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Tragedy of the Commons

By Garrett Hardin



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In 1974 the general public got a graphic illustration of the “tragedy of the commons” in satellite photos of the earth. Pictures of northern Africa showed an irregular dark patch 390 square miles in area. Ground-level investigation revealed a fenced area inside of which there was plenty of grass. Outside, the ground cover had been devastated.

The explanation was simple. The fenced area was private property, subdivided into five portions. Each year the owners moved their animals to a new section. Fallow periods of four years gave the pastures time to recover from the grazing. The owners did this because they had an incentive to take care of their land. But no one owned the land outside the ranch. It was open to nomads and their herds. Though knowing nothing of [KARL MARX](#), the herdsmen followed his famous advice of 1875: “To each according to his needs.” Their needs were uncontrolled and grew with the increase in the number of animals. But [SUPPLY](#) was governed by nature and decreased drastically during the drought of the early 1970s. The herds exceeded the natural “carrying capacity” of their environment, soil was compacted and eroded, and “weedy” plants, unfit for cattle consumption, replaced good plants. Many cattle died, and so did humans.

The rational explanation for such ruin was given more than 170 years ago. In 1832 William Forster Lloyd, a political economist at Oxford University, looking at the recurring devastation of common (i.e., not privately owned) pastures in England, asked: “Why are the cattle on a common so puny and stunted? Why is the common itself so bare-worn, and cropped so differently from the adjoining inclosures?”

Lloyd’s answer assumed that each human exploiter of the common was guided by self-interest. At the point when the carrying capacity of the commons was fully reached, a herdsman might ask himself, “Should I add another animal to my herd?” Because the herdsman owned his animals, the gain of so doing would come solely to him. But the loss incurred by overloading the pasture would be “commonized” among all the herdsmen. Because the privatized gain would exceed his share of the commonized loss, a self-seeking herdsman would add

another animal to his herd. And another. And reasoning in the same way, so would all the other herdsman. Ultimately, the common property would be ruined.

Even when herdsman understand the long-run consequences of their actions, they generally are powerless to prevent such damage without some coercive means of controlling the actions of each individual. Idealists may appeal to individuals caught in such a system, asking them to let the long-term effects govern their actions. But each individual must first survive in the short run. If all decision makers were unselfish and idealistic calculators, a distribution governed by the rule “to each according to his needs” might work. But such is not our world. As James Madison said in 1788, “If men were angels, no Government would be necessary” (*Federalist*, no. 51). That is, if *all* men were angels. But in a world in which all resources are limited, a single nonangel in the commons spoils the environment for all.

The spoilage process comes in two stages. First, the non-angel gains from his “competitive advantage” (pursuing his own interest at the expense of others) over the angels. Then, as the once noble angels realize that they are losing out, some of them renounce their angelic behavior. They try to get their share out of the commons before competitors do. In other words, every workable distribution system must meet the challenge of human self-interest. An unmanaged commons in a world of limited material wealth and unlimited desires inevitably ends in ruin. Inevitability justifies the epithet “tragedy,” which I introduced in 1968.

Whenever a distribution system malfunctions, we should be on the lookout for some sort of commons. Fish populations in the oceans have been decimated because people have interpreted the “freedom of the seas” to include an unlimited right to fish them. The fish were, in effect, a commons. In the 1970s, nations began to assert their sole right to fish out to two hundred miles from shore (instead of the traditional three miles). But these exclusive rights did not eliminate the problem of the commons. They merely restricted the commons to individual nations. Each nation still has the problem of allocating fishing rights among its own people on a noncommonized basis. If each government allowed

ownership of fish within a given area, so that an owner could sue those who encroach on his fish, owners would have an incentive to refrain from overfishing. But governments do not do that. Instead, they often estimate the maximum sustainable yield and then restrict fishing either to a fixed number of days or to a fixed aggregate catch. Both systems result in a vast overinvestment in fishing boats and equipment as individual fishermen compete to catch fish quickly.

Some of the common pastures of old England were protected from ruin by the tradition of stinting—limiting each herdsman to a fixed number of animals (not necessarily the same for all). Such cases are spoken of as “managed commons,” which is the logical equivalent of **SOCIALISM**. Viewed this way, socialism may be good or bad, depending on the quality of the management. As with all things human, there is no guarantee of permanent excellence. The old Roman warning must be kept constantly in mind: *Quis custodiet ipsos custodes?* (Who shall watch the watchers themselves?)

Under special circumstances even an unmanaged commons may work well. The principal requirement is that there be no scarcity of goods. Early frontiersmen in the American colonies killed as much game as they wanted without endangering the supply, the multiplication of which kept pace with their needs. But as the human **POPULATION** grew larger, hunting and trapping had to be managed. Thus, the ratio of supply to **DEMAND** is critical.

The scale of the commons (the number of people using it) also is important, as an examination of Hutterite communities reveals. These devoutly religious people in the northwestern United States live by Marx’s formula: “From each according to his ability, to each according to his needs.” (They give no credit to Marx, however; similar language can be found several places in the Bible.) At first glance Hutterite colonies appear to be truly unmanaged commons. But appearances are deceiving. The number of people included in the decision unit is crucial. As the size of a colony approaches 150, individual Hutterites begin to undercontribute from their abilities and overdemand for their needs. The

experience of Hutterite communities indicates that below 150 people, the distribution system can be managed by shame; above that approximate number, shame loses its effectiveness.

If any group could make a commonistic system work, an earnest religious community like the Hutterites should be able to. But numbers are the nemesis. In Madison's terms, nonangelic members then corrupt the angelic. Whenever size alters the properties of a system, engineers speak of a "scale effect." A scale effect, based on human psychology, limits the workability of commonistic systems.

Even when the shortcomings of the commons are understood, areas remain in which reform is difficult. No one owns the Earth's atmosphere. Therefore, it is treated as a common dump into which everyone may discharge wastes. Among the unwanted consequences of this behavior are acid rain, the greenhouse effect, and the erosion of the Earth's protective ozone layer. Industries and even nations are apt to regard the cleansing of industrial discharges as prohibitively expensive. The oceans are also treated as a common dump. Yet continuing to defend the freedom to pollute will ultimately lead to ruin for all. Nations are just beginning to evolve controls to limit this damage.

The tragedy of the commons also arose in the savings and loan (S&L) crisis. The federal government created this tragedy by forming the Federal Savings and Loan Insurance Corporation (FSLIC). The FSLIC relieved S&L depositors of worry about their money by guaranteeing that it would use taxpayers' money to repay them if an S&L went broke. In effect, the government made the taxpayers' money into a commons that S&Ls and their depositors could exploit. S&Ls had the incentive to make overly risky investments, and depositors did not have to care because they did not bear the cost. This, combined with faltering federal surveillance of the S&Ls, led to widespread failures. The losses were "commonized" among the nation's taxpayers, with serious consequences to the federal budget (see [SAVINGS AND LOAN CRISIS](#)).

Congestion on public roads that do not charge tolls is another example of a government-created tragedy of the commons. If roads were privately owned, owners would charge tolls and people would take the toll into account in deciding whether to use them. Owners of private roads would probably also engage in what is called peak-load pricing, charging higher prices during times of peak demand and lower prices at other times. But because governments own roads that they finance with tax dollars, they normally do not charge tolls. The government makes roads into a commons. The result is congestion.

About the Author

The late Garrett Hardin was professor emeritus of human ecology at the University of California at Santa Barbara. He died in 2003.

Further Reading

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