Environmental Economics and Policy
1. Case Study: Tijuana River
2. Economics
3. Environmental Policy
4. Policy Approaches
Case Study: Tijuana River

• Tijuana River Watershed
  – Contains 2 million people
  – 70% of watershed in Mexico
  – River flows NW from Mexico to U.S.

  – Problems
    • Increasing population
    • Inadequate sanitation systems
    • Impoverished people
1. Map of the Tijuana River watershed

(a) Map of the Tijuana River watershed

(b) Wastewater enters the ocean near Tijuana

Withgott and Laposata 2012
Case Study: Tijuana River

• Tijuana River Watershed cont’d
  – Solutions/Effects
    • Treating wastewater
      – International water treatment plant built in CA in 1997
      – reached capacity by year 2000
    • Trapping Sediment
      – Sediment basins built
    • Monitoring
      – US organizations
      – Volunteer groups
River flow

18 acres of Salt Marsh buried by sediment (2005)

PLayas Tijuana

Monument Mesa

Bunker Hill

Goat Canyon Sediment Basins

River flow

4.12.2005
1. Economics

- How people provide goods and services
- Driven by demand
- Goods and services require natural resources
Economics

• Types of economies
  – Subsistence – daily needs from environment
  – Capitalist market – consumers and sellers determine supply and demand
  – Centrally planned – resources allocated by government
  – Mixed – governments interact with business and consumer markets
1. Economics

- Neoclassical economics
  - Inputs
  - Outputs

Figure 5.2
1. Economics

- Neoclassical economics cont’d
  - Assumptions
    - Replacement
    - Focused on now
    - “Internal” costs and benefits
    - Growth is good and necessary
1. Examples of “external” costs

1. **Economics**

- Environmental economics
  - Goods and services come from the environment
  - Ecosystem services
    - Erosion control, nutrient flow, waste disposal
    - Markets can enhance and/or degrade services
Economics

• Environmental economics cont’d

  – Assumptions

• Resources are finite
• Focused more on the future
• Costs and benefits can be “internal” and “external”
• Growth is not necessarily good

Tragedy of the Commons
2. Environmental Policy

• What to do when there is a problem?
  – Policy: plans and principles to address problems and guide decisions
2. Environmental Policy

- Stages in US environmental policy
  1. Unrestricted access (1780s-1870s)
  2. Conservation (1880s-1950s)
  3. The Human Factor (1960s-present)
Homestead Act (1862): anyone could buy or settle on 160 acres of public land for $16

(a) Settlers in Custer County, Nebraska, circa 1860
2. **General Mining Act (1872):** people could mine on public land for $5/acre with no government oversight

![Image of mining operation](image)

(b) Nineteenth-century mining operation, Lynx Creek, Alaska

Withgott and Laposata 2012
Timber Culture Act (1873): encouraged the timber industry to clear-cut ancient trees with little government policy to limit logging or encourage conservation.
1872: Yellowstone National Park established
1903: Pelican Island National Wildlife Refuge established
1905: US Forest Service established
1950s-1960s: Ohio’s Cuyahoga River was so polluted that it caught fire
1962: Rachel Carson’s *Silent Spring* described the ecological and health effects of pesticides and chemicals
2.

Key Environmental Protection Laws, 1963–1980

- **1963**: Clean Air Act
- **1964**: Wilderness Act
- **1965**: Federal Water Pollution Control Act, Solid Waste Disposal Act
- **1968**: Wild and Scenic Rivers Act
- **1970**: National Environmental Policy Act
- **1972**: Endangered Species Act
- **1974**: Safe Drinking Water Act
- **1976**: Toxic Substances Control Act
- **1977**: Clean Water Act, Soil and Water Conservation Act
- **1980**: CERCLA (“Superfund”)

Withgott and Laposata 2012
Three major approaches:

– Lawsuits
– Command-and-control
– Economic policy tools

Figure 5.13
3. **Policy Approaches**

- **Lawsuits**
  - **Pros**
    - Allows individuals to sue large organizations
    - Increased publicity for cause
  - **Cons**
    - Costly legal fees
    - Relationship of government to industry
3. Policy Approaches

- **Command-and-control**
  - **Pros**
    - Agency charged with defending rights of citizens
    - Punishment for violators
  - **Cons**
    - Slow process: Policy lags behind problems
    - Top-down approach not always preferred
Policy Approaches

• Economic Policy Tools

   — Pros

   • Not top-down; allows for unique situations
   • Places choice with citizens

   — Cons

   • System can be abused
   • Influenced by political climate
Policy Approaches

• Economic Policy Tools: examples
  – Ecolabeling
  – Subsidies/Tax Breaks
  – “Green” markets

Fair Trade

Figure 5.14

Subsidies provided to energy industry in USA (1960-2010)

- Renewables (wind, solar, geothermal, biofuels) ($81 billion)
- Nuclear ($73 billion)
- Hydropower ($90 billion)
- Coal ($104 billion)
- Natural gas ($121 billion)
- Oil ($369 billion)
Willamette Partnership
Ecosystem Credit Accounting System

Figure 2.0.1 Overview of Credit Generation Process

- Select & Validate Site
- Calculate Credits
- Verify & Certify Credits
- Register & Issue Credits

Project Developer/Seller
Verifier
Verifier

Technical Service Provider (as needed)
Regulatory Agency (for compliance-grade credits, as appropriate)
Willamette Partnership (Market Administrator)
Resources

Publications