

PLS 209 – Environmental Politics
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Topic: Common Pool Resources (CPRs)

Tragedy of the commons

- Picture a pasture open to all.
 - Each herdsman will try to keep as many cattle as possible.
 - Individually, everyone's incentive is to add cattle without limit to increase their profits.
 - This may work well at first but as the number of herdsman and cattle increases, eventually the ecological system cannot support the increased grazing.
 - Accordingly, everyone benefits less by maximizing their individual incentives than they would if they worked together.
- Pollution illustrates the commons problem in a reverse manner.
 - Instead of taking too much out of an ecological system, the problem is putting too much into the commons when it allows the discharger to obtain benefits at the expense of the commons (e.g., sewage, chemicals, air pollution, etc.).
 - In this case, the challenge is to regulate discharges to the commons

Common Pool Resources (CPRs)

- Resources held in common by a group of people, all of whom have access and derive benefit from increasing access and who derive benefit with increasing access
 - Public lands
 - Fish
 - Water (surface or groundwater)
 - Air
 - Recreational areas
 - Internet
- Access may be equal or unequal and control may be democratic or not
 - Access may be apportioned or regulated by the community of users or some governmental entity. Nonmembers may be excluded.
- There is some disagreement as to what constitutes a CPR

Examples of typical commons problems include:

- Cattle grazing on public lands
- Most fisheries such as tuna, groundfish, lobster, etc.
- Forestry on public lands
- Recreational usage of national parks

Hardin (1968) concludes

- “Ruin is the destination toward which all men rush, each pursuing his own best interest in a society that believes in the freedom of the commons. Freedom in a commons brings ruin to all”
- We live in a finite world that can only support a finite population and eventually population growth must approach zero

- Increase in human population increasingly strains limited resources and jeopardizes sustainability
- Individually rational actions produce collectively irrational outcomes similar to:
 - Prisoner’s Dilemma
 - Free Rider Problems
- Emphasized that the solutions to the commons problems were primarily social rather than technical
 - Commons is a broader concept that includes the context that the CPRs exist and the system of property rights that exists
 - Something may or may not be a commons depending on the governance system in place.
 - Hardin recognizes that privatization, exclusion, or rigorous regulation of human population may be necessary
- Similar to collective action problems (Olson 1965)
 - It is often difficult, especially in large groups, to get individuals to pursue their joint welfare as contrasted with their individual welfare
 - The reason is that one cannot be excluded from receiving group benefits once a good is produced so the temptation to “free ride” is present
 - It offers a pessimistic view of the success of collaborative or collective action
- “Morality of an act is a function of the state of the system at the time it is performed (Hardin 1968, 1245).”
 - Using the commons as a cesspool does not harm the general public under frontier conditions, but the same behavior under metropolitan conditions is unbearable.
 - That is why policies often come after the degradation has occurred
 - Why NPS has become an important issue - as development increases, NPS problems become more evident
 - •How do you compare and value goods. To one person an estuary and its wetlands are valuable habitat for fish and wildlife. To others it is land for vacation homes, to still others it is a means of transporting goods.
 - Often hidden assumptions in how we value and compare goods

Managing the commons and avoiding the over exploitation of natural resources

- Numerous examples exist where communities have overcome the “tragedy of the commons”
 - Getting the institutional arrangements (rules) can be a long and time-consuming process
 - It often involves giving up some of the freedoms associated with a commons
 - What does freedom mean? Can I fill my wetland if it floods my neighbor’s property?
 - Institutional arrangements often involve some form of communication, monitoring, and enforcement
- Four properties of CPRs often facilitate cooperative management
 - Resource has not been depleted beyond hope of recovery
 - There are reliable indicators of resource conditions
 - Resource is sufficiently predictable
 - The distribution of the resource is sufficiently localized to be studied and controlled by a political entity

- Policy options typically used to overcome the commons problem
 - The “Leviathan”: government control and regulation of the commons or its users. Could include high taxes or fees to create incentives that counteract the incentives to exploit the resource
 - Privatize the commons and let the markets regulate the exploitation of these public goods (e.g., tradable permits)
 - Keep the resource public by allocating some form of property right with respect to utilizing the commons – fisheries quotas, sales of a specific amount of timber, etc.
- Commons management is more likely to succeed among resource users when
 - Users depend on the resource
 - Share a common understanding of the resource
 - There is some basis for trust and cooperation among resource users
 - Users have the capacity for forming an autonomous controlling body (self-governance)
 - Users have prior experience with successful management

Hardin (1968) wrote the article to warn about the dangers of over population

- Hardin (1968) warned that the world’s population growth must approach zero because the world, like the commons, has a fixed carrying capacity
 - *Carrying capacity* is the maximum number of a given species that the habitat can sustain over a long period of time
- Population growth is often linked to fertility rates
 - *Total fertility rate* is the average number of children that women give birth to in a region
 - Rate of natural population increase = birth rate – death rate
 - Influences population growth more than any other factor
 - *Birth rate* (crude birth rate) is the number of annual live births per 1,000 members of a particular population
 - *Death rate* (crude death rate) is the number of annual deaths per 1,000 members of a population
 - *Growth rate* is the rate of natural increase in a given year plus the number of people immigrating into an area minus the number emigrating out of the area
 - Exponential growth often represents a *J-curve*
 - Typically growth follows a sigmoid or *s-shaped curve* in which population trends towards a steady state of a relatively constant population size related to the habitat’s carrying capacity
 - Population size is determined by a country’s age structure. Relative proportion of the population between 15 and 44 is particularly important.
- Population growth rates are often linked to industrial development
 - *Preindustrial*: birth rates and death rates are high. Population grows slowly. Total fertility rates are relatively high.
 - *Transitional*: Birth rates are high but death rates begin to fall due to improved sanitation, nutrition, and health care. Population rapidly increases.
 - *Industrial*: birth rates begin to fall as people become more educated and affluent. Gap between birth rates and death rates narrows and population growth slows.
 - *Postindustrial*: Birth and death rates are low, small families preferred, and population size stabilizes

- World population is growing at a rapid pace
 - Population has grown more in the past 4 years than in the first 400,000 years of human existence
 - 90% of this growth is taking place in countries with only 20% of the world's monetary wealth

Is Population Linked to Environmental Degradation?

- Malthusian
 - Thomas Malthus argues that the human race was doomed because geometric population increases would outstrip productive capacity leading to famine and poverty (1798)
- Demographic transition
 - Theory developed to explain why Malthusian predictions did not come true
 - Proposes that the first effect of economic development is to lower death rates, which causes a population boom, but stability is once again achieved as economic and social changes lead to lower birth rates
- Neo-Malthusian
 - Contend that less-developed countries are unlikely to undergo the transition to lower birth rates required to avoid catastrophe due to over population
- Others also warn of problems due to population
 - Hardin's "tragedy of the commons" was developed to draw attention to population problems
 - Paul Ehrlich's *The Population Bomb* (1968) warns that population growth in developing and developed world must be halted to avoid a worldwide ecological disaster
- Others are critical of Malthusian and Neo-Malthusian perspectives
 - Barry Commoner's book *The Closing Circle* (1971) and other books and articles argue that inappropriate technology is the principal cause of local and global environmental degradation. He favors promoting ecologically sound development rather than population control strategies that ignore socioeconomic realities.

Hemple (1996, chapter 9) provides three contrasting views of the future

- Cornucopians
 - Vision of the future is an expression of almost unlimited confidence in the human capacity to achieve ecological balance and economic prosperity, although not necessarily at the same time
 - Would conclude that there are no environmental limits to carrying capacity that will surpass the intellectual limits of human coping capacity
 - Places great faith in technology, resource substitution, market-based management and other forms of "progress" to avoid an environmental calamity
 - Julian Simon is perhaps the best known and is critical of environmentalists who are apt to provide an "oversupply of bad news" and have a profoundly pessimistic view of the future
 - Environmental critics often brand them as dangerous utopians

- Catastrophists
 - Vision is derived from the persistent doubts of radical environmentalists about the survivability of the biosphere as we know it
 - Two kinds
 - Those who believe that human beings will cooperate at the last moment to avert an impending ecological disaster
 - Those who argue that such cooperation, if it comes at all, will be too late to repair large portions of the biosphere
 - The problem with many catastrophists accounts is that they are large-scale, event oriented stories and fail to consider that the incremental destruction may be more insidious
 - Perhaps the most sinister threat is the incremental adaptation of human beings to the incremental deterioration of nature
 - Another problem is that many of their “sky is falling” claims have proven to be untrue when viewed over time
- Optimizers
 - Vision expresses the guarded optimism of “knee-deep” ecologists who believe that there is still a little time and enough political will to avoid ecological disaster
 - They use the symbols of catastrophists and occasionally criticize scare tactics while stressing the achievements and ability of science and technology to overcome problems
 - Many politicians fall into this camp
 - Al Gore uses the rhetoric of a catastrophist in *Earth in the Balance* but politically his actions have been those of an optimizer
 - Triage mentality – write off some areas as impossible to save and focus on saving hotspots, favor carbon offsets for global warming rather than bold proposals
 - Much more of an incrementalist view – fight the battles you can win, make changes where possible, view progress in terms of agreement, etc.