Human Impact on the Environment

Introduction to Geography
GEH 101/GEH 501
Lehman College
Spring 2011

Keith Miyake

Housekeeping

- Mid-term exam
  - Must notify me before exam if you will be absent
    - Make-up without notification: 70% max score
    - Topics on website
- Chapter 5 lecture...
- Quiz

Ecology

- Study of how organisms (including humans) interact with each other and with their environments
- Production of nature (Neil Smith, 1984): nature does not exist outside of human influence, and therefore should be understood in terms of its production, or transformation through social relations under capitalism

Nature?

- What is nature?
- What is natural?
- How do humans fit into understandings of nature?

Ecosystems

- Self-sustaining units that consist of plants, animals, and physical features existing together in an area
- Energy flows through ecosystems
  - sun
  - geothermal
  - “food”
    - Food chain: Sequence of organisms through which energy and materials move within an ecosystem

Human Influence on Ecosystems

- Key Questions:
  - What impacts to humans have on ecosystems?
  - What are the main factors contributing to human impacts on ecosystems?
  - How can we characterize spatial variations in human impacts on ecosystems?
  - Why does this matter?

Human Influence on Ecosystems

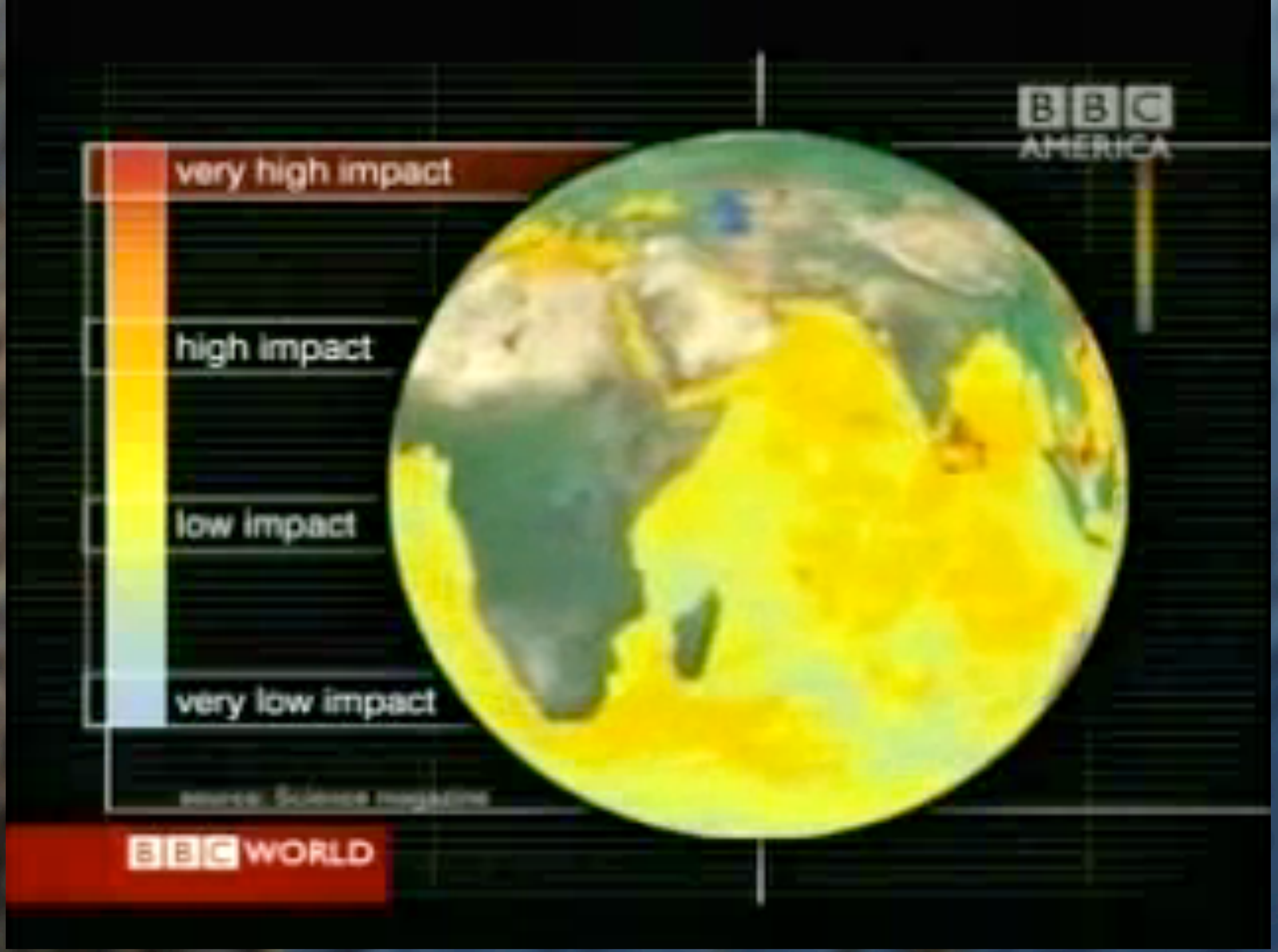
- IPAT equation
  - I (impact on the environment) = P (population) X A (affluence) x T (technology factor)
- Growing populations and rising standards of living both contribute to greater strain on the environment
- Technologies can increase or decrease impact

Human Impacts on the Environment

- Impact on Water
- Impact on Air and Climate
- Impact on Landforms
- Impact on Plants and Animals
- Solid-Waste Disposal
- Environmental Impacts on Humans

Water

- Drinking water
- Water flow, dams, channelization, erosion
- Pollution, water quality, soil contamination
  - Agriculture
  - Manufacturing, mining
  - Urban areas/municipal use
- Uneven impacts, urbanization



http://www.youtube.com/watch?v=pZtsKB_OOkE

Air and Climate

- Noxious chemicals and smog
- Greenhouse gases
- Ozone depleting chemicals
- Effects
- Controls
- Distributions of Sources vs. Effects

http://www.youtube.com/watch?v=ujAa4clXjQ8

Landforms

- Mining: underground, surface/open pit, strip, mountaintop/valley
- Coastal regions, dredging/filling, sedimentation
- Groundwater/subsidence
- Desertification/erosion

http://www.5min.com/Video/The-Impact-of-the-Community-on-the-Land-Overuse-in-China-342492296

Plants and Animals

- Habitat loss: deforestation, marshes/tidal regions, oceans and lakes
- Hunting and fishing
- Agriculture and manufacturing wastes
  - Pesticides & chemicals: fate & transport
- Invasive species

http://www.youtube.com/watch?v=DPXiegODB5c

Solid Waste

- Solid municipal waste and landfills
  - Space
  - Groundwater toxins and Volatiles
  - Incineration: toxins and energy
- What does it mean to reduce use?
- Reuse and Recycling
  - Cost, energy
- E-Waste, uneven impacts

http://www.youtube.com/watch?v=EXzsqTFwV3Q

Environmental Impacts on Humans

- Effects of climate change
- Toxics in the air, water, soil, plants, and animals
- Where are impacts greatest? What industries, why those industries are there
- Profit based on the exploitation of people and the environment
- Who benefits? Who is affected?

Quiz: Ch. 5 & 12

1. What is a natural resource? What makes some resources more valuable than others?

2. What is the difference between perpetually renewable and potentially renewable resources? Give an example of each.

3. What does sustainability mean to you? Discuss the relationship between sustainability and resource management.

4. Pick two of the social variables (population, technology, affluence) that affect the degree of human impact on environments and describe why each is a contributing factor.

5. Discuss the distribution of toxics in terms of the spatial relationship between sources and impacts.