Environmental and Natural Resource Economics: A Contemporary Approach

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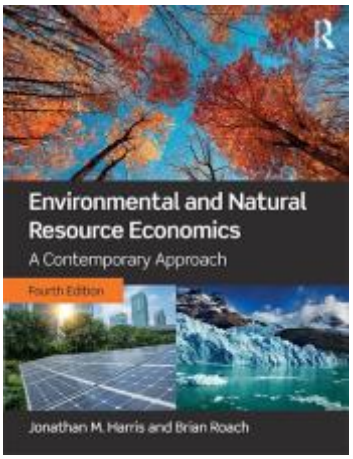

This text introduces the student to the expanding field of ecological economics. It balances coverage of standard environmental economics topics with a global perspective on current ecological issues such as population growth, global climate change, "green" national income accounting, and the relationship between trade and the environment.

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Chapter 1: Changing Perspectives on the Environment

1. What are some major environmental issues identified by international organizations?
2. What are some of the differences between standard environmental economics and ecological economics?
3. What are the four core concepts of environmental economics?
4. What are externalities?
5. What are public goods?
6. What are some examples of common property resources?
7. What are the three core concepts of ecological economics?
8. What is included in the standard circular flow model? How are natural resources included in the model?
9. How does the broader ecological circular flow model extend the standard model? What is the primary input? What is the primary output?
10. What is sustainable development?
11. What is the difference between anthropocentric and ecocentric worldviews?
12. What is meant by a pluralistic approach to environmental issues?
13. How do standard and ecological economics perspectives differ on the issue of economic valuation?
14. How do environmental and ecological economics view the issue of economic growth?

Chapter 2: Resources, Environment, and Economic Development

1. What was the Malthusian hypothesis and is it relevant for studying modern environmental issues?
2. What is the evidence so far regarding Malthusian predictions?
3. What factors does standard economic theory emphasize in studying economic growth?
4. What factors does ecological economics emphasize in studying economic growth?
5. How have the global growth rates of population, agricultural production, and energy use changed since the 1960s?
6. What is the "Limits to Growth" model? What did it predict? How have predictions changed in later versions of the model?
7. What are some major positive environmental trends in recent decades?
8. What are some major negative environmental trends in recent decades?
9. What are some of the characteristics of sustainable development?
10. What kind of agriculture can be considered sustainable?
11. What is a demand-side management approach to energy?
12. What does it mean to say that sustainable development is a new theoretical paradigm?

Chapter 3: The Theory of Environmental Externalities

1. What are environmental externalities? List some examples.
2. What is the difference between a positive and a negative externality?
3. What do we mean by "internalizing externalities"?
4. How do we illustrate negative externalities in a market graph?
5. What is a "socially optimal" outcome in the presence of negative externalities?
6. What is a Pigovian tax?
7. How would we illustrate a Pigovian tax in a market graph?
8. What is an upstream tax?
9. How do we illustrate a positive externality in a market graph?
10. How can subsidies be used to obtain a socially efficient outcome with a positive externality?
11. What is welfare analysis? How is it used to measure efficiency?
12. What is consumer surplus? What is producer surplus?
13. How do we measure net social benefits on a market graph?
14. How can we show that a Pigovian tax increases economic efficiency with a negative externality?
15. What do we mean by "optimal" pollution? Why shouldn't pollution levels be zero?
16. What is the Coase theorem? What does it say about the relationship between property rights and efficiency?
17. How can we illustrate the Coase theorem using a graph?
18. Does the assignment of property rights affect equity?
19. What is the objective of free market environmentalism?
20. What is the free rider effect?
21. What is the holdout effect?
22. What are some of the limitations of the Coase theorem?

Chapter 4: Common-Property Resources and Public Goods

1. What is a common property resource? What are some examples?
2. What are the three phases of a total product curve for a common property resource?
3. How do we calculate total revenue, average revenue, and marginal revenue?
4. What is the relationship between the marginal revenue curve and the average revenue curve?
5. How do we determine the open access equilibrium for a common property resource, both graphically and numerically?
6. How do we determine the economic optimum level of production with a common property resource? How will this differ from the open access equilibrium?
7. What is the tragedy of the commons? How might this problem be avoided?
8. How can a license fee be used to improve economic efficiency? How can the price of the license fee be determined?
9. How can transferable permits be used to improve economic efficiency? What is the advantage of using tradable permits instead of a license fee?
10. What are the two major characteristics of public goods?
11. Will free markets tend to produce a sufficient supply of public goods? Why or why not?
12. How can we obtain the social marginal benefits of a public good?
13. How can we illustrate the social benefits of a public good graphically, by aggregating the benefits of individuals?
14. What are global commons? What special considerations might be required for managing a global commons?

Chapter 5: Resource Allocation over Time

1. How do we measure the marginal net benefit of producing a resource?
2. Given the formulas for market demand and market supply, how can we solve for the marginal net benefit function.
3. What is the normal shape of the marginal net benefit function?
4. At what point are total benefits normally maximized in a market?
5. What is a discount rate? What is a present value?
6. How is discounting used to determine the efficient allocation of a resource over time?
7. How do we determine the efficient allocation of a resource over two time periods, both graphically and numerically?
8. What are user costs? How would we represent them on a graph?
9. What is a resource depletion tax? How can it be used to increase the temporal efficiency of using a resource?
10. Is government intervention always necessary for an efficient allocation of a resource over time?
11. How will different discount rates affect the way a resource is allocated over time?
12. What is Hotelling's rule?
13. When is it "optimal" to deplete a nonrenewable resource as soon as possible?
14. What is the Hartwick rule?
15. What are the equity implications of using discount rates to determine the allocation of a resource over time?

Chapter 6: Valuing the Environment

1. What is total economic value?
2. What are nonmarket benefits?
3. What is the difference between willingness to pay and willingness to accept?
4. What is the difference between use and nonuse values?
5. What is the difference between direct use value and indirect use value?
6. What are ecosystem services?
7. What are the three types of non-use values?
8. What is the cost of illness method?
9. What are replacement cost methods? Why are these not measures of WTP or WTA?
10. What are revealed preference methods? What are the three revealed preference methods?
11. How can a travel cost model be used to estimate consumer surplus?
12. How can hedonic pricing models be used to estimate economic values?
13. How can the defensive expenditures approach be used to estimate economic values?
14. What are stated preference methods?
15. What is contingent valuation?
16. What is the main advantage of contingent valuation?
17. What are some of the problems associated with contingent valuation?
18. What did the NOAA panel conclude about contingent valuation? What were some of the recommendations of the panel?
19. What is contingent ranking?

Chapter 7: Cost-Benefit Analysis

1. What is cost-benefit analysis (CBA)?
2. What are the basic steps for doing a cost-benefit analysis?
3. What are the two main ways of presenting the bottom-line result of a CBA?
4. How do economists value future costs and benefits?
5. Is a high or low discount rate inherently better for environmental protection?
6. What is a social discount rate?
7. What is the pure rate of time preference?
8. What is the value of a statistical life?
9. What is wage-risk analysis? How is it used to calculate a VSL?
10. What is the difference between risk and uncertainty?
11. How do economists calculate an expected value? What is the problem with using expected values in cases where people are risk adverse?
12. What is benefit transfer?
13. What is sensitivity analysis?
14. What are some of the limitations of cost-benefit analysis?
15. What is cost-effectiveness analysis? How does it differ from cost-benefit analysis?
16. What is positional analysis?

Chapter 8: Pollution - Analysis and Policy

1. What is the expected shape of the marginal cost of pollution reduction curve?
2. What is the expected shape of the marginal damage of pollution curve?
3. How do we determine the "optimal" level of pollution?
4. What is the equimarginal principle?
5. What are the four main pollution control approaches?
6. What are the advantages and disadvantages of emissions standards?
7. What are the advantages and disadvantages of technology-based approaches to controlling pollution?
8. How do economists determine the efficient level of a pollution tax?
9. How would we show the impacts of a pollution tax in a graph? Note that there are two different ways to show impacts.
10. How would we calculate the impacts of a pollution tax numerically?
11. What are the advantages and disadvantages of a system of transferable pollution permits?
12. How does a firm decide whether it should buy or sell pollution permits?
13. How is the equilibrium price of a pollution permit determined, referring to a graph similar to Figure 8.5?
14. What are threshold and non-linear impacts of pollution?
15. What are the differences in regulating local, regional, and global pollutants?
16. What is the difference between a uniformly mixed and nonuniformly mixed pollutant?
17. What are hotspots? How can they be avoided?
18. What is the difference between regulating a stock pollutant and a flow pollutant?
19. Why is stabilizing the emissions of a stock pollutant at current levels normally an insufficient policy response?
20. How can we determine if pollution taxes or tradable permits are the most appropriate policy for regulating pollution, based on the steepness of different curves on a graph?
21. What is the difference in the impact of technological change with a pollution tax versus a system of tradable permits?
22. What are the different ways to allocate tradable pollution permits? Which one is generally preferred?
23. What is the problem with "grandfathering" policies?
24. What is an upstream policy, and why is it generally preferred?
25. What are some of the situations in which each of the four pollution control approaches are preferred?
26. How effective has the Clean Air Act been in reducing emissions of criteria and toxic air pollutants in the United States?
27. How effective has the Clean Water Act been in the United States?
28. What is the difference between point-source pollution and nonpoint-source pollution?
29. How are hazardous wastes and chemicals regulated in the United States?

Chapter 9: Ecological Economics - Basic Concepts

1. What is methodological pluralism and how does it apply to environmental issues?
2. What is natural capital?
3. What is net investment?
4. What is natural capital depreciation?
5. What are some ways to account for natural capital depreciation?
6. What are satellite accounts?
7. What is the principle of natural capital sustainability?
8. What is throughput?
9. What is the difference between a closed and open system?
10. Why is the issue of scale important in ecological economics?
11. What do we mean by "empty-world" and "full-world" economics?
12. What is meant by planetary boundaries, and which boundaries have been exceeded?
13. What is an ecological footprint? What does it indicate for countries and the whole planet?
14. What is the difference between weak and strong sustainability?
15. Why is ecological complexity important to ecological economists?
16. What is the precautionary principle?
17. What is the concept of entropy and how does it apply to the analysis of energy?
18. What are payments for ecosystem services (PES)? What criteria are important in determining PES?
19. What are some examples of payments for ecosystem services?

Chapter 10: National Income and Environmental Accounting

1. What are some of the criticisms and limitations of traditional national income accounting measures?
2. What are the three different approaches to environmental accounting under the United Nations' System of Environmental and Economic Accounts?
3. What is the difference between Gross Domestic Product and Green GDP?
4. Is Green GDP always smaller than GDP?
5. What is the potential problem with the monetization of natural capital?
6. What is the measure of adjusted net saving (ANS) developed by the World Bank? What do some of the results indicate?
7. What is the Genuine Progress Indicator (GPI)? How is it calculated?
8. What do the GPI results for the United States suggest, in contrast to GDP results?
9. What is the relationship between the GPI and GDP per capita in developing countries?
10. What is the Human Development Index? What three variables does it include?
11. What is the Better Life Index? What are some of the dimensions of the BLI?
12. What do some of the BLI results indicate?
13. What are environmental asset accounts?
14. How do environmental asset accounts relate to the concepts of strong and weak sustainability?
15. In what units can environmental asset accounts be measured?
16. What is critical natural capital?
17. According to the Sarkozy Commission on the Measurement of Economic Performance and Social Progress, what are some of the problems with GDP as an indicator?
18. What were some of the main recommendations of the Sarkozy Commission?

Chapter 11: Energy - The Great Transition

1. What is the difference between renewable and nonrenewable energy?
2. About what percent of the world's energy comes from fossil fuels?
3. About what percent of the United States' energy comes from fossil fuels?
4. What are the five factors that can be used to evaluate different energy sources?
5. What is a net energy ratio?
6. What energy sources have the highest net energy ratios? Which have the lowest ratios?
7. What is the main energy source for transportation in the United States?
8. What are the main energy sources for electricity in the United States?
9. How has world energy consumption changed over the last few decades?
10. What do the projections for world energy use in 2035 indicate? How do "business as usual" and "aggressive policy" scenarios differ?
11. How does energy use per capita vary across countries?
12. How is global energy consumption current divided between developed and developing countries?
13. How are projected increases in future energy consumption split between developed and developing countries?
14. What is a Hubbert Curve? Has it proved accurate for United States oil production?
15. Is the world likely to run out of oil in the near future?
16. What has happened to global oil reserves over the last few decades?
17. What is "unconventional" oil?
18. How do reserves of coal and natural gas compare to those of oil?
19. Is there enough renewable energy available to power the world?
20. How do the costs of producing energy vary among different energy sources?
21. What renewable energy sources are currently cost-competitive with fossil fuels for generating electricity?
22. What do projections for the future price of wind and solar energy indicate?
23. How can energy subsidies be used to promote certain energy sources?
24. What are feed-in tariffs?
25. How do the environmental externalities of different energy sources compare?
26. How can taxes be used to promote renewable energy?
27. What non-tax policies can be used to promote renewable energy?
28. What is the potential for increased energy efficiency to reduce future energy demands?
29. What are efficiency standards and labeling?
30. What is likely to determine how fast the world makes a transition towards renewable energy sources?

Chapter 12: Global Climate Change

1. What is the greenhouse effect? What causes it?
2. What does it mean to say that greenhouse gases are a stock pollutant?
3. What has been the trend in global carbon dioxide emissions since the Industrial Revolution?
4. How do per capita carbon emissions vary across countries?
5. What are future predictions of global temperature increase?
6. According the IPCC, has human activity already increased global average temperatures?
7. What is ocean acidification and how is it related to climate change?
8. What is the meaning of "CO_2 equivalent (CO_2e)" and how is it calculated?
9. What are the differences between preventive and adaptive strategies? What are examples of each?
10. What is the impact of positive feedback effects on global climate change?
11. What would be some of the major impacts of global climate change on water, food, health, and ecosystems?
12. What would be the climate change implications of the "business as usual" scenario?
13. What are the results of cost-benefit analyses of global climate change? What are some potential problems with these analyses?
14. Why is the choice of a discount rate so important in a cost-benefit analysis of global climate change?
15. What was the impact of the Stern Review on the Economic of Climate Change?
16. How did the Stern review assumption differ from many previous studies?
17. What are the possible impacts of global climate change on GDP, according to standard economic studies and according to the Stern Review?
18. What are the estimated impacts of stabilizing atmospheric accumulations of carbon on GDP?
19. What factors affect the range of estimates for costs of stabilizing atmospheric accumulations of carbon?
20. How does inequality in regional impacts affect the analysis of climate change?

Chapter 13: Global Climate Change: Policy Responses

1. What is the difference between climate change adaptation and mitigation? What are some examples of each?
2. How can carbon taxes be used to reduce carbon emissions? What impact would carbon taxes have on the prices of different fossil fuels?
3. Why is the elasticity of demand important when determining the impact of carbon taxes?
4. How would a system of tradable carbon permits operate? How would the price of carbon permits be determined?
5. How would a carbon permit system allocate carbon reductions among various options?
6. What are some of the advantages of a carbon tax?
7. What are some of the advantages of a carbon permit system?
8. How can efficiency standards be used to reduce carbon emissions?
9. How can technology transfer be used to reduce carbon emissions?
10. What are carbon stabilization wedges? What are examples of some carbon stabilization wedges?
11. What is a greenhouse gas abatement curve? What does it indicate about the costs of action to reduce greenhouse gas emissions?
12. What are some examples of negative cost options for carbon mitigation?
13. What was the Kyoto Protocol? What were its results?
14. What was the Paris Agreement of 2015? How did it differ from previous climate agreements?
15. What is a global carbon budget?
16. What is REDD? What policies are promoted under REDD?
17. What is the difference between a progressive tax and a regressive tax?
18. How would a carbon tax impact households at different income levels?
19. How could a carbon tax be made distributionally neutral?
20. What is the idea of Greenhouse Development Rights (GDR)?
21. What is the difference between capacity and responsibility in GDR?
22. How would the Greenhouse Development Rights approach impact different countries?

Chapter 14: Greening the Economy

1. How does the United Nations define a green economy?
2. What is an environmental Kuznets curve?
3. What is the evidence on the validity of environmental Kuznets curves?
4. What is the Porter hypothesis?
5. What is the evidence on the validity of the Porter hypothesis?
6. Are initial estimates of compliance costs generally accurate?
7. What is relative and absolute decoupling?
8. What are exported emissions?
9. What is the evidence on relative and absolute decoupling?
10. What is industrial ecology?
11. How have recycling rates changes over the last several decades in the United States?
12. How much does the United States currently spend on environmental protection, as a percent of GDP?
13. How does environmental protection spending in the United States compare to other countries?
14. What is the evidence regarding the costs and benefits of environmental regulation in the United States?
15. Does environmental protection result in job losses?
16. Does environmental protection reduce economic growth?
17. Does environmental protection harm international competitiveness?
18. What are some of the policies that can be implemented to create a green economy?
19. What does the United Nations' model of the green economy indicate regarding economic and environmental performance?

Chapter 15: Population and the Environment

1. How quickly did the global population grow during the 20th century? What is the current global population growth rate? How is it changing?
2. What is the neo-Malthusian perspective on environmental issues?
3. How will future population growth be distributed across different regions of the world?
4. What are the major projections for future global population growth? What explains the range of different possible projections?
5. Why is population momentum an important concept?
6. What is a population age profile?
7. What is the fertility rate? What is replacement level fertility?
8. What does the shape of a population age profile tell us about present and future population growth?
9. What is the demographic transition theory? What happens to birth rates, death rates, and population at each stage?
10. What is relevance of the demographic transition theory for current environmental and economic problems?
11. According to economic theory, what is the relationship between population growth and economic growth?
12. What is a dependency ratio?
13. How can rapid population growth undermine economic growth?
14. What ecological principles apply to human population issues?
15. What is IPAT and what is its relevance for considering the future of the environment?
16. What types of population policies might be effective in the future?

Chapter 16: Agriculture, Food, and Environment

1. How has per-capita food production changed over the past 50 years?
2. What have been the trends in agricultural land use over the past 50 years?
3. Why is per capita grain consumption in the U.S. so high?
4. What are some of the environmental impacts of agriculture?
5. How has global grain production per capita changed over the past 50 years?
6. How does the elasticity of supply affect food prices?
7. What is a crop value index? How can it be used to determine how land will be allocated among various crops?
8. What are some of the impacts of an increase in production of crops for export?
9. Are current agricultural production levels sufficient to provide everyone in the world with adequate nutrition?
10. What factors account for inequality in current food distribution?
11. What factors will require an increase in agricultural production increase in the future?
12. How widespread are problems of soil erosion and degradation?
13. What is the importance of the discount rate in soil management decisions?
14. What are some of the ways to reduce soil erosion?
15. What has been the trend in world fertilizer use over the past thirty years?
16. What are some of the environmental impacts of fertilizer use?
17. What is the relationship between fertilizer levels and yields?
18. What have been the trends in pesticide use in the U.S. in the past 40 years?
19. What are the environmental impacts of pesticides?
20. What is information asymmetry and why is it relevant to pesticide use?
21. What are some of the impacts of irrigation?
22. How much of the world's water is used for irrigation?
23. What are some of the advantages and disadvantages of genetically-modified foods?
24. What factors would characterize a sustainable agricultural system?
25. What is Integrated Pest Management?
26. What policies might encourage sustainable agriculture?

Chapter 17: Nonrenewable Resources - Scarcity and Abundance

1. What is the difference between the physical supply and the economic supply of a nonrenewable resource?
2. What are the three reasons that economic supplies of resources change over time?
3. What are the different classifications of nonrenewable resources?
4. How do we calculate expected resource lifetimes?
5. What is assumed with an exponential reserve index?
6. Why have predictions that nonrenewable resources would be depleted failed to occur?
7. How do scarcity rents affect firm decision-making on resources?
8. What does Hotelling's rule imply about the change in resource rents over time?
9. What is a choke price?
10. What three factors contributed to the expansion of global nonrenewable resource consumption through the 20^{th} century?
11. What are the four stages in consumption and prices of a nonrenewable resource over time?
12. Do current price signals suggest that nonrenewable resources are close to depletion?
13. What concerns exist about the adequacy of global mineral reserves?
14. What are some of the environmental impacts of mining?
15. What is a backstop resource?
16. How does a manufacturer determine an optimal recycling rate?
17. How does the inclusion of environmental costs affect the optimal recycling rate?
18. What are the trends in metals recycling rates in the U.S. over the past 40 years?
19. What policies can be used to achieve the optimal level of recycling?
20. What is meant by "technological lock-in"? What can be done to avoid the problem?

Chapter 18: Renewable Resource Use - Fisheries

1. What does sustainable management of a renewable resource involve?
2. What is the maximum sustainable yield of a renewable resource?
3. What is a logistic curve?
4. What happens if the population of a species falls below the critical level?
5. What is the difference between a stable and unstable equilibrium?
6. What is the economic optimum yield level for a fishery?
7. What is the open-access equilibrium for a fishery?
8. What is the normal relationship between the economic optimum, the open-access equilibrium, and the maximum sustained yield for a fishery?
9. How might the economic optimum yield level for a fishery be obtained?
10. What is the current status of the world's fisheries in terms of fishing effort and catch?
11. What is bycatch?
12. What is the status of the world's fish stocks?
13. What is the 1982 Law of the Sea?
14. How does the problem of market failure apply to fisheries?
15. What policies could be instituted to encourage sustainable fishery management?
16. What are individual transferable quotas (ITQ's)?
17. What is ecolabeling and how could it be used to encourage sustainable fishery management?
18. What are the advantages and disadvantages of aquaculture?

Chapter 19: Ecosystem Management: Forests

1. Why is the discount rate important in determining whether a private owner will clear cut timber or practice sustainable forestry?
2. What is a mean annual increment?
3. Is cutting timber at the maximum mean annual increment economically optimal?
4. How is the economically optimal forestry management determined?
5. Is the economically optimal forestry management ecologically optimal?
6. What is the main cause of tropical deforestation?
7. How does total forested area tend to change with population density?
8. Why are most timber plots managed as monocultures?
9. Is timber management for maximum sustained yield ecologically optimal?
10. How is timber management related to the loss of biodiversity?
11. What are some the reasons why forests tend to be exploited?
12. Why are property rights relevant to forestry policy?
13. What are some of the positive externalities associated with forests?
14. How can payment for ecosystem services help promote sustainable forestry?
15. Why are secure property rights and full pricing relevant to forestry policy?
16. What is the potential for demand-side strategies to reduce the demand for wood products?
17. How has the global demand for wood and paper products changed over time?
18. How does the demand for some non-wood products such as soybeans affect forests?

Chapter 20: Water Systems

1. In what ways does water combine elements of renewable and non-renewable resource analysis?
2. What areas of the world suffer from water stress, scarcity, or absolute scarcity?
3. Which economic sector has the largest water withdrawals?
4. What is meant by virtual water?
5. What is a water footprint?
6. How does virtual water trade affect the water balance within and between countries?
7. What are some strategies for increasing water supply?
8. What are some strategies for water demand management?
9. Why is average-cost pricing unlikely to result in efficient use of water?
10. What is the effect of subsidized pricing for irrigation water?
11. What are the effects of different block pricing structures for water (uniform, increasing, and decreasing)?
12. Why is a prior appropriation system of water rights usually inefficient?
13. What are some advantages and some problems in establishing a system of water markets?
14. Why is water privatization a controversial policy?
15. What are some institutions for managing water as a common property resource?
16. What are some strategies for promoting social equity and environmental restoration in water management?

Chapter 21: World Trade and the Environment

1. What was at issue in the 1991 tuna/dolphin dispute? Why is this significant for environmental policy?
2. What is the basic principle of comparative advantage in international trade?
3. How can externalities be incorporate into the basic theory of international trade?
4. What is exported pollution?
5. What are some negative environmental effects of trade?
6. What are some environmentally beneficial effects of trade?
7. What does Article XX of the GATT/WTO provide regarding the ability of countries to restrict international trade?
8. What is the process and production methods (PPM) rule?
9. What is meant by "race to the bottom" and "pollution haven"? Is there evidence for these in international trade?
10. What are scale, composition, and technique effects?
11. What are the major patterns of carbon flows in international trade?
12. How does the World Trade Organization deal with trade and environmental quality?
13. What provisions are made for environmental protection in the North American Free Trade Agreement?
14. How does the European Union deal with the issue of trade and environmental quality?
15. What are multilateral environmental agreements?
16. Why do some people recommend the creation of a World Environmental Organization?
17. What private sector policies can affect the environmental impacts of trade?
18. What other strategies can be used to reduce environmental damages associated with international trade?

Chapter 22: Institutions and Policies for Sustainable Development

1. What is sustainable development? What are its three major dimensions?
2. What are the different implications of sustainable development for developed and developing countries?
3. What are some environmental implications of China's rapid development?
4. What is the World Bank and what are its goals? How has the Bank responded to criticisms of its environmental policies?
5. How has funding for environmental programs by the World Bank changed in recent years?
6. What is the difference between a "brown agenda" and a "green agenda"?
7. What is the Global Environmental Facility?
8. What are the Global Sustainable Development Goals (SDGs)? Which of the earlier Millennium Development Goals (MDGs) have seen success, which have been less successful, and how do the SGDs build on the MDGs?
9. What are some examples of successful projects funded by non-governmental organizations?
10. What are some of the implications of sustainable development in agriculture?
11. What are some of the implications for resource and energy use?
12. What is the difference between strong and weak sustainability? What are the implications of each for sustainable development?
13. What is a "steady-state" economy?
14. Why do some people consider the terms "sustainable growth" a contradiction in terms?
15. What are some specific policy proposals for sustainable development?