Environmental Economics, Policy, and Law

Ecological Economics

Natural Resource
-anything with potential use in creating wealth or giving satisfaction.

Renewable vs. Nonrenewable Resources

Nonrenewable resource
-resources that cannot be replaced (in a human time scale) because they take long periods of time to generate by earth's geological development or they are finite: the minerals, fossil fuels and metals.

-present supplies are becoming exhausted by human standards and will be gone.. soon. Yikes!

Renewable Resources
-things that can be replenished or replaced (usually refers to energy resources) such as sunlight, biological organisms, fresh water, fresh air, wind, and used cooking oil!!!

-but if we rip apart habitats we disrupt self renewing biological cycles. Yikes!

Tragedy of the Commons

-Article written in 1968 by biologist Garret Hardin.

-resources are being destroyed or degraded because people care more about the interest of themselves than they do about public interests. People who use or destroy more than their fair share
of common property.

-Hardin described an open access system- no rules to manage resource use. (ex. Native American
management of rice beds and hunting grounds, Maine lobster fisheries)

-communal resource management systems- resources managed by a community for long-term sustainability- can work IF collectively enforced and community anticipates continually living on the land which will be then be passed onto their children.

Classical Economics

The theory is built on the idea that a free capitalistic market is the best method to govern our financial well-being... maybe.

Law of Supply and Demand. As supply (how much product is available) increases its demand (the

amount of product the consumers will buy) decreases and the price of the good also decreases. As supply decreases, the demand increases and its price increases. Kind of like a school dance when too many students of the same sex show up.

Market equilibrium is when the demand for a good equals its supply. Supply and demand are inversely proportionate.

GNP- Gross National Product. A nations' wealth is measured by the sum total of all the goods and services it provides.

GDP- Gross Domestic Product. The amount of goods and services produced only within its national boundaries within a year.

Property taxes pay for cost for a town's infrastructure. (ex. fire service, police, road repair)

Natural Resource Management

Cost Benefit Analysis (CBA)

value of benefits gained divided by the costs of project. If greater than one- okay to proceed, if less than one no go on project

-This concept is used to evaluate the pollution prevention with the costs and social benefits of a project. It assigns values to resources and evaluates whether the pollution cost of a project is "worth" the social benefits. Legislators use this process to determine whether a given undertaking is a "good idea"
by how cost efficient it is and what benefits it will create as well as how much pollution there will be. This can be looked at as a way for businesses to assign values to natural resources and hopefully a way to mitigate the extent of environmental damage done by any project before it is undertaken.

Often the true cost of using environmental resources are "externalized" meaning the price of permanently distroying nature and polluting our air, water and soils are not taken into consideration when goods are valued on the market. Note with neither of the above calculations are the natural resources (biodiversity, fresh air), human capital (fair wages) or social capital (indigenous societies) taken into consideration.

But environmental useage should be sustainable- process can be continued indefinitely without depleting material resources on which it depends.

Marginal Costs

Fixed costs- the costs paid to make a product or provide a service that does not change as production increases. For instance, the mortagage on a property.

Variable costs- costs that increase as the number of products produced increases, such as for raw materials to manufacture a product.

Marginal costs- the cost of making one additional unit of product or service. The total cost per item when one more item is produced. The marginal cost increases as more units are produced, but as more products are made the cost goes down for the consumer. Optimally, marginally costs should equal marginal benefits (of reducing negative externality) for maximum economic gain for a company.

Margin of diminishing returns- additional benefits gained by the buyer by procuring one more unit of product or service. ex. eating TWO bowls of ice cream or having two oil changes back to back. What is the added value of having that second helping or service?

Internal Costs- immediate costs that are experienced to manufacture a product.

External Costs- costs to people or society that are not experienced by the company and are NOT passed down on to the consumer directly. External costs are felt by someone but NOT those that turn the resources into a profit or those that establish the price of the product. Ligitation is one way to INTERNALIZE the external costs. ex. Erin Brockovich. So are laws and taxes. ex. Surface mining control and reclamation act (SMCRA) and cigarette taxes.

To internalize external costs means that the consumer is paying for the full cost of the product or the TRUE Cost. Also called the full-cost analysis or true-cost pricing.

Technological Developments

Pollution Tax
-This is used to ensure more environmental protection concerns in national or local economies.
Taxes
are paid per unit of effluent.
Businesses are taxed which creates an incentive for these industries to find more ecological ways to
deal with their pollution.

Green Business
-businesses are starting to realize that businesses cannot be sustainable over a long time period.

-new approach to business to how we can achieve both environmental protection and social welfare.

-promotes eco-efficiency, clean production pollution prevention, industrial ecology, natural capitalism, restorative technology, and environmentally preferable products.

Green Consumers
-includes: the Body Shop, Patagonia, Aveda, Malden Mills, Johnson and Johnson and Interface, Inc.

Debt for Nature Swap- forgiving the 3rd world's debt in exchange for preserving some of its prime habitat.

Human Development Index (HDI) is a way to measure and compare rankings of countries in terms of life expectancy, education and standard of living.

National-Major U.S. Environmental Laws (Yo!)

- Federal Insecticide, Fungicide, Rodenticide Act of 1947 (FIFRA): regulates the manufacture and use of pesticides
- Wilderness Act of 1964: established the national wilderness preservation system
- Water Quality Act of 1965: attempt to reduce non-point source pollution by creating government watch dog under Dept of Heath, Ed and Welfare.
- National Environmental Policy Act of 1969: Environmental Impact statements must be done before any project effecting federal lands is started. Created a council on environmental quality.
- Clean Air Act of 1970: established national primary and secondary air quality standards. Set emission standards for cars, and limits for release of air pollutants.
- Clean Water Act of 1972: set maximum permissible amounts of water pollutants that can be discharged into waterways and created pollutant discharge permits. Goal: To make all water swimmable and fishable.
- Endangered Species Act of 1973: protects threatened and endangered animals in the US, and puts their protection over economic considerations.
- Safe Drinking Water Act (SDWA) of 1974: set maximum contaminant levels for pollutants that may have adverse effects on human health.
- Superfund Amendments and Reauthorization Act (SARA): increased superfund to $8.5 Billion. Shares responsibility for cleanup among potentially responsible parties.
- Toxic Substance Control Act of 1976: EPA- ban or regulate chemicals deemed a risk to health to the environment.
- Resource Conservation & Recovery Act (RCRA) of 1976: Controls hazardous waste with a cradle to grave system from storage, treatment, transportation to disposal.
- Surface Mining Control & Reclamation Act of 1977 (SMCRA): requires coal strip mines to reclaim the land
- Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980: Created $1.6 billion superfund designed to identify and clean up abandoned hazardous waste dump sites. Established liability for clean up costs if source could be identified.
- Ocean Dumping Ban Act of 1988: Bans dumping of sewage, sludge and industrial waste into oceans.
- Food Quality Protection Act of 1996 (FQPA0: Set pesticide limits in food, and all active and inactive ingredients must be screened for estrogenic/endocrine effects.
- Low Level Radioactive Policy Act: all states must have facilities to handle low level radioactive wastes.
- Nuclear Waste Policy Act: US government must develop a high level nuclear waste site by 2015
- Coastal Zone Management Act (CZMA)- A 1972 Federal law that provides guidance and federal assistance to voluntary state and local coastal management programs. Goals are for the protection of natural resources and management of land development along coasts.
- Federal Land Policy and Management Act (FLPMA)- A 1976 Federal law that outlines procedures concerning the use and preservation of public US lands.
- Food Drug and Cosmetic Act- A federal law passed in 1906 that regulates the sanitary condition and safety of food, drugs and cosmetics. It includes food additives.

International Treaties, Laws and Conventions

- Convention on International Trade in Endangered Species (CITES): lists species that cannot be commercially traded as live specimens or wildlife products.
- Madrid protocol: Moratorium on mineral exploration for 50 years in Antarctica
- Kyoto Protocol of 1997: Controlling global warming by setting greenhouse gas emissions targets for developed countries. Not signed by the U.S.
- Montreal Protocol of 1987: A plan to limit and eventually phase out ozone depleting substances (CFC's)
- Earth Summit: held in 1970's, discussed clean water and air. Held in South Africa. The last summit tried to pass a world law by the year 2010 that 15% of our power was to be created by air and solar power. But the Summit was shut down.
- The World Trade Organization (WTO): designed to make international trade more fair and encourage development.
    - It has been used to subvert national environmental laws. Has the effect of hurting small, local farmers and businesses.
- North American Free Trade Agreement (NAFTA): Trade alliance between U.S., Canada and Mexico