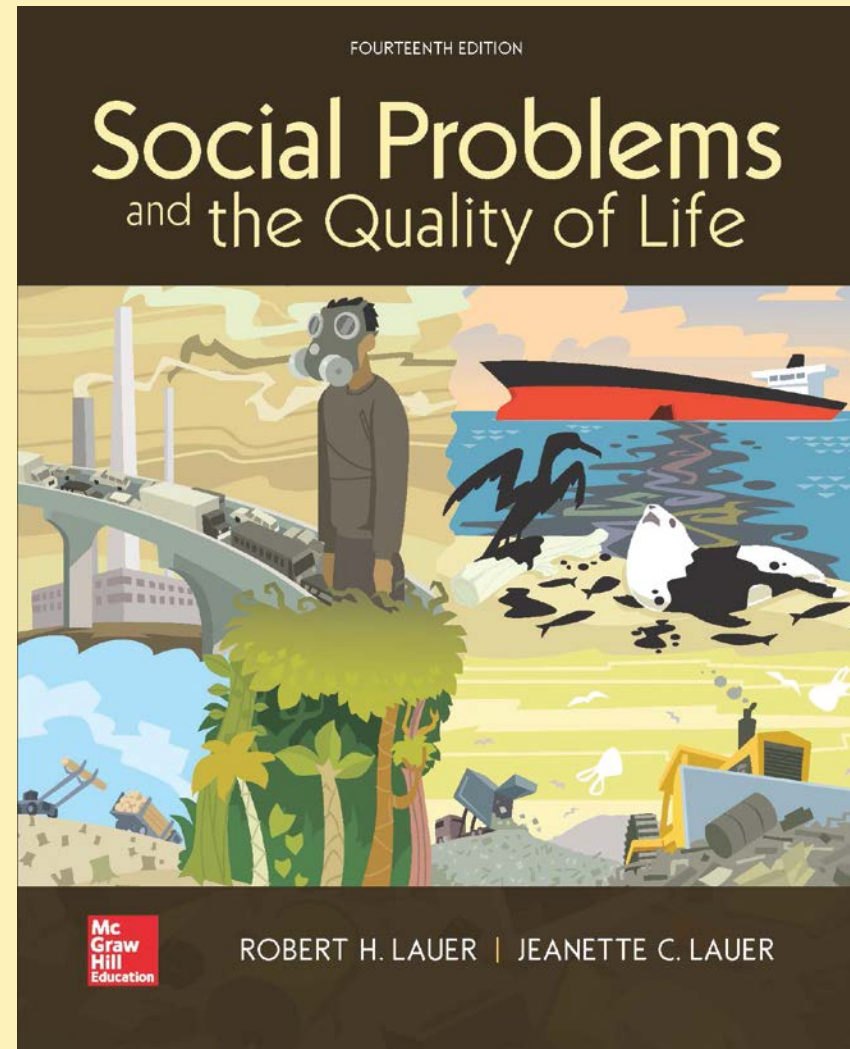


Chapter Fifteen

The Environment



Learning Objectives, 1

Understand the nature of the ecosystem

Identify the types and extent of environmental problems

Discuss the ways in which environmental problems threaten the desired quality of life

Learning Objectives, 2

Explain the social structural and social psychological factors that underlie environmental problems

Suggest some ways to deal with the problems of environmental pollution and environmental depletion

The Ecosystem

Interrelationships between all living things and the environment

Emphasizes interdependence of all things

People, nature, and the Earth form a delicately balanced system

Current environmental problems

- Acid rain
 - Caused by sulfur dioxide and nitrogen oxide emissions
 - Threatens lakes and forests, kills fish and birds, reduces crop yields, contributes to health problems, and damages buildings
- Threat to the ozone layer
 - Human activity disturbs the natural balance of ozone distribution
 - Ozone is poisonous to humans at ground level but necessary in the upper atmosphere to absorb the ultraviolet radiation of the sun

Environmental Pollution

Pollution: Alteration that is harmful to the ecosystem

Pollutants: Things that cause pollution

- By-products of human activities

Types

- Air pollution
- Water pollution
- Land pollution
- Global warming
- Noise pollution
- Aesthetic damage



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Types of Pollution, 1

Air pollution

- Most air pollution is caused by the burning of fossil fuels

Water pollution

- Organic sewage
- Eutrophication
- Infectious agents
- Organic chemicals
- Inorganic and miscellaneous chemicals
- Sediments from land erosion
- Radioactive substances
- Waste heat from power plants and industry

Types of Pollution, 2

Land pollution

- Pesticides: chemicals used to kill insects defined as pests
- Herbicides: chemicals used to kill plant life, particularly weeds
- Chemical wastes
- Radioactive fallout
- Acid rain
- Garbage

Types of Pollution, 3

Global warming

- Result of the trapping of solar energy in the atmosphere by carbon dioxide, methane, nitrous oxide, and other gases
 - The levels of carbon dioxide in the atmosphere in 2006 “are higher than they have been at any time in the past 650,000 years”
- As the warming continues, scientists warn that there will be:
 - Increased flooding and intensity of storms on coastal areas
 - An increase in extremes, with more of both droughts and flooding
 - Reduced fresh water supplies and food production
 - Damage to ecosystems, including extinctions
 - Increases in malnutrition, disease, and mortality

Types of Pollution, 4

Noise pollution

- Diminishes hearing and the ability to concentrate on work
- Disturbs sleep, activity, and communication
- Causes accidents

Aesthetic damage signals that:

- Environment is less pleasing
- Beauty of the natural world has been scarred by human activity

Environmental Depletion

Dwindling Natural Resources

- No nation is self-sufficient in the modern world

Energy use per capita is increasing in most of the nations of the world

- Energy consumption in the United States accounts for 17 percent of the world's energy usage
- Consumption declined in 2015, but it is unclear if this trend will continue

Over the course of human history, nearly half of the Earth's forests have been depleted, most of which has occurred since 1970

Environmental Pollution Problems

Enforcement of air pollution standards has been reducing the amount of pollutants released into the air

Indoor air pollution

- Sick building syndrome
- Presence of radon gas
- Electromagnetic radiation

Physical and Emotional Threats

Physical Threat

- Consequences of air pollution
 - Permanent lung damage and genetic abnormalities in children
 - Fetal deaths, premature deaths, and infant mortality
 - Respiratory illness, asthma attacks, and lung cancer
 - Cardiovascular disease
- Exposure to toxic materials can lead to sterility
- Depleted ozone layer raises the risk of skin cancer

Emotional Threat

- People who work around hazardous materials may suffer from increased anxiety and depression
- Noise detracts from emotional well-being

Threat to the Ecological Balance

Alterations occur in the ecosystem that can have adverse effects on the quality of life

- A number of species of animals and plants have disappeared
 - Represents less diversity and a vast biological loss
 - Poses a direct threat to the quality of human life

Human intrusion into major processes of the ecosystem, such as reproduction, photosynthesis, and the recycling of minerals, cause irreversible damage that could threaten life

- Photosynthesis: Natural process essential to life, resulting in the production of oxygen and organic materials

Urbanization: Increasing concentration of people living in cities

Other Environmental Problems

Economic Costs

- Damage to livestock, trees, and crops
- Death of wildlife
- Expense of pollution-control measures
- Cost of medical care for those whose health is affected
- Lost work time due to ill health
- Expense of maintaining and refurbishing buildings and other structures that deteriorate because of pollution
- Cost of restoring the quality of the air and of waterways

Threat to World Peace

- A number of armed conflicts in the world can be traced to the struggle for control of various natural resources

Social Structural Factors, 1

Population Growth

- Accelerates the consumption of Earth's natural resources
- Any given area on Earth has a limited carrying capacity
- Threshold effect

The Industrial Economy

- Contributes to air pollution and water pollution
 - Major cause of air pollution in the United States is the extensive use of the automobile

Social Structural Factors, 2

- Cancer is largely an environmental problem often caused by carcinogenic chemicals
- Planned obsolescence
- Business and industry oppose pollution-control proposals by lobbying or by influencing public opinion

The Politics of the Environment

- Toxic Substances Control Act of 1976: Government regulates chemicals that might harm people and slash or the environment

Social Psychological Factors

Attitudes and the Environment

- Many people see Earth as a resource to be mined rather than as a trust to be cared for
- Existing attitudes about the importance of environmental problems are detrimental to helpful action
- Fallacy of dramatic instance

Values and the Environment

- Quantitative colossalism: Leads to continual expansion of the perception of the good life
 - Good life: Ever-increasing goods and services and a concomitant ever-intensifying of environmental problems
- Individualism: Contributes to political inaction and thus to the environmental problems

Public Policy and Private Action, 1

Environmental problems can be attacked by human action

Individuals can:

- Increase recycling
- Reduce energy consumption
- Work with others to find innovative ways to help the environment

Business and industry should:

- Strive to balance growth with ecological considerations
- Search for alternative, clean sources of energy upon which to base the economy

Public Policy and Private Action, 2

Government could:

- Mandate higher gas mileage for all new cars
- Diminish or eliminate pollution caused by its own operations and by those supported by federal funds
- Impose tax penalties on businesses and corporations that damage the environment
- Support the development of mass transit
- Provide direct funding and tax incentives for research into pollution control and alternative energy sources