Lecture 26, 15 Nov 2007
Economics etc.

Conservation Biology
ECOL 406R/506R
University of Arizona
Fall 2007

Kevin Bonine
Cathy Hulshof

Upcoming Readings
today: Ch 12, and web-links (Economics)
Tues 20 Nov: professional panel (TNC, USFWS, NPS)
-bring a question, hand it in at beginning to me
Tues 27 Nov: Galapagos Debate Links

-Debate on 27 Nov
-Grading Criteria due 27 Nov
-Creativity on 29 Nov,

1

Conservation Biology Lab 406L/506L

Friday 30 Nov 1230 –> 1530, Wrap Up
Meet 1230h southwest corner of BSE

See lab website for more information

2

Debate 15 November 2007, **MOVED TO 27 NOV.**
RE: Galapagos Conservation

Three groups – one will debate, another will evaluate, third will observe, then we rotate.

406

Debate 1 (20 Sept.)
Group A debate
Group B evaluate
Group C observe
Debate 2 (23 Oct.)
Group A observe
Group B debate
Group C evaluate
Debate 3 (27 Nov.)
Group A evaluate
Group B observe
Group C debate

Debate 1 (20 Sept.)
506 A assist
506 B assist
506 C observe
Debate 2 (23 Oct.)
506 A observe
506 B assist
506 C assist
Debate 3 (27 Nov.)
506 A assist
506 B observe
506 C assist

3

Fall 2007 Conservation Biology course presents….

A Creativity Project Exhibit

a student project display integrating artistic innovations with a goal to foster the education and communication of conservation issues

- poetry
- short stories
- children's books
- music
- art
- sculpture

and more…

Thursday, November 29, 2007

Forbes lobby
2-3 pm

Grading Criteria due 27 November

Out of 100 points.

15 points for your grading effort of other pieces.

Also, tell us soon what resources (table, vertical board, power supply?) you will need

4

Conservation, Economics, Sustainable Development

That which seems to be wealth may in verity be only the gilded index of far reaching ruin.

-John Ruskin, 1883

5

(Miller 2003)

Traditional Neoclassical Economics :

Economy= system of production, distribution, and consumption of goods and services (scarcity)

Driven by wants and needs of govt, society, individuals

Decisions about
- A. what goods and services
- B. how produce
- C. how much
- D. how distribute

are made by individuals, governments, businesses

Supply and Demand

Use resources:
- A. natural
- B. human
- C. financial
- D. manufactured

to make goods and services

Infinite Substitution?

6

Economic Growth

-increase in capacity to provide goods and services
-accomplish with more people and/or more consumption

-measured as GNP (gross national product)
  -also known as GNI (gross national income)
-value of goods and services in a country
-can also compare the purchasing power of different countries for a common set of goods and services
  -(GNI PPP; gross national income in purchasing power parity)

-Can examine on a per capita basis as well

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Economics Primer…

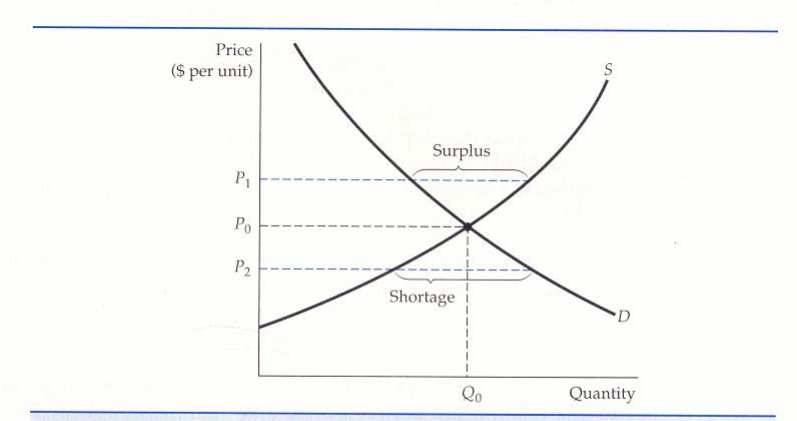
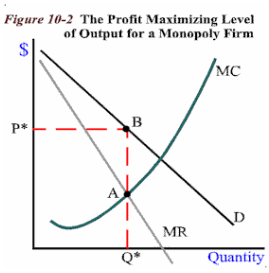


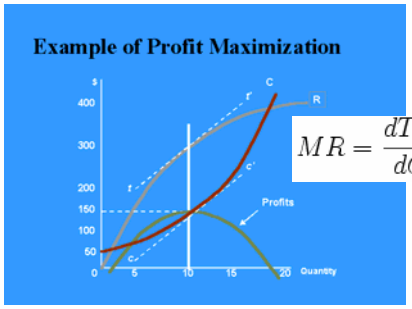
FIGURE 2.1 **Supply and Demand.** The market clears at price P_0 and quantity Q_0. At the higher price P_1 a surplus develops, so price falls. At the lower price P_2 there is a shortage, so price is bid up.

Pindyck and Rubinfeld 1992

8



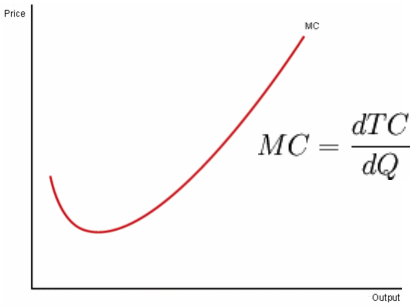
Marginal revenue



$$MR = \frac{dTR}{dQ}$$

http://images.google.com/imgres?imgurl=http://www2.gsb.columbia.edu/faculty/gheal/B7006-001/pricing/img007.gif&imgrefurl=http://www2.gsb.columbia.edu/faculty/gheal/B7006-001/pricing/sld007.htm&h=480&w=640&sz=9&hl=en&start=1&tbnid=ADDqNBKkEnLp0M:&tbnh=103&tbnw=137&prev=/images%3Fq%3Dmarginal%2Brevenue%26svnum%3D10%26hl%3Den%26lr%3D%26client%3Dfirefox-a%26rls%3Dorg.mozilla:en-US:official%26sa%3DN

Marginal cost



$$MC = \frac{dTC}{dQ}$$

Wikepedia, 14 Nov 2006

9

Adam Smith 1909 (voluntary transactions)
Invisible Hand – "turning selfish, uncoordinated actions into increased prosperity and relative social harmony"

-Tragedy of the Commons
-Externalities
-Private Property

Market Failure
resources misallocated:
"a few individuals or businesses benefit at expense of the larger society" (Primack 2006)

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Economic Growth…

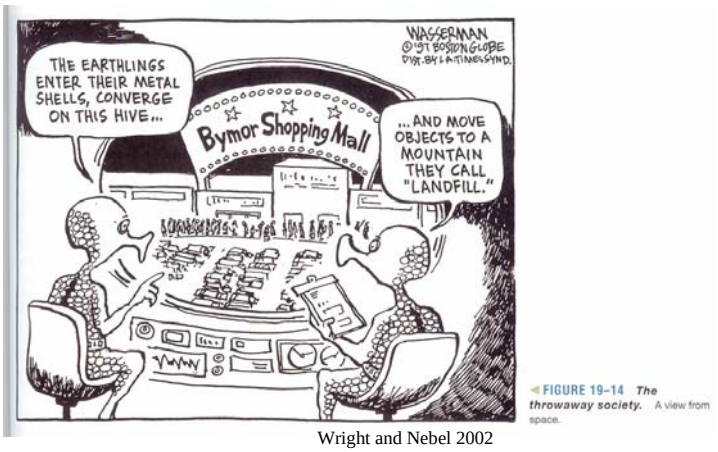

FIGURE 19–14 *The throwaway society.* A view from space.

Wright and Nebel 2002

How is Economic Development Different?

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How is Economic Development Different?

Takes quality of life into account:

- life span, infant mortality
- education
- health care
- environmental quality
- pollution
- clean air and water
- percent of population below poverty line
- etc.

12

"For poor women the only holiday is when you are asleep."

Women:
- Do 2/3 of the work
- 10% of the income
- own 0.01% of the property
- 70% of the world's poor
- 2/3 of the world's illiterate
(page 87 Miller 2005)

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Over the past 50 years, the federal government has provided more than $500 billion in subsidies to the fossil fuel and nuclear industries, investing a fraction of that in energy efficiency and renewable sources of energy such as wind, solar and geothermal. As a result, coal, nuclear power, oil and gas provide more than 91 percent of our electricity needs in the U.S. This dependence on fossil fuels carries severe public health consequences, including asthma attacks, respiratory disease, heart attacks, and premature deaths. Moreover, fossil fuels, such as coal and oil, pollute the environment from the point of extraction to combustion in the form of global warming, acid rain, oil spills and runoff pollution. At the same time, nuclear power has left us with a nuclear waste problem for which no safe solution exists.

http://www.pennenvironment.org/PE.asp?id2=17700

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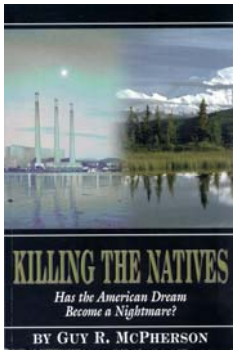
Killing the Natives, Chapter 3

U.S.: 4% global population
25% fossil fuels
>25% cars
50% advertising spending



Goods vs. Bads

$80 billion on shoes, jewelry, watches
$65 billion on higher education

Americans since 1950 have consumed more than all in history preceding

indivs/house dropping in US

Jimmy Carter – malaise speech, reduce consumption...Reagan

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Science a la Joe Camel

Conservation, Economics, and Education

By Laurie David, Washington Post
Sunday, November 26, 2006; B01

At hundreds of screenings this year of "An Inconvenient Truth," the first thing many viewers said after the lights came up was that every student in every school in the United States needed to see this movie.
The producers of former vice president Al Gore's film about global warming, myself included, certainly agreed. So the company that made the documentary decided to offer 50,000 free DVDs to the National Science Teachers Association (NSTA) for educators to use in their classrooms. It seemed like a no-brainer.
The teachers had a different idea: Thanks but no thanks, they said.
In their e-mail rejection, they expressed concern that other "special interests" might ask to distribute materials, too; they said they didn't want to offer "political" endorsement of the film; and they saw "little, if any, benefit to NSTA or its members" in accepting the free DVDs.
Gore, however, is not running for office, and the film's theatrical run is long since over. As for classroom benefits, the movie has been enthusiastically endorsed by leading climate scientists worldwide, and is required viewing for all students in Norway and Sweden.
Still, maybe the NSTA just being extra cautious. But there was one more curious argument in the e-mail: Accepting the DVDs, they wrote, would place "unnecessary risk upon the [NSTA] capital campaign, especially certain targeted supporters." One of those supporters, it turns out, is the Exxon Mobil Corp.
That's the same Exxon Mobil that for more than a decade has done everything possible to muddle public understanding of global warming and stifle any serious effort to solve it. It has run ads in leading newspapers (including this one) questioning the role of manmade emissions in global warming, and financed the work of a small band of scientific skeptics who have tried to challenge the consensus that heat-trapping pollution is drastically altering our atmosphere. The company spends millions to support groups such as the Competitive Enterprise Institute that aggressively pressure lawmakers to oppose emission limits.
It's bad enough when a company tries to sell junk science to a bunch of grown-ups. But, like a tobacco company using cartoons to peddle cigarettes, Exxon Mobil is going after our kids, too.
And it has been doing so for longer than you may think. NSTA says it has received $6 million from the company since 1996, mostly for the association's "Building a Presence for Science" program, an electronic networking initiative intended to "bring standards-based teaching and learning" into schools, according to the NSTA Web site. Exxon Mobil has a representative on the group's corporate advisory board. And in 2003, NSTA gave the company an award for its commitment to science education.
So much for special interests and implicit endorsements.
In the past year alone, according to its Web site, Exxon Mobil's foundation gave $42 million to key organizations that influence the way children learn about science, from kindergarten until they graduate from high school.
And Exxon Mobil isn't the only one getting in on the action. Through textbooks, classroom posters and teacher seminars, the oil industry, the coal industry and other corporate interests are exploiting shortfalls in education funding by using a small slice of their record profits to buy themselves a classroom soapbox.
NSTA's list of corporate donors also includes Shell Oil and the American Petroleum Institute (API), which funds NSTA's Web site on the science of energy. There, students can find a section called "Running on Oil" and read a page that touts the industry's environmental track record -- citing improvements mostly attributable to laws that the companies fought tooth and nail, by the way -- but makes only vague references to spills or pollution. NSTA has distributed a video produced by API called "You Can't Be Cool Without Fuel," a shameless pitch for oil dependence.
The education organization also hosts an annual convention -- which is described on Exxon Mobil's Web site as featuring "more than 450 companies and organizations displaying the most current textbooks, lab equipment, computer hardware and software, and teaching enhancements." The company "regularly displays" its "many . . . education materials" at the exhibition. John Borowski, a science teacher at North Salem High School in Salem, Ore., was dismayed by NSTA's partnerships with industrial polluters when he attended the association's annual convention this year and witnessed hundreds of teachers and school administrators walk away with armloads of free corporate lesson plans.
Along with propaganda challenging global warming from Exxon Mobil, the curricular offerings included lessons on forestry provided by Weyerhaeuser and International Paper, Borowski says, and the benefits of genetic engineering courtesy of biotech giant Monsanto.
"The materials from the American Petroleum Institute and the other corporate interests are the worst form of a lie: omission," Borowski says. "The oil and coal guys won't address global warming, and the timber industry papers over clear-cuts."
An API memo leaked to the media as long ago as 1998 succinctly explains why the association is angling to infiltrate the classroom: "Informing teachers/students about uncertainties in climate science will begin to erect barriers against further efforts to impose Kyoto-like measures in the future."
So, how is any of this different from showing Gore's movie in the classroom? The answer is that neither Gore nor Participant Productions, which made the movie, stands to profit a nickel from giving away DVDs, and we aren't facing millions of dollars in lost business from limits on global-warming pollution and a shift to cleaner, renewable energy.
It's hard to say whether NSTA is a bad guy here or just a sorry victim of tight education budgets. And we don't pretend that a two-hour movie is a substitute for a rigorous science curriculum. Students should expect, and parents should demand, that educators present an honest and unbiased look at the true state of knowledge about the challenges of the day.
As for Exxon Mobil -- which just began a fuzzy advertising campaign that trumpets clean energy and low emissions -- this story shows that slapping green stripes on a corporate tiger doesn't change the beast within. The company is still playing the same cynical game it has for years.
While NSTA and Exxon Mobil ponder the moral lesson they're teaching with all this, there are 50,000 DVDs sitting in a Los Angeles warehouse, waiting to be distributed. In the meantime, Mom and Dad may want to keep a sharp eye on their kids' science homework.

laurie@lauriedavid.com
Laurie David, a producer of "An Inconvenient Truth," is a Natural Resources Defense Council trustee and founder of StopGlobalWarming.org.

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Figure 2.13 An Indonesian boy wading in a polluted river suffers external costs. External costs are costs not borne by the buyer or seller; they may include water pollution, aesthetic harm, human health problems, property damage, harm to aquatic life, aesthetic degradation, declining real estate values, and other problems.

Brennan and Withgott 2005

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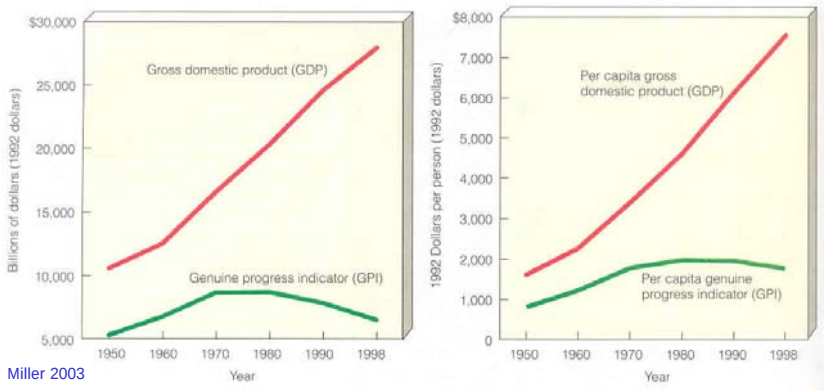


Miller 2003

Figure 2-5 Comparison of the gross domestic product (GDP) and genuine progress indicator (GPI, left) and the per capita values for these indicators (right) in the United States between 1950 and 1998. (Data from Clifford Cobb, Mary Sue Goodman, and Mathis Wackernagel)

Genuine Progress Indicator

Index of Sustainable Economic Welfare

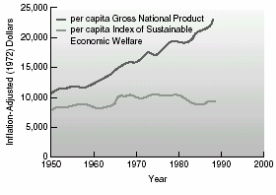
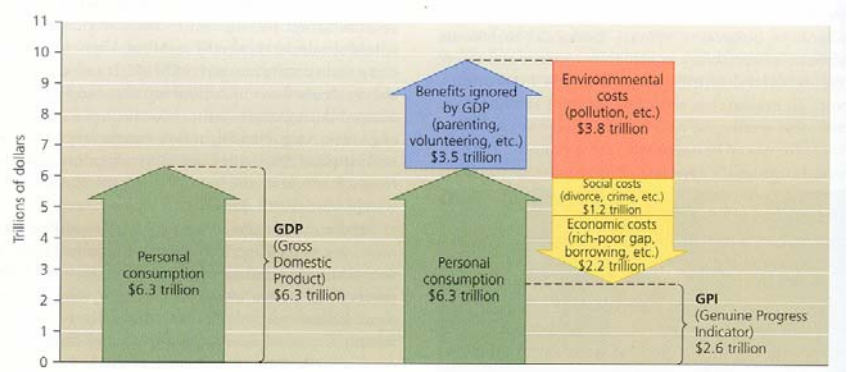


Figure 12.11 Changes in the U.S. Gross National Product (GNP) and Index of Sustainable Economic Welfare (ISEW) since 1950. Although the GNP has increased, the ISEW has failed to grow.

VanDyke, 2003



Gross domestic product (GDP) sums together all economic activity, whether good or bad. It does not account for benefits such as volunteerism or for external costs such as environmental degradation and social upheaval. The genuine progress indicator (GPI) does account for these factors and, as a result, can often be quite different in value from the GDP. Shown here are values for GDP and GPI for the United States in the year 2000. Data from Clifford Cobb, Mark Glickman, and Craig Cheslog, *The Genuine Progress Indicator 2000 Update*, Redefining Progress Issue Brief, 2001.

Brennan and Withgott 2005

19

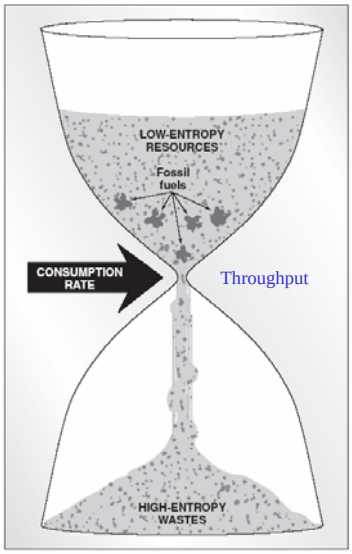


Figure 12.9
The "hourglass analogy" of economist Nicolas Georgescu-Roegen illustrates the relationship between entropy and economics. The sand in the upper part of the hourglass represents earth's low-entropy resources. As humans consume these resources, high-entropy wastes are produced. Regardless of the consumption rate, the sand in the upper half is destined to run out.

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)

20

Internal Market Costs

vs.

Externalities

-External to Market Forces

-Noise
-Pollution
-Acid rain
-Erosion
-Global Warming
-Eutrophication
-Disease
-Asthma
-Birth Defects
-Behavior and Intelligence

21

Economic Growth vs. Development

-efficiency, sophistication, utility

-Producer Pays/Polluter Pays

-Dramatically less waste (packaging, scrubber sludge)

-Taxation/Subsidies

-Government strategies and regulation

-Stable, democratic government required?

Product itself

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

22

The New York Times
15 Nov 2007

In Eco-Friendly Factory, Low-Guilt Potato Chips

CASA GRANDE, Ariz. — At Frito-Lay's factory here, more than 500,000 pounds of potatoes arrive every day from New Mexico to be washed, sliced, fried, seasoned and portioned into bags of Lay's and Ruffles chips. The process devours enormous amounts of energy, and creates vast amounts of wastewater, starch and potato peelings.

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Over the next several years, Frito-Lay plans to install high-tech filters that would recycle most of the water used to rinse and wash potatoes, as well as the corn used to make Doritos and other snacks, and then burn the leftover sludge to create methane gas to run the plant's boiler.

The company will also build at least 50 acres of solar concentrators behind the plant to generate solar power. A biomass generator, which will probably burn agricultural waste, is also planned to provide additional renewable fuel.

The retrofit of the Casa Grande factory, scheduled to be completed by 2010, would reduce electricity and water consumption by 90 percent and its natural gas use by 80 percent. Greenhouse gas emissions would be cut by 50 percent to 75 percent, the company said.

Since 1999, Frito-Lay companywide has reduced its water use by 38 percent, natural gas by 27 percent and electricity by 21 percent, cutting $55 million a year in utility costs.

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Net Zero

Frito-Lay officials maintain that trying net zero provides a hedge, particularly if the most pessimistic predictions about climate change and the availability of water and petroleum hold true.

"If the price of these resources continues to rise, we will be very happy we made these investments," said Rich Beck, senior vice president for operations.

Possible?

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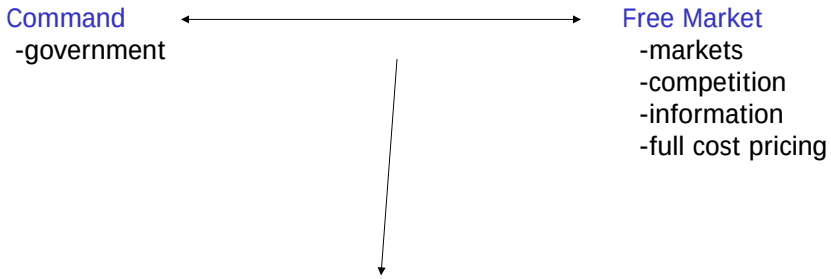
Traditional Neoclassical Economics (Miller 2003):

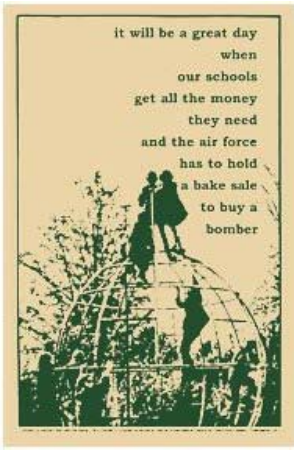


Capitalist Market System

~monopoly
~global free trade
gov't subsidies/tax breaks/"insurance"
withhold information
maximize profits (pass costs to others, future)

26

What do we spend our money on?



http://www.nationalpriorities.org/Cost-of-War/Cost-of-War-3.html

27

C: ~$436 billion

B: >$6.8 trillion

1:16 -> C:B

Wright and Nebel 2002

EARTH WATCH

THE CLEAN AIR ACT BRINGS A WINDFALL

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 industry, taxpayers, labor, and consumers and those who think the health and environmental benefits were justified. Compliance has affected patterns of industrial production, employment, and capital investment. Although these expenditures must be viewed as investments that have generated benefits and opportunities, the dislocation in some industries was severe and included reductions in high-sulfur coal mining and cutbacks in polluting industries such as steel. A need 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 costs of these programs? In response, the EPA performed the most exhaustive cost–benefit analysis of public policy ever attempted. Here is what the EPA reported in a 1996 study:

- The total direct cost of implementing the Clean Air Act for all federal, state, and local rules from 1970 to 1990 was $436 billion (in 1990 dollars). This cost was borne by businesses, consumers, and government entities in the form of higher prices for many goods and services and for some utilities.
- The mean estimate of direct benefits from the Clean Air Act from 1970 to 1990 was $6.8 trillion.
- Therefore, the net benefit of the Clean Air Act has been $6.4 trillion!

"The finding is overwhelming. The benefits far exceed the costs of the Clean Air Act in the first 20 years," said Richard Morgenstern, associate administrator for policy planning and evaluation at the EPA. Further, the report states that "all benefits may be significantly underestimated due to the exclusion of large numbers of benefits from the monetized 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, 79,000 lives were saved, and there were 18,000 fewer heart attacks, 10,000 fewer strokes, 13,000 fewer cases of hypertension, and 15 million fewer cases of respiratory illness.
- "avoided cost": Improved health has meant less debilitating disease, less hospitalization, less need for special care, and less need for medicines.
- lowered levels of lead, which is particularly harmful to children. In 1990, 220,000 tons of lead were not burned in gasoline, because of Clean Air Act measures. Because exposure to lead impairs the cognitive development of children, the huge reductions in lead levels produced a benefit of retained IQ and the possibility of a more productive, less dependent life.
- lowered cancer rates.
- resulted in less acid deposition.

The EPA study result should encourage us in our hopes for a more sustainable future. Society knew what to do, took action despite disruptive efforts by special-interest and political partisans, and reaped about $16 in benefits for every $1 invested to control air pollution.

In 1999, the EPA published a second analysis of costs and benefits that looked at the impacts of the CAAA of 1990 and extended expected costs and benefits to 2010. The findings are consistent with the EPA's previous analysis. According to the later analysis, the new regulations will cost an estimated $27 billion, but will generate health and ecological benefits of about $110 billion. Estimates indicate that the amendments will prevent 23,000 Americans from an early death, more than 1.7 million asthma episodes, 67,000 incidences of acute and chronic bronchitis, and 22,000 respiratory-related hospital visits. Many of the benefits, such as those to crops and ecosystems, are difficult to put in dollar terms. Thus, the benefits exceed the costs by a margin of four to one or better; this still sounds like a good bargain!

(Source: Adapted from R. Christopherson, Geosystems, *an Introduction to Physical Geography*, 3rd ed. Copyright © 1997 by the author. Reprinted by permission of Pearson Education Inc. Upper Saddle River, NJ 07458.)

nomadic Maasai

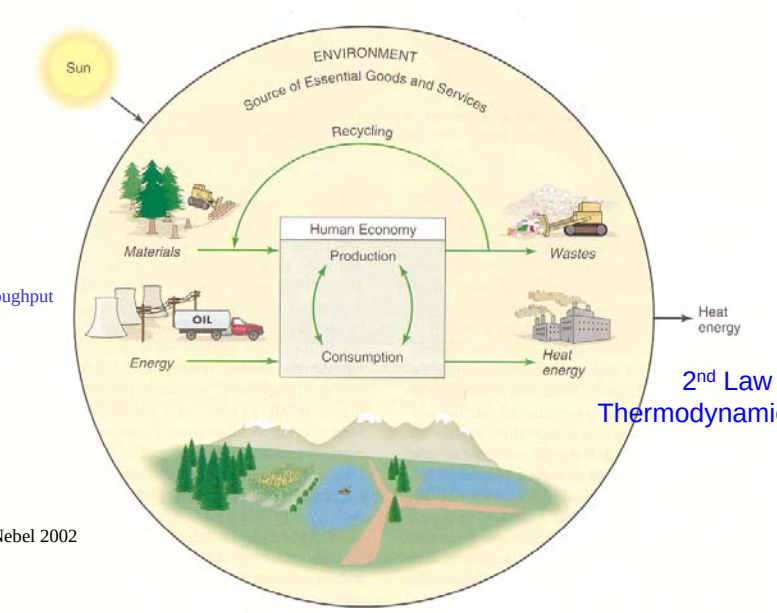
Private Property?

TABLE 28.1 Water use by people in different sorts of communities in Arabia People in indigenous desert settlements use one-tenth the water of people in modern towns. The figures are for all domestic water use, including drinking, washing, bathing, and other water demands.

Type of community	Domestic water use per person (L/day)
Modern Arabian town without major industry[a]	240
Traditional agricultural village	120
Small desert settlement with supply by government water truck	80
Small desert settlement with traditional water supply	28

Source: After Goudie and Wilkinson 1977.
[a] New York City has a similar usage rate.

(Hill et al. 2004)



Throughput

2nd Law of Thermodynamics

Wright and Nebel 2002

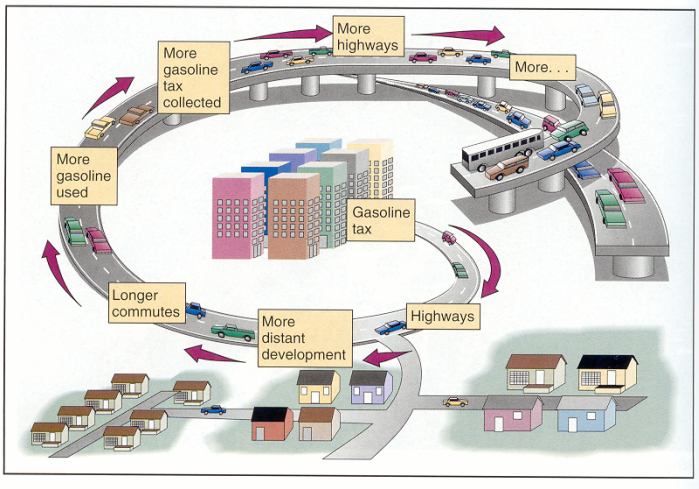
▲ FIGURE 23–3 *Environmental economic view of economic activity.* The natural environment encompasses the economy, which is constrained by the resources found within the environment.

Table 2.1 Ecosystem Services and Functions

Ecosystem service*	Examples
Gas regulation	Carbon dioxide/oxygen balance, ozone for protection against ultraviolet light
Climate regulation	Greenhouse gas regulation, dimethyl sulphide production affecting cloud formation
Disturbance regulation	Storm protection, flood control, drought recovery, and other aspects controlled by vegetation structure
Water regulation	Provisioning of water for agricultural (such as irrigation) or industrial (such as milling) processes or transportation
Water supply	Provisioning of water by watersheds, reservoirs, and aquifers
Erosion control and sediment retention	Prevention of loss of soil by wind, runoff, or other removal processes; storage of silt in lakes and wetlands
Soil formation	Weathering of rock and the accumulation of organic material
Nutrient cycling	Nitrogen fixation, nitrogen, phosphorus, and other elemental or nutrient cycles
Waste treatment	Waste treatment, pollution control, detoxification
Pollination	Provisioning of pollinators for the reproduction of plant populations
Biological control	Keystone predator control of prey species; reduction of herbivory by top predators
Refugia	Nurseries, habitat for migratory species, regional habitats for locally harvested species, or overwintering grounds
Food production	Production of fish, game, crops, nuts, and fruits by hunting, gathering, subsistence farming, or fishing
Raw materials	The production of lumber, fuel, or fodder
Genetic resources	Medicine, products for materials science, genes for resistance to plant pathogens and crop pests, ornamental species (pets and horticultural varieties of plants)
Recreation	Ecotourism, sport fishing, and other outdoor recreational activities
Cultural	Aesthetic, artistic, educational, spiritual, and/or scientific values of ecosystems

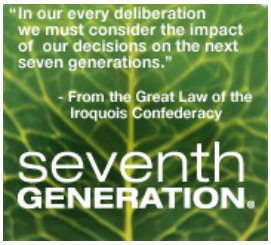
*Ecosystem "goods" included in ecosystem services.
Source: Adapted with permission from Robert Costanza et al., "The value of the world's ecosystem services and natural capital," *Nature*, May 1997.

Brennan and Withgott 2005



▶ **FIGURE 24–5** *The development cycle spawned by the Highway Trust Fund.*

Wright and Nebel 2002



Vs.

Positive
DISCOUNT
RATE

33

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)

"SATISFICING"
Development vs. Growth

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

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Center for the Advancement of the

Steady State Economy

http://www.steadystate.org/Index.html

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utility curves

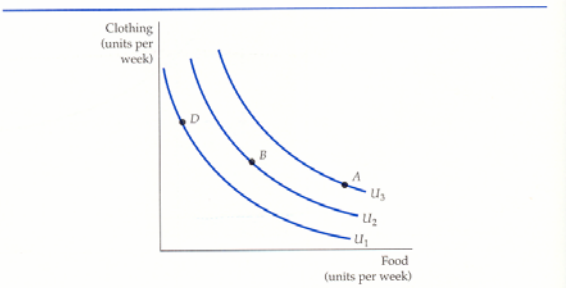

FIGURE 3.3 An Indifference Map. An indifference map is a set of indifference curves that describes a person's preferences. Any market basket on indifference curve U_3, such as market basket A, is preferred to any market basket on curve U_2 (e.g., basket B), which in turn is preferred to any market basket on U_1, such as D.

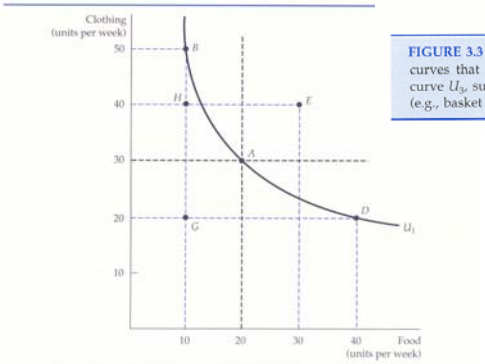

FIGURE 3.2 An Indifference Curve. A person's indifference curve U_1 shows all market baskets that generate the same level of satisfaction as does market basket A. The person prefers market basket E, which lies above U_1, to A, but prefers A to market basket H, which lies below U_1.

Pindyck and Rubinfeld 1992

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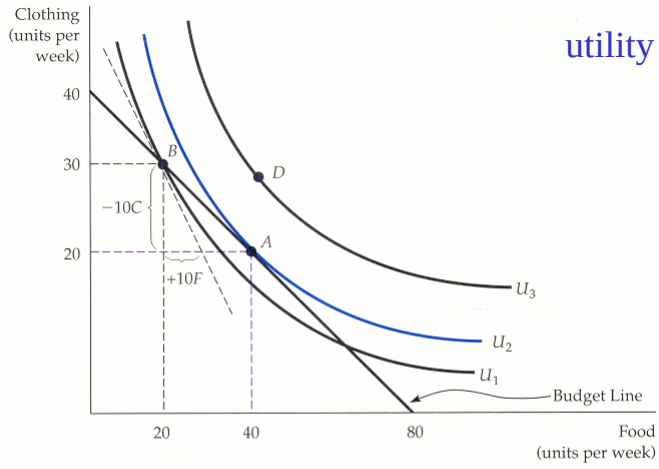

utility curves

FIGURE 3.11 Maximizing Consumer Satisfaction. When the budget line and the indifference map are combined, consumers maximize their satisfaction by choosing A. At this point the budget line and indifference curve U_2 are tangent, and no higher level of satisfaction can be attained. At A, the point of maximization, the marginal rate of substitution between the two goods equals the price ratio. At B, however, the marginal rate of substitution (1) is greater than the price ratio (1/2), and maximization does not occur.

Pindyck and Rubinfeld 1992

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Warren Buffett: Tax Inherited Estates

Associated Press By LAURIE KELLMAN – 14 Nov 2007

Billionaire Warren Buffett told the Senate Finance Committee on Wednesday that Congress should keep the estate tax rather than repeal it and help a few rich Americans like him.

"I think we need to ... take a little more out of the hides of guys like me," Buffett told the panel.

One of the world's richest men and biggest philanthropists, Buffett has been outspoken against efforts, mostly by Republicans, to repeal or reduce the federal tax on inheritances. Democrats argue that a repeal would amount to a huge windfall for the nation's wealthiest families.

Estates worth up to $2 million this year and next will be exempt from the federal estate tax. Portions of estates above that threshold will be taxed at 45 percent.
In 2009, the exemption level rises to $3.5 million, and by 2010 the estate tax will be repealed — but only for a year. Unless Congress changes the law, it comes roaring back in 2011 with an exemption threshold of only $1 million and a top tax rate of 55 percent.

Buffett said inheritance taxes preserve a measure of meritocracy, and with it opportunity, by recycling portions of great wealth through public coffers.

"The resources of society I don't think should pass along in terms of an aristocratic dynasty of wealth," Buffett told the panel. "I believe in keeping equality of opportunity as much as you can in this country."

…

Committee Chairman Max Baucus, D-Mont., citing information from the IRS, said that of nearly 2.5 million deaths in 2004, about 19,300 estates paid the estate tax.

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Avoiding the Crisis Mentality