

# ENVIRONMENT

THE SCIENCE BEHIND THE STORIES

Jay Withgott • Scott Brennan

## Ch 2

### Environmental Ethics and Economics: Values and Choices

#### Part 1: Foundations of Environmental Science

PowerPoint® Slides prepared by Jay Withgott and Heidi Marcum



Third Edition

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## Central Case: The Mirrar Clan Confronts the Jabiluka Uranium Mine

- Uranium deposits in Australia often occur on sacred Aboriginal land
  - The Mirrar oppose the mine for cultural, religious, ethical, health, and economic reasons

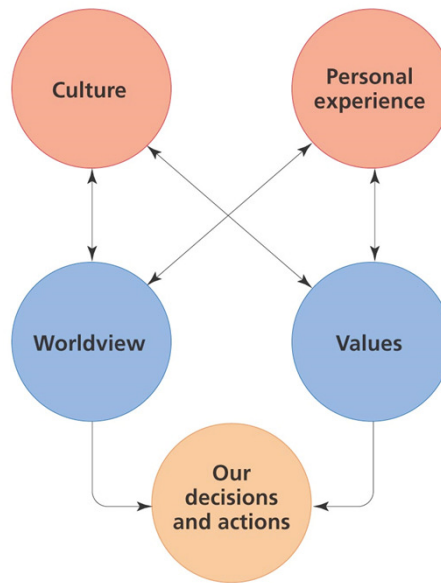


The mine will not be developed unless the Mirrar agree

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## Ethics and economics

- Both disciplines deal with what we value
- Our values affect our environmental decisions and actions



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## Culture and worldview

- Our relationship with the environment depends on assessments of costs and benefits
- Culture and worldview also affects this relationship
  - **Culture** = knowledge, beliefs, values, and learned ways of life shared by a group of people
  - **Worldview** = a person's or group's beliefs about the meaning, purpose, operation, and essence of the world

*Culture and worldview affect our perception of the environment and environmental problems*

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## Worldviews differ among people

- Different worldviews result in different perceptions
- Aborigines saw the negative environmental impacts of the Jabiluka mine
- Others saw jobs, income, and energy from the mine



(a) Ranger mine



(b) Proposed Jabiluka mine site

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## Many factors shape worldviews

- Religions
- Communities
- Political ideology
- Economics
- Individual interests
  - **Vested interest** = an individual with strong interests in the outcome of a decision that results in gain or loss for that individual

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## Ethics

- **Ethics** = the study of good and bad, right and wrong
- **Ethical standards** = criteria that help differentiate right from wrong
  - Classical standard = virtue
  - The golden rule

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## Environmental ethics

- **Environmental ethics** = application of ethical standards to relationships between human and non-human entities
  - Hard to resolve; depends on the person's ethical standards
  - Depends on the person's domain of ethical concern

Should we conserve resources for future generations?

Is it OK to destroy a forest to create jobs for people?

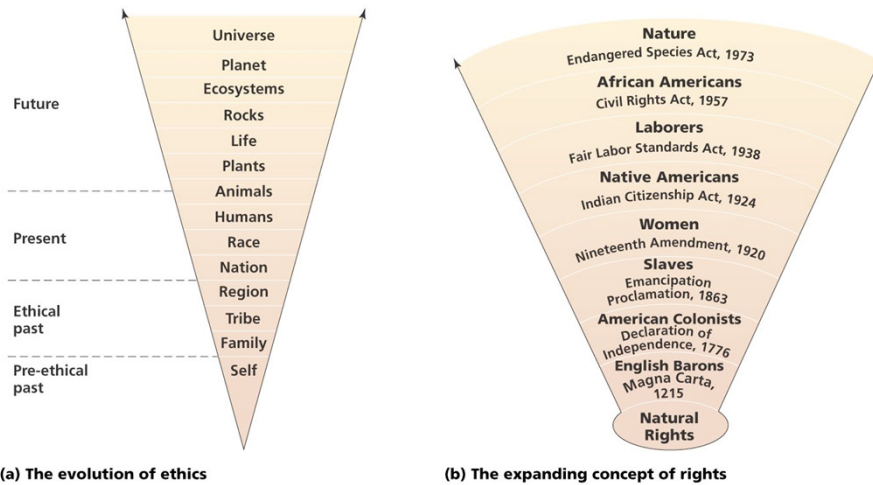
Should humans drive other species to extinction?

Is it OK for some communities to be exposed to excess pollution?

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## We have expanded our ethical consideration

- To include animals, communities, nature



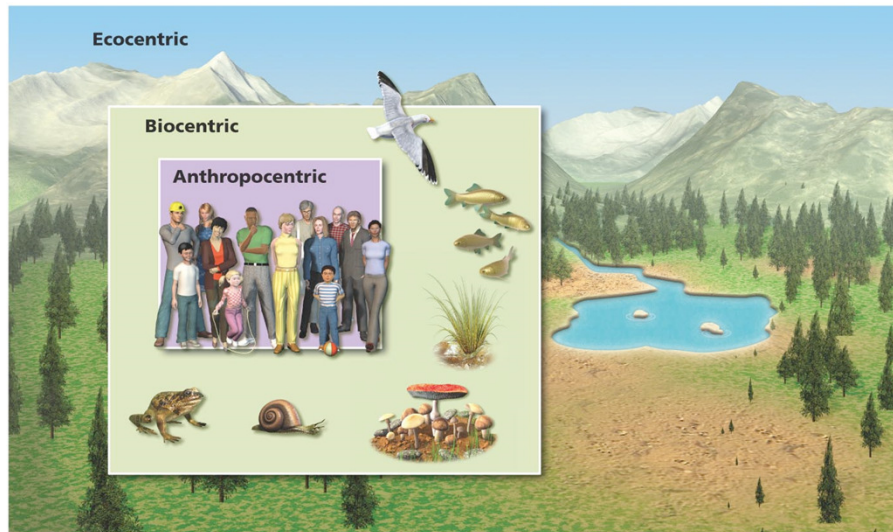
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## Expanding ethical concern

- Non-western cultures often have broader ethical domains
- Three perspectives in Western ethics
  - **Anthropocentrism** = only humans have rights
  - **Biocentrism** = certain living things also have value
  - **Ecocentrism** = whole ecological systems have value
    - Holistic perspective, stresses preserving connections

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## Western ethical expansion



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## History of environmental ethics

- The Industrial Revolution increased consumption and pollution
  - People no longer appreciated nature
  - **Transcendentalism** = nature is a manifestation of the divine
    - Ralph Waldo Emerson, Henry David Thoreau
  - Unspoiled nature should be protected for its own inherent value
    - John Muir (*right, with President Roosevelt at Yosemite National Park*) had an ecocentric viewpoint



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## The conservation ethic



- Use natural resources wisely for the greatest good for the most people
  - Gifford Pinchot had an anthropocentric viewpoint

## The land ethic



- Healthy ecological systems depend on protecting all parts
  - Aldo Leopold believed the land ethic changes the role of people from conquerors of the land to citizens of it

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## Environmental justice (EJ)

• **Environmental justice** = the fair and equitable treatment of all people regarding environmental issues

- Wealthy nations dump hazardous waste in poorer nations with uninformed residents
- The poor and minorities are exposed to more pollution, hazards, and environmental degradation

*75% of toxic waste landfills in the southeastern U.S. are in communities with higher racial minorities*



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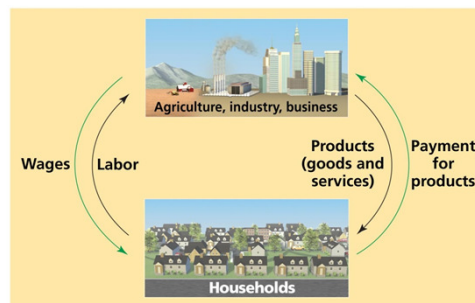
## Economics

- Friction occurs between people's ethical and economic impulses
  - **Generally, environmental protection is good for the economy**
- **Economics** studies how people use resources to provide goods and services in the face of demand
- **Most environmental and economic problems are linked**

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## Conventional view of economics

- Conventional economics focuses on production and consumption
  - **Ignores the environment**
  - The environment is an external “factor of production”



Copyright © 2008 Pearson Education, Inc. (a) Conventional view of economic activity



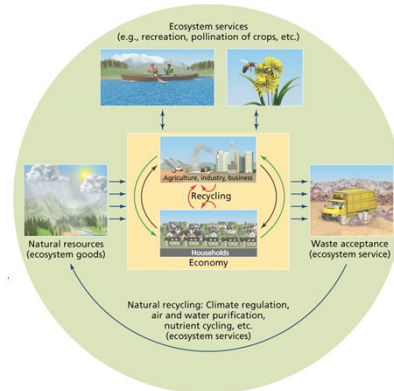
## Environmental systems support economies

- **Ecosystem services** = essential services support the life that makes economic activities possible

- \*Soil formation
- \*Pollination
- \*Water purification
- \*Nutrient cycling
- \*Climate regulation
- \*Waste treatment

- Economic activities affect the environment

- Deplete natural resources
- Produce too much pollution

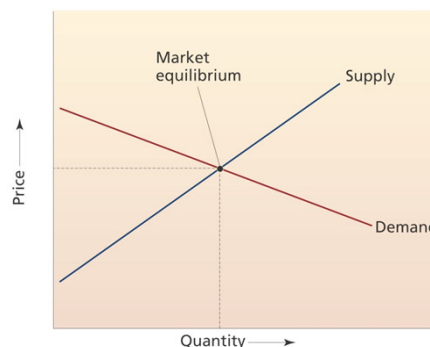


(b) Economic activity as viewed by environmental and ecological economists

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## Neoclassical economics

- **Market prices are explained in terms of consumer preferences**
  - Buyers vs. sellers
- **Cost-benefit analysis** = the costs of a proposed action are compared to the benefits that result from the action
  - If benefits > costs: pursue the action
- Not all costs and benefits can be identified



(a) Classic supply-demand curve

*The market favors equilibrium between supply and demand*

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## Assumption: Costs and benefits are internal

- Costs and benefits are experienced by the buyer and seller alone
  - Do not affect other members of the society
  - Pricing ignores social, environmental or economic costs
- **Externalities** = costs or benefits involving people other than the buyer or seller
- **External costs** = borne by someone not involved in a transaction
  - Human health problems
  - Resource depletion
  - Hard to account for and eliminate
    - How do you assign monetary value to illness?

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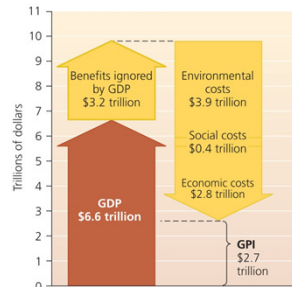
## A steady state economy

- As resources became harder to find, economic growth slows and stabilizes (John Stuart Mill, 1806-1873)
  - We must rethink our assumptions and change our way of economic transactions
  - This does not mean a lower quality of life
- Economies are measured in various ways
  - **Gross Domestic Product (GDP) = total monetary value of final goods and services produced**
    - Does not account for nonmarket values
    - Pollution increases GDP

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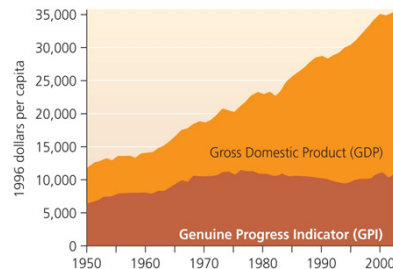
## GPI: An alternative to the GDP

- **Genuine Progress Indicator (GPI)** = differentiates between desirable and undesirable economic activity
  - Positive contributions (i.e. volunteer work) not paid for with money are added to economic activity
  - Negative impacts (crime, pollution) are subtracted



(a) Components of GDP vs. GPI

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(b) Change in U.S. GDP vs. GPI

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*In the U.S., GDP has risen greatly, but not GPI*

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## Valuing ecosystems goods and services

- Our society mistreats the very systems that sustain it
  - The market ignores/undervalues ecosystem values
- **Nonmarket values** = values not included in the price of a good or service



(a) Existence values

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(c) Option values

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(e) Scientific values

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(g) Cultural values

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(b) Use values

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(d) Aesthetic values

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(f) Educational values

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## Markets can fail

- **Market failure** = markets do not account for the environment's positive impacts
  - Markets do not reflect the negative effects of activities on the environment or people (external costs)
- Government intervention counters market failure
  - Laws and regulations
  - **Green taxes** = penalize harmful activities
  - Economic incentives to promote conservation and sustainability

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## Ecolabeling addresses market failures

- The market can be used to counter market failure
  - Create markets in permits
  - **Ecolabeling** = tells consumers which brands use sustainable processes
    - A powerful incentive for businesses to switch to better processes
      - “Dolphin safe” tuna
  - **Socially responsible investing** in sustainable companies



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## Corporations are responding to concerns

- Industries, businesses, and corporations can make money by “greening” their operations
  - Local sustainably oriented businesses are being started
  - Large corporations are riding the “green wave” of consumer preference for sustainable products
    - Nike, Gap
- Be careful of **greenwashing**, where consumers are misled into thinking companies are acting sustainably

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## Ch 3

### Environmental Policy: Decision Making and Problem Solving

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## Environmental policy

- **Policy** = a formal set of general plans and principles to address problems and guide decisions
- **Public Policy** = policy made by governments that consists of laws, regulations, orders, incentives, and practices
- **Environmental Policy** = pertains to human interactions with the environment
  - Regulates resource use or reduce pollution

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## Why are environmental laws unpopular?

- Environmental laws are challenged, derided, and ignored
- Environmental policy involves government regulations
  - **Businesses and individuals view laws as overly restrictive and unresponsive to human needs**
- Most environmental problems are long-term processes
  - **Human behavior is geared toward short-term needs**
  - **News media have short attention spans**
  - **Politicians act out of their own short-term interest**

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## State and local policies affect environmental issues

- Important environmental policy is also created at **the state and local levels**
- State laws cannot violate principles of the U.S. Constitution,
  - **If laws conflict, federal laws take precedence**
  - **California, New York, and Massachusetts have strong environmental laws**
  - **The interior western states put less priority on environmental protection and favor unregulated development**

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## Early U.S. environmental policy

- Involved management of public lands, **1780s to the late 1800s**
  - **Promoted settlement**
  - **Extraction of natural resources**
- Increased prosperity
- Relieved crowding in Eastern cities
- Displaced millions of Native Americans
- **People believed that land was infinite and inexhaustible**



(a) Settlers in Custer County, Nebraska, circa 1860

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

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(c) Loggers felling an old-growth tree, Washington

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## The second wave of U.S. policy

- Addressed impacts caused by the first wave
- Public perception and government policy shifted
  - Mitigated environmental problems associated with westward expansion
  - **Yellowstone National Park**, the world's first national park, opened in 1872
- Other protected areas were created
  - National wildlife refuges, parks, and forests
- Reflected a new understanding that the West's resources were exhaustible and required legal protection

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## The third wave of U.S. environmental policy

- Mid-to late-20th century
  - Better off economically
  - But dirtier air, dirtier water, and more waste and toxic chemicals
- Increased awareness of environmental problems shifted public priorities and policy
- 1962: *Silent Spring* (by Rachel Carson) described the negative ecological and health effects of pesticides and industrial chemicals



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## Modern U.S. environmental policy

- The Cuyahoga River was polluted with oil and industrial waste
  - It caught fire in the 1950s and 1960s
- Today, public enthusiasm for environmental protection remains strong
  - The majority of Americans favor environmental protection
  - In April, millions of people celebrate Earth Day



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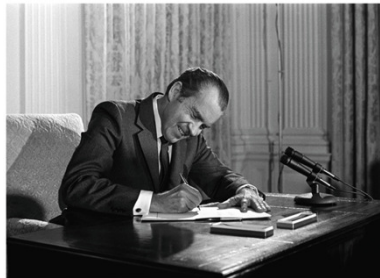


© The First Earth Day, Washington, D.C., 1970  
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## The National Environmental Policy Act (NEPA)

- 1970 began the modern era of environmental policy



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- Created the Council on Environmental Quality
  - Requires an Environmental Impact Statement (EIS) for any federal action that might impact the environment

*NEPA forces the government and businesses to evaluate the environmental impacts of a project*

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## The EPA shifts environmental policy

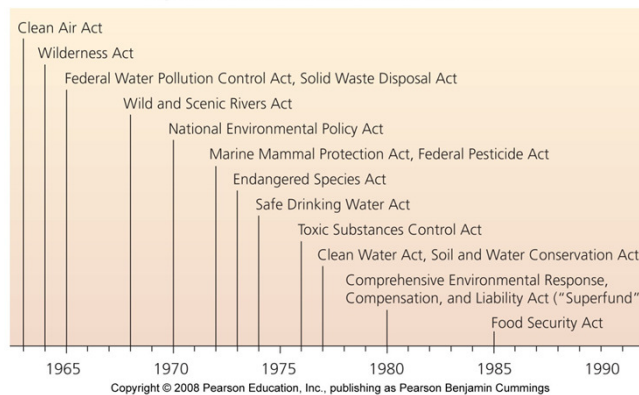
- **Nixon created the Environmental Protection Agency (EPA)**
  - Conducts and evaluates research
  - Monitors environmental quality
  - Sets and enforces standards for pollution levels
  - Assists states in meeting standards and goals
  - Educates the public

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## Significant environmental laws

- The public demanded a cleaner environment and supported tougher environmental legislation

Key Environmental Protection Laws, 1963–1985



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## Future environmental policies

- Will depend on having the American environmental movement reinvent its approach
  - It needs to appeal to people's core values
  - Start showing why these problems are actually human issues and affect our quality life
- Future policies need to articulate a positive, inspiring vision for the future
- Currently, the **United States has retreated** from its leadership
  - Other nations have increased their attention to environmental issues

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## The Earth Summit



Rio de Janeiro,  
Brazil, in 2002

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- The largest international diplomatic conference ever held
  - It centered on the idea of **sustainable development**
- This fourth wave of environmental policy focuses on sustainable development
  - Finding ways to safeguard natural systems while raising living standards for the world's poorest people

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## The World Trade Organization (WTO)

- Represents multinational corporations to **promote free trade**
- Has authority to **impose penalties** on nations the don't comply with its directives
- Interprets some environmental laws as unfair barriers to free trade
  - **Brazil and Venezuela filed a complaint against the U.S. EPA's regulations requiring cleaner-burning fuel**
  - **The WTO agreed with Brazil and Venezuela, despite threats to human health**
- Critics charge the WTO aggravates environmental problems

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## NGOs and the World Bank

- **Nongovernmental Organizations (NGOs)** = entities that influence international policy
  - **Some do not get politically involved**
  - Others try to shape policy through research, lobbying or protest
- **The World Bank = one of the world's largest funding sources for development**
  - Dams, irrigation, infrastructure
  - **Funds unsustainable, environmentally damaging projects**



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## Widespread economic policy tools

- **Tax breaks** = encourage desirable industries or activities
- **Subsidy** = a government giveaway of cash or resources to encourage a particular activity
  - Have been used to support unsustainable activities
- **Green taxes** = taxes on environmentally harmful activities
  - Polluter pays principle = the price of a good or service includes all costs, including environmental degradation
  - Gives companies financial incentives to reduce pollution
  - But, costs are passed on to consumers



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*In 2003, \$58 billion of taxpayer's money was spent on 68 environmentally harmful subsidies such as building logging roads*