PART I

HUMANS AND SUSTINABILITY: AN OVERVIEW

CHAPTER 1

ENVIRONMENTAL ISSUES, THEIR CAUSES, AND SUSTAINABILITY

THINKING

Goals

See bulleted list of questions on p. 3 of text.

Objectives

1. Distinguish between *ecology* and *environmental science*. Define *Earth capital* and *solar capital*. Explain the relationship between Earth capital and a sustainable society. Distinguish between living off of principal and living off of interest. Analyze which of these behaviors humans are currently illustrating. Define *carrying capacity*. Evaluate the possibility of continuing to live in our current style.

2. Draw an exponential growth curve. Distinguish between exponential growth and linear growth. Describe what has happened to the length of the doubling time of the human population over the course of human history. Distinguish between *gross national product. and gross domestic product; economic development and sustainable development; developed countries* and *developing countries*. Describe the wealth gap and its development since 1960.

3. Distinguish among renewable resources, potentially renewable resources, and nonrenewable resources. Distinguish between recycling and reuse as strategies to extend supplies of nonrenewables. Describe a connection between potentially renewable resources and the concepts of sustainable yield and environmental degradation. List and define the components of biodiversity. Explain the significance of biodiversity as a potentially renewable resource.

4. Describe the *tragedy of the commons*. List three approaches which might lessen this problem. Evaluate the significance of a prevention or precautionary approach.

5. Distinguish between point sources and nonpoint sources of pollution. Distinguish among degradable, slowly degradable, and nondegradable pollutants.

6. Distinguish between pollution prevention and pollution cleanup. Explain the limitations of pollution cleanup strategies. Explain the general relationship between pollution control and developing countries, using Poland as an example.

7. Summarize the root causes of environmental problems. Describe a simple model and a complex model of relationships among population, resource use, technology, environmental degradation, and pollution. Evaluate which model is most useful to you. Assess which model would be most useful in explaining relationships to young children and which more closely resembles reality.

9. Define *environmental worldview*. Distinguish between a planetary management worldview and an Earth-wisdom worldview.

10. Evaluate the sustainability of human societies at this point in time. List five guidelines which would move the United States toward sustainability.

Key Terms **(Terms are listed in the same font style as they appear in the text.)**

exponential **growth** (p. 2)
environment (p. 3)
ecology (p. 3)
environmental science (p. 3)
natural science (p. 3)
social science (p. 3)
ecologists
environmental scientists (p. 3)
conservation biologists (p. 3)
environmentalists (p. 3)
preservationists (p. 3)
conservationists (p. 3)
restorationists (p. 3)
solar capital (p. 3)
natural resources (p. 3)
natural capital (p. 3)
solar energy (p. 4)
environmentally sustainable society (p. 4)
linear growth (p. 4)
exponential growth (p. 4)
doubling time (p.4)
rule of 70 (p. 4)
economic growth (p. 5)
gross national product (GNP) (p. 5)
gross domestic product (GDP) (p.5)
gross world product (GWP) (p. 5)
per capita GNP (p. 5)
economic development (p. 5)
developed countries (p. 5)
developing countries (p. 6)
sustainable economic development (p. 7)
wealth gap (p. 8)
globalization (p. 10)
ecological footprint (p. 11)
ecological resource (p. 11)
economic resource (p. 11)
perpetual resource (p. 11)
renewable resource (p. 11)
flow resource (p. 11)
common-property resource (p. 12)
free-access resource (p. 12)
tragedy of the commons (p. 12)
sustainable yield (p. 12)
environmental degradation (p. 12)
nonrenewable resource (p. 12)
energy resources (p. 12)
metallic mineral resources (p. 12)
nonmetallic mineral resources (p. 12)
mineral (p. 12)
economically depleted (p. 12)
recycling (p. 13)
reuse (p. 13)
pollution (p. 13)
point sources (p. 13)
nonpoint sources (p. 13)
pollution prevention (p. 13)
input pollution control (p. 13)
pollution cleanup (p. 13)
output pollution control (p. 13)
environmental worldview (p. 17)
environmental ethics (17)
planetary management worldview (p. 17)
environmental wisdom worldview (p. 17)