Lecture 29, 07 December 2004
Economics and Conservation Biology

Conservation Biology
ECOL 406R/506R
University of Arizona
Fall 2004

Kevin Bonine
Kathy Gerst

- Economics, Sustainability
  (Herman Daly, Wendell Berry)

- Recap Creativity Forum

- Announcements
  Courses Next Semester
  Wild Dogs and Kenyan Communities
    (Wed BSE225 1215h)
  Final Thursday 16 Dec, 1100-1300h

- Course Evaluations
What is the purpose of the economic system?
- to what end all of this wealth? Ultimate value beyond market?

0-NeoClassical Economics (growth always good)

1-Environmental Economics (catch-all term, think cyclically)

2-Steady-State Economics (John Stuart Mill 1700's, Herman E. Daly)
- in = out
- 'Virtue and character higher goals than material wealth.'

3-Sustainable Development (Lester Brown)
- do away with many subsidies
- replace income tax with environmental tax

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Stocks and Flows, \( \rightarrow \) Entropy
Nicolas Georges-Roegen
~ “a Cadillac now means fewer human lives later”
Utility vs. Throughput

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Economic Growth vs. Development
- efficiency, sophistication, utility

Nonrival (air to breathe) or nonexclusive goods (UV protection from ozone)

- Producer Pays/Polluter Pays
  - Dramatically less waste (packaging, scrubber sludge)
- Taxation/Subsidies
- Pollution Rights
- Precautionary Principle - Insurance

Government strategies and regulation
- Stable, democratic government required?
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(VanDyke p. 356:)
NEPA, ESA, Clean Air, Clean Water...

- Work b/c require full and open disclosure of process and those involved.

- How do Cheney secret meetings with industry leaders to plan energy policy fit in?

SDCP and findings from economic analyses...
The Clean Air Act (1970, 1977, and 1990) has been the subject of open political warfare between those who think its cost has been too high for infant mortality, injuries, labor, and economic and those who think the health and environmental benefits were justified. Compliance has offered patterns of industrial production, employment, and capital investment. Although these expenditures must be viewed as investments that have generated benefits and opportunities, the specification of some industrial zones were more and included reductions in health and social costs in producing industries which were steel. A study developed for a real cost-benefit analysis.

In 1990, Congress requested the EPA to answer the question: How do the overall health, welfare, ecological, and economic benefits of Clean Air Act programs compare with the cost of these programs? In response, the EPA performed the most consistent cost-benefit analysis of public policy ever attempted. Here is what the EPA reported in the 1996 study:

- The total direct cost of implementing the Clean Air Act for all federal, state, and local rules from 1970 to 1990 was $176 billion (in 1990 dollars). This cost was borne by businesses, property owners, and government entities in the form of higher prices for energy and services and for some utilities.
- The mean estimate of direct benefit from the Clean Air Act of 1970 to 1990 was $56.4 trillion.
- Therefore, the net benefit of the Clean Air Act has been $436 billion.

"The finding is sobering. The benefits far exceed the costs of the Clean Air Act in the first 20 years," said Richard Marston, associate administrator for policy, planning, and evaluation at the EPA. Barriers, he reports states that "all benefits are significantly underestimated due to the exclusion of large numbers of benefits from the estimated benefit estimate."

The benefits to society, directly and indirectly, have been widespread across the entire population. The Clean Air Act has:

- reduced air pollution (described in this chapter).
- improved human health. Each year, 70,000 lives were saved, and there were 15,000 fewer heart attacks, 10,000 fewer strokes, 15,000 fewer cases of hypertension, and 15 million fewer cases of respiratory illness.
- "saved" health care. Improved health has meant lower hospital costs, lower hospitalization, and less need for special care, and less need for medicines.
- lowered levels of lead, which is particularly harmful to children. In 1990, 2,000,000 tons of lead were not burned as gasoline because of Clean Air Act measures. Because exposure to lead impairs the cognitive development of children, the huge reductions in lead levels provide a benefit of retention IQ and the possibility of a more productive, less dependent life.
- lowered cancer rates.
- reduced in lead deposits.

Wendell Berry
Orion 2004

Economic Violence

- Subsidies
- Coal, timber, agribusiness
- "tax incentives" to bring in industry
Herman Daly
Former Environmental Economist with Worldbank
Professor at U. Maryland

Utility vs. Throughput
Utility not measurable; it is an experience

Circulatory system vs. digestive system
(perpetual motion machine)

Wealth vs. Ilth (accumulation of goods vs. bads)

Micro vs. Macro economics
(MR=MC vs. endless)

If resources infinite then price = 0,
but if pay for resources then can redistribute wealth

Center for the Advancement of the
Steady State Economy

http://www.steadystate.org/Index.html
Index of Sustainable Economic Welfare (p. 355 Van Dyke 2003)

1. Income Distribution
2. Net Capital Growth
3. Natural Resource Depletion/Environmental Damage
4. Unpaid Household Labor

(social and environmental justice)
Ecological Footprint

- Reproduction
- Housing
- Travel
- Food
- Etc.
4 SPIKES

1. Global Climate Change
2. Extinction
3. Consumption
4. Population

Science

Management  Policy
Conservation Biologists...