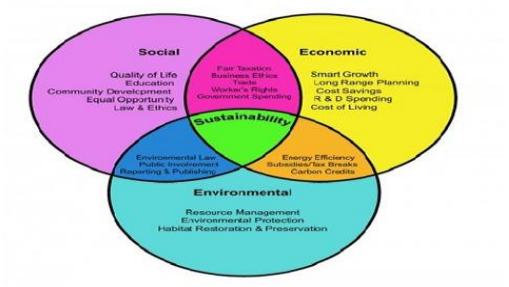
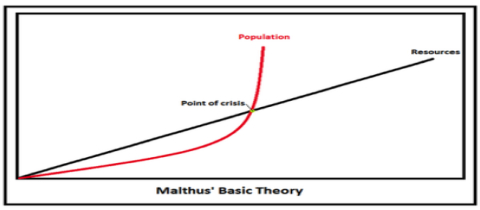
Econ 275 – Environmental Economics

Chapter 1 Lecture - Visions of the Future



Introduction

- The Self-Extinction Premise
  - Some historic examples and views
    - The Roman empire
    - Thomas Malthus and *An Essay on the Principle of Population*



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Easter Island

A rising population, coupled with a heavy reliance on wood for housing, canoe building, and statue transportation, decimated the forest.

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The Mayan Civilization

Food production failed to keep pace with the increasing population.

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Future Environmental Challenges

- Climate Change
  - Greenhouse effect
  - Greenhouse gas and human activities
  - Climate change and moral dimension
  - Climate change and international coordination
- Water Accessibility
  - Increasing water stress
  - Nonuniformly distributed water stress
  - Demand for water and human activities

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How Will Societies Respond?

- International Cooperation
- Resilient Market System
- Understanding Feedback Loops
  - Positive Feedback Loops
    - Positive feedback loops refer to those in which secondary effects tend to reinforce the basic trends.
    - Examples include capital accumulation, emissions of methane, and global warming.
    - Scientists believe, for example, that the relationship between emissions of methane and climate change may be described as a positive feedback loop.
  - Negative Feedback Loops
    - A negative feedback loop is a self-limiting rather than self-reinforcing process.
    - For example, the Gaia hypothesis

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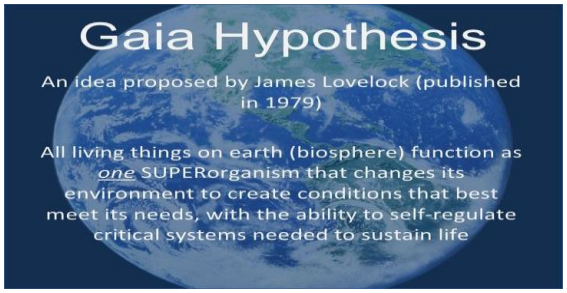

Can the coronavirus be envisioned as a dark cloud with a silver lining. Should we consider the COVID-19 virus as Gaia's defensive system, an army of foot soldiers, conveying a strong message that our planet is sick and some remedial measures are necessary to restore its health.

https://www.statesmanjournal.com/story/opinion/2020/04/03/view-covid-19-pandemic-through-gaia-hypothesis-opinionwe/5109940002/

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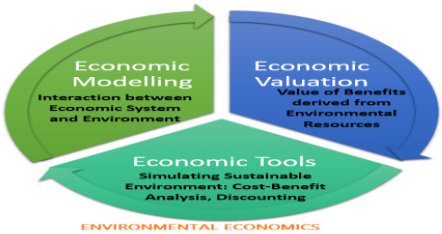
The Role of Economics

- The Role of Economics
  - Understanding human behavior
- The Use of Models
  - Simplified characterization of reality
  - Experimental economics



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Ecological Economics and Environmental Economics

Environmental (and resource) economics	Ecological economics
• The environment ("land") is a "factor of production"	• People (and economies) are part of the environment
• There are substitutes for environmental goods and services	• There are no substitutes for many environmental goods and services
• Environmental problems can be addressed by adjustments in the economic systems	• Addressing environmental problems requires contribution of disciplines other than economics

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The Road Ahead

- Is the problem correctly conceptualized as exponential growth with fixed, immutable resource limits? Does the earth have a finite carrying capacity? Do current levels of economic activity exceed the carrying capacity?
- How does the economic system respond to scarcities? Is the process mainly characterized by positive or negative feedback loops?

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The Road Ahead

- What is the role of the political system in controlling these problems? In what circumstances is government intervention necessary?
- Can our economic and political institutions respond to the uncertainty in reasonable ways or does uncertainty become a paralyzing force?
- Can the economic and political systems work together to eradicate poverty and social injustice while respecting our obligations to future generations?

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Comparison of Three Major Environmental Worldviews

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Natural Resource Economics

- Natural resource economics deals with the supply, demand and allocation of the earth natural resource.
- Main objective of natural resource economics is to better understand the role of natural resources in the economy in order to develop more sustainable methods of managing those resources to ensure their availability to future generations.

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Natural Resource Economics

- Resource economists study interactions between economic and natural systems, with the goal of developing a sustainable and efficient economy.
- Natural resource management refers to the management of natural resource such as land, water, soil, plants and animals with a particular focus on how management affects the quality of life for both present and future generations.
- Natural resource management deals brings together land use planning, water management, biodiversity conservation and the future sustainability of industries like agriculture, mining, fishing, etc.

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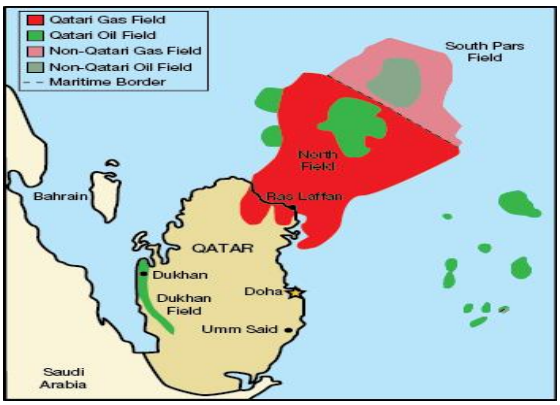

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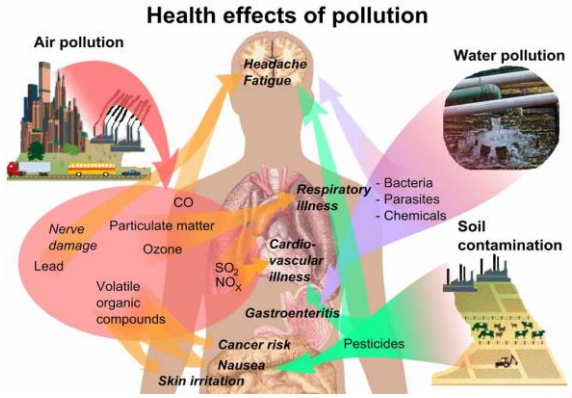

https://commons.wikimedia.org/wiki/File:Health_effects_of_pollution.svg

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