Economics & Environment

I. Defining economics

II. The traditional market economic system & the environment

III. Neoclassical economics

IV. Environmental economics

V. Steady-state economics

“A nation which desires true wealth, desires it moderately, and can therefore distribute it with kindness, and possess it with pleasure; but one which desires false wealth, desires it immoderately, and can neither dispense it with justice, nor enjoy it in peace.”

-E. John Ruskin, 1883 (English economist)

I. Starting with the basics = Defining economics

A. Economics = Study of how scarce resources are allocated among competing uses
   a. What & how much to produce, Should it be produced?
   b. How to produce it
   c. For whom to produce it
   d. How goods should be allocated

Inputs – commodities companies need to produce goods & services

Outputs – goods & services

C. Types of economies:

1) Command economies
   - Central control of production of goods & services - government ownership of virtually all the means of production—farms, factories, scientific laboratories, shops, and so forth—and organization of those assets into firms managed by employees of the state

2) Market economies (capitalism)
   - Monetary signals control the production and distribution of goods & services
   - Adam Smith - “possible to pursue private gain in ways that would further not just the interests of the individual but those of society as a whole.”
   - Smith said that the combination of self-interest, private property, and competition among sellers in markets will lead producers “as by an invisible hand” to an end that they did not intend, namely, the well-being of society.
Demand – focuses on the idea of "willingness to pay"
- price influences the quantity of a commodity

Demands

price

S

D

Capitalism = economic system in which private individuals and business firms carry on the production and exchange of goods and services through a complex network of prices and markets.
If a good is not priced, there will be a chronic tendency to over use that good

- Economic development = improvements in efficiency & organization, but not necessarily increases in resource consumption
- Economic growth = material increases in the amount of resources used
  - Benefits of growth:
    - Increases the "standard of living"
    - Stimulates higher employment
    - Provides fiscal dividends to the government
    - Increases the accelerator effect (investment in R&D)
    - Boosts confidence
II. The traditional market economy & the environment

A. The market economy – the root of all evil in the world? Or the best thing since sliced bread?

Is the market economy all that bad?  
YES:

✓ Pursuit of economic wealth results in rampant resource consumption, which is accompanied by massive environmental destruction
✓ Economic decision making fails to take environmental considerations into account and thus results in production systems that run roughshod over the Earth

Specific Problems:

1) Short-term planning
2) Single-minded dependence upon the law of supply and demand to determine prices (no consideration given to long-term supplies)
3) Narrow notions of the inputs and outputs of an economy
4) Single minded dedication to measuring success by the GNP
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<th>Middle</th>
<th>Low</th>
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<td>Population</td>
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<td>2.7 billion</td>
<td>2.5 billion</td>
<td>285 mil.</td>
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B. Myths about economy & environment

- Environmental protection is bad for the economy
- Environmental protection is about quality of life and economics is about survival
- Economic growth is good, indeed essential

C. Further Considerations:

- How big is the economy relative to the global ecosystem that sustains it?
- How big can the economy become without destroying the global ecosystem, and eventually undercutting its own base of support?
- How big SHOULD the global economy be – what is the optimal, or best size, for the global economy? (It is conceivable that the largest possible economy might not be the optimum for the long term)
Neoclassical economic assumptions:

1) The ROLE OF THE ENVIRONMENT IN SUPPLYING MATERIALS, SERVICES AND WASTE SINKS (which together make the human economy possible), IS LARGELY IGNORED.

2) ASSUMED THAT HUMAN-MADE CAPITAL CAN BE SUBSTITUTED FOR NATURAL RESOURCES ACROSS THE BOARD.

3) REJECTION OF ANY LIMITS ON GROWTH. Unceasing growth is seen as not only possible, but as the best, and perhaps the only, solution to poverty and environmental degradation.

4) Human welfare is best served by the view of people acting as “human molecules” who, by pursuing their own interests through the market, inevitably promote the general good.

WHY THIS ECONOMY FALLS SHORT:

1. Externalities

- Phenomenon external to markets and hence does not affect how the market operates, yet should
  - Examples: waste & pollution

- Costs incurred may not be included in the price of the good/service… rather must be shared by all who live in the system
  - Preferred mechanism = taxes & subsidies
2. Substitution

- Manufactured capital = natural capital, a unit of one can be exchanged for a unit of the other
- Example - Could metal or plastic be substituted for wood?

3. Common access resources

Goods that cannot be charged for because of open access and use by many people. These Resources are NOT protected by traditional property rights, nor exchanged in markets where price would be set by supply and demand.
4. Ethical problems

- Economic growth will be perpetually driven by consumer demand
- No incentive to make choices based on any entity but the individual
- **Causa finalis** – what is the purpose that causes the action? Or Doing what for what?

Understanding the need for change

- Why is changing the way we think about economics **critical** to conservation?
- Why are we so resistant to even thinking about change?

IV. Environmental Economics

A. Basic tenets of environmental economics view:
   1) Manufacture capitol ≠ natural capitol
   2) Human economy is dependant upon the environment
   3) Human economy must increasingly make environmental constraints a more explicit consideration in production & waste disposal
   4) Economic activity should be practiced on a **sustainable** scale
B. Requirements for environmental economics to work:

1) Redefinition of “growth” and a differentiation among types of growth
   The Exxon Valdez oil spill in March 1989 actually caused US GNP to rise because much of the $2.2 billion spent on labor and equipment used in the clean up became added to income to the US.

2) Explicit determination & measurement of environmental constraints on economic growth

3) Definition of the functions of the environment & natural resources

4) Creation of markets for environmental goods + environmental valuation for natural capitol
   Full cost pricing

5) Alternative measures of human well-being

C. Redefining “Growth”, alternatives to the GDP/GNP

1) Genuine progress indicator (GPI) – recognizes economic contributions for aspects previously ignored by the calculation of GDP, e.g. money spent of clean up, money of security systems dealing with crime.

2) Ecological Footprint – a tool which calculates the productive land area required to sustain resource consumption and waste assimilation requirements for a defined entity in a single aggregate index.

3) Environmental Sustainability index (ESI) – the progress towards sustainability is scored based on 22 core indicators of which combines into a total of 67 underlying variables. It focuses on environmental systems, stress on environmental systems, human vulnerability in the form of loss of food, social and institutional capacity and global stewardship.

4) Barometer of Sustainability - assesses the region’s progress toward sustainability through the systematic integration of economic, biophysical, and social health indicators. It requires people to state explicitly their assumptions about human ecosystem wellbeing so that calculated sustainability ratings can be scored against desired levels.

5) Index of ecosystem wellbeing - measures trends as a function of land, water, air, biodiversity and resource use indicators. The index of human wellbeing is a function of the wellness of individuals: health, education, unemployment, poverty, earnings and crime on the one hand, business and human actions on the other.

Genuine Progress Indicator
V. Steady-State Economics

A. Basic tenets of Steady-State Economics

1) People would enjoy the fruits of their savings once they had attained an acceptable standard of living.

2) Does not aspire to “growth”, rather “development” therefore focuses on increasingly efficient use of stock (capital) and increasing the quality of stock itself.

3) Emphasis placed on the quality and distribution of stock ownership (redistribution of resources rather than growth as the answer to poverty).

B. Assumptions of the Steady State

1) The environment is a subsystem of the human economy, not invisible…

2) Desire for nature, and thus value of nature will gradually increase.

3) Community values are important, and sometimes supersede individual values.

4) Virtue and character development important, may be harmed by fixation with accumulation of material things.

“Green-minded activists failed to move the broader public not because they were wrong about the problems, but because the solutions they offered were unappealing to most people”. - Outcome Driven Innovation Co. Founder

C. Characteristics for a sustainable economy

- Birth rate = death rate
- Soil erosion rate < new soil formation rate
- Tree cutting < tree planting
- Fish, Chicken & Cattle production at sustainable levels
- Water pumping < aquifer recharge
- CO₂ emissions = carbon fixation
- Species loss < new species evolution
"What lies in our power to do, also lies in our power not to do."

- Aristotle