environmental goals are more reliably achieved when government's role is made smaller and when property rights, freedom of contract and entrepreneurship are central features of environmental policy.

Romance vs. Sludge.

Environmental policy typically occupies two realms. The pictures of nature featured on calendars reflect romance. This sector includes parks, wildlands, range, wildlife, and water. All are attractive features of our natural environment. The nasty stuff emitted from pipes, stacks, and mines is the sludge. It's material people seek to minimize and avoid.

Although the basic principles apply to both realms, those working with the New Resource Economics (NRE) tend to focus on the romance sector. It's no accident they live in Bozeman and within the boundary of the Greater Yellowstone Ecosystem, a 20-million-acre area surrounding Yellowstone National Park.

Tragedy of the Commons.

In a classic 1968 article, Garrett Hardin argued that most environmental problems stem from a single cause: the misuse of resources that are owned in common. Since the air, the water, most species of wild mammals and fish and public lands have no private owners, their protectors are government agencies.

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The use of these resources generates private benefits while their misuse results in widely-shared costs. Thus, people who use the "commons" bear only a small portion of the social costs of their personal actions.

The problem is not new. It has been around for as long as human beings have occupied the planet. Take the case of commonly-owned grazing land. If a

single cattle herder conserves some grass for the coming year, the odds are small that he will derive any benefit from that action — since the grass is then available for consumption by the other herders' cattle. With commonly-owned grazing land, no single herder can reap the full benefits of his "good" behavior. Nor does he bear the full costs of his "bad" behavior. Thus, all herders find it in their self-interest to overgraze the land, even though in the long run all are worse off.

Of course, people in traditional grazing cultures were not stupid. They understood the consequences of overgrazing and other problems of the commons, and they developed a great many different arrangements to reconcile individual interests with the common good. Prof. Elinor Ostrom of Indiana University received a Nobel Prize for her studies of how traditional societies managed common pool resources.

Government as a Commons.

It is only natural to think that the problem of the commons can only be solved with rules and regulations designed and administered by governments. As Ostrom showed, small tribes and villages successfully evolved collective decision-making to manage common pool resources. And, what we will call the "old resource economics" accepted the rule model for modern societies.

However, bureaucratic government is itself a type of commons. The governmental budget is a common pool resource. Politicians and lobbyists pursue private benefits paid for by costs imposed on citizens and on their environment. So, transferring the problem to government often consists of little more than transferring the problem from one commons to another – a transfer that may make the original problem worse.

Even if we empowered a monopoly bureaucrat, insulated from all political pressure, to manage our parks and forests and rivers and streams, certain difficulties will persist. In the absence of the information conveyed by market prices, the bureaucrat has no way of knowing how people value all the many policy options she confronts. Competitors with better ideas have no way of replacing her. Innovation and creativity are constrained by her abilities alone, since few entrepreneurs have access to her domain.

Worst of all, the bureaucratic manager does not bear the full costs of bad decisions or reap the full benefits of good ones. Based on these incentives alone, we are likely to have too many bad decisions and too few good ones. As a general rule, bureaucrats have greater incentives to maximize their discretionary budgets than to sustain ecological services.

The New Resource Economics.

A decade after his seminal work, Hardin teamed with John Baden to produce a collection of papers in Managing the Commons. Hardin was a microbiologist and Baden was an economic anthropologist. Both were exploring intellectually-uncharted territory. To help do that, they brought together, for the first time ever in a serious way, ecologists and economists who were willing to learn from each other.

The contributors included a future Nobel Prize winner (Ostrom), a former president of the American Economics Association (Kenneth Boulding) and the cofounder of the Public Choice School of Economics (Gordon Tullock). Also participating were three environmental economists (Richard Stroup, Terry Anderson, and PJ Hill) who joined with Baden to form a think tank that began on the campus of Montana State University and later evolved into the independent Property and Environment Research Center (PERC). Along the way, Baden formed the Foundation for Research on Economics and the Environment (FREE). It did similar work and reached out to important opinion leaders

(from left): John Baden, Terry Anderson, P.J. Hill, and Richard Stroup, PERC scholars circa 1980

and decision makers, including several hundred Article III federal judges.

What emerged was a way of thinking about environmental issues that combined neoclassical economics, public choice theory and Austrian economics. It was an intellectual revolution. In 1991, 76 scholars from 64 colleges, universities, think tanks, and research organizations participated in a task force report – reflecting the new way of thinking.

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Public vs. Private Choices.

In the world today, there are almost 200 governments and more than 7 billion people. Too many environmentalists look to the 200 governments to solve problems, while ignoring the role of the 7 billion people. Historically, however, the record of government has been disappointing. For example:

- The U.S. Forest Service has used taxpayer money to build roads (nationally, eight times the total mileage of the U.S. Interstate Highway System) into ecologically fragile areas in the Rocky Mountains and Alaska to make the areas available for logging.
- The Bureau of Land Management subsidized the destruction of three million acres of wildlife habitat by using huge chains, which uproot everything in their path, to create more grazing land for livestock.
- The Bureau of Reclamation's mismanagement transformed the Kesterson Wildlife Refuge in California from a fish and wildlife sanctuary into an environmental disaster — where the pollution killed largemouth and striped bass, catfish and carp, and caused newly-hatched birds to develop crippling deformities.

Note: in all three cases, these environmental harms would never have occurred but for the role of government!

In countries where government has complete control of the environment, the results have been even worse. Before the breakup of the Soviet Union, Russia and its satellite countries used three times as much energy to produce a dollar of output as market-based economies, and they produced as much as six times the amount of air pollution.

Although government has too often caused environmental damage, individual people are frequently its protectors and defenders:

- At a time when state governments awarded bounties for killing birds of prey, a concerned citizen founded the private Hawk Mountain Sanctuary in eastern Pennsylvania to prevent the slaughter of thousands of hawks, falcons, ospreys, eagles, owls and other endangered birds.
- At a time when state governments awarded bounties for killing seals and sea lions, a for-profit corporation protected the only mainland breeding area for the endangered Steller sea lion.
- At a time when federal policies were encouraging environmental destruction on the Barrier Islands, the commercial interests at Hilton Head Island discovered that conservation was good business.

Private Property.

A primary reason why private property came into existence was to solve the "commons" problems. For example, in the early West, cattle ranchers established private-property rights on the open range. Cattle management associations were formed to enforce these rights and to arrange for compensation when one rancher's cattle grazed on another's land. They also protected ranchers' rights in the cattle by warding off cattle thieves. To help enforce grazing rights, branding was introduced and cowboys were hired as human fences. Because the costs of enforcing these arrangements were so high, innovators had strong incentives to find a cheaper solution — leading to the invention of barbed wire.

Today, the solution to the problems of the open range seems quite simple. But in an earlier era, it was comparable to some of our most difficult "commons" problems today. The problem of the open range was solved because it was in people's self-interest to find solutions and because they had the freedom to implement those solutions.

There are many other examples of the principle:

- One hundred years ago, there were three billion passenger pigeons and relatively few

chickens. But because chickens were privately owned, while the pigeons were not, today there are three billion chickens and the passenger pigeon is extinct.

- Two hundred years ago, buffalo greatly outnumbered cattle in America. Today, privately-owned cattle flourish, while the buffalo neared extinction, with a remnant few in Yellowstone Park and a few scattered bunches on private lands.
- In many African countries where elephants are unowned, their numbers are dwindling — the victims of poachers in search of ivory. But in India, where villagers own elephants, they are almost never killed for their tusks.

Market Prices.

Since the days of Adam Smith, economists have known that markets are a powerful mechanism for achieving social goals. Despite many attempts in different countries with different cultures, no one has discovered a more efficient mechanism for changing behavior and resolving social problems. Yet markets have been suppressed or outlawed in key areas of our economy, with important environmental side effects. These areas include road and water use.

Case Study: Roads. In virtually every large city in the United States, major thoroughfares are crowded and congested — especially at rush hours. In a normal market, when a good is scarce we expect its price to rise — which has the social benefit of encouraging people to consume less of it. Yet except for a few toll roads here and there (which only rarely engage in time-of-day changes), we pay no price at the time we use them. Except for the gasoline tax, there is virtually no relationship between our use of road space and the individual cost we bear; and even the gasoline tax is unrelated to whether we use fuel on crowded or uncrowded roads.

Instead of rationing road space with market prices, we ration by congestion — with important environmental side effects. If the average speed is reduced from fifty to five miles per hour, the running time of automobiles is increased tenfold, contributing to urban air pollution and adding to the accumulation of greenhouse gasses.

Case study: Water. Droughts over the last several years have exacerbated water shortages in Southern California, where city officials plead with residents to curtail water use. But since the "price" of water to residents is low, in some districts near zero, each household has a self-interest in consuming water. The cost of water to California cities is nowhere near zero, however. They currently pay $200 an acre-foot and that cost will soar to $500 for any new storage facilities.

An obvious source of additional water is the water now being supplied to San Joaquin Valley farmers at government-subsidized prices as low as $5 an acre-foot. If the farmers could sell some of their water rights to city dwellers, they would quite likely turn to conservation and recycling alternatives, with costs ranging from $10 an acre-foot for recycling tail water to $175 for using drip sprinkler systems. These alternatives would be profitable if the farmers could sell their water rights for $200.

Entrepreneurship.

As examples above illustrate, some of the most important environmental accomplishments owe their success to private entrepreneurs. Ducks Unlimited, Trout Unlimited, Pheasants Forever, Rocky Mountain Elk Foundation, and the International Crane Foundation are a few well-known organizations created by environmental or ecological entrepreneurs.

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The private sector has no monopoly on entrepreneurial ecology, but those outside government have far more liberty to innovate. Bureaucrats have strong and persistent incentives to color within the lines. Further, political constraints often thwart conservation goals. Some of the most successful conservation work involves cooperation among agencies, non-profits, private individuals, and firms. This is surely the wave of the future.

One example is Wisconsin's Onion River, once and now again a productive trout stream. Horse and fish farms had built over two-dozen dams that blocked trout spawning grounds. A private conservationist

couple, Mary and Terry Kohler, helped buy the farms, tore out the dams, and gradually sold the properties to the Wisconsin Department of Natural Resources. The river again produces trout and is open to for public fishing.

In 1948, some creative individual in the Idaho Fish and Game Department discovered that the cheapest and safest way to repopulate beavers in remote areas is to parachute them in from airplanes. Beavers were placed in boxes that sprang apart upon landing. To figure out how to do this successfully, they experimented with a beaver named Geronimo. They determined that the best release height was from 500 to 800 feet. In all, they released 76 beavers with only one beaver casualty. (Not Geronimo!)

While we can celebrate this entrepreneurial effort of the 1940s, today's environment makes such creative ventures by a state agency quite difficult. Imagine the outcry over spending taxpayers' funds to deliver beaver by parachutes. Also, imagine the potential protests by PETA or other animal rights groups

Harmonizing Liberty, Ecology and Prosperity.

Some of the most visible environmental disputes arise over what is to be done with someone else's land. Environmental groups have filed thousands of lawsuits against the federal government and private property owners. It is one thing to tell others how to manage their property. Decisions are often quite different when environmental groups manage their own property.

Ten miles south of Intracoastal City, Louisiana, lies the Rainey Wildlife Sanctuary, a 26,800-acre marshland owned by the Audubon Society. The sanctuary is a home for deer, armadillo, muskrat, otter, mink, and more than 50,000 snow geese. It also is the site of a number of oil and gas wells and it provides grazing land for private cattle herds.

What are oil and gas wells and grazing cattle doing in a wildlife sanctuary? The Audubon Society has been vocal and critical of oil exploration and cattle grazing on lands owned by the federal government. In making decisions about its own property, however, Audubon's perspective is quite different and far more responsible. The managers of Rainey found that the timing, placement, operation, and structure of oil exploration could be carefully planned in conjunction with the seasonal requirements of wildlife, and adverse environmental effects could be avoided. They also found that carefully controlled cattle grazing can actually improve wildlife habitat.

Under the Audubon plan, everybody wins. The birds and wildlife keep their habitat, the public gets its oil and beef, and the Audubon Society receives funds to buy additional wildlife preserves.

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This example is not unique. The Bernard N. Baker Sanctuary (run by the Michigan Audubon Society) was the nation's first Sandhill crane sanctuary — created at a time when the cranes were in serious decline. Today, the society receives substantial royalty checks from oil and gas leases — which were carefully negotiated to ensure that the crane's nesting grounds are not disturbed.

The natural resource reforms surrounding the Progressive Era, 1890 through WWI, were surely positive experiments in resource management. They did a great deal to preserve today's lands of romance. The creation of Yellowstone National Park in 1872 is the best example. Their greatest reform contributions were protecting common pools and constraining the unlawful exploitation of resources.

By today's standards, in that era America was a poor Third World economy, society, and culture. Life expectancy was under 50 years and family income under $5,000 (in today's dollars). Half the population lived in poverty, and more teens worked than attended school. People in these circumstances are far more concerned with survival than ecological stewardship.

In this historical and cultural context, the best conservation option was management by well-trained natural resource professionals in government agencies such as the Forest Service and Biological Survey (1905), Park Service (1916), and similar state organizations. These were, and largely remain, valuable innovations. They surely were improvements over non-management.

While appropriate for the time, the command-and-control paradigm of scientific management by

federal bureaucrats is way outdated. Bureaucratic pathologies and political opportunism are predictable outcomes of incentives built into the design. We also have a deeper understanding of institutions and a strong appreciation of the contributions of entrepreneurship to many forms of environmental services.

Further, America has become remarkably wealthy. And as people become educated and rich, they also become Green. A conservation ethic is common, though rarely deep. Quite naturally, many people with high human capital are attracted to our romance lands and become its sentinels and monitors. The great majority of them support conservation and preservation; and none of them arrive to mine, log, or dam.

Governmental ownership and primary responsibility for management of our romance lands will surely continue. However, New Resource Economics explains why the sincere conservationists are increasingly attracted to cooperative arrangements with the private sector. Yellowstone Forever and the Gallatin Valley Land Trust are stellar examples.

As federal agency budgets are increasingly stressed by the tsunami of entitlement obligations generated by Social Security, Medicare, Medicaid, and other entitlement programs, there will be ever more reliance on cooperative arrangements with the private sector. Ultimately, some environmental and conservation groups will explore having some wildlife refuges, forests, parks, and monuments become public fiduciary trusts. This evolutionary move would help realize the Progressive Era ideal of protecting our romance lands from the predation of special interests.

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