

Understanding our Environment

Chapter 1

- I. Environment – circumstances/conditions surrounding an organism or group of organisms
 - a. Environmental Science – Study of our environment and our proper place in it.
 - i. Interdisciplinary: natural sciences, social sciences, and humanities.
 - ii. Remedies are understodd, but must also be socially, economically, and politically acceptable.
- II. History of Conservation and Environmentalism
 - a. Historical Roots of Nature Protection
 - i. Plato – 4B.C. complained that whereas Greece once had abundant forests of fine trees and fertile soil, that was no longer the case due to heavy lumber harvests for houses and ships. Now it appeared as a skeleton of a body wasted by disease
 - ii. 1764 British plant physiologist, Stephen Hales, promoted conserving up to 20 percent of Tobago as reserved in wood for preservation of the rains.
 - iii. 1769 French governor of Mauritius Pierre Poivre had ¼ of the island preserved in trees...particularly along mountain slopes and waterways. It remains a model today for balancing nature and human need
 - b. Four Eras of historical conservation still in effect to some degree today
 - i. Pragmatic resource conservation.
 - ii. Moral and aesthetic nature preservation (Biocentric preservation)
 - iii. Growing concern about health and ecological damage caused by pollution and global environmental citizenship.
 - iv. Global environmental citizenship
 - c. Pragmatic Resource Conservation
 - i. 1864 George Perkins Marsh published *Man and Nature* promoting environmental protection in North America. By 1873 as a result of his book, national forest reserves were established in the U.S.
 - ii. 1905 President Roosevelt and his chief conservation advisor, Gifford Pinchot moved the Forest Service out of a corrupt Interior Dept. into the Dept. of Agriculture.
 1. Together with John Muir, William Brewster, and George Grinnell, they established the framework of our national forest, park and wildlife refuge systems, passed game protection laws and tried to stop the greatest abuses of the public domain.
 2. Promoted **pragmatic utilitarian conservation** which basically stated “ forests should be saved “not because they are beautiful or because they shelter wild creatures of the wilderness, but only to provide homes and jobs for people” using resources “for the greatest good, for the greatest

number for the longest time. This approach is still seen in the policies of the Forest Service today.

d. Biocentric preservation

- i. John Muir, geologist, author and first president of the Sierra Club promoted the **biocentric preservation** in opposition to the pragmatic utilitarian conservation. He wrote "The world, we are told, was made for man. A presumption that is totally unsupported by the facts...Nature's object in making animals and plants might possibly be first of all the happiness of each one of them...Why ought man to value himself as more than an infinitely small unit of the one great unit of creation?"
 1. He fought for the establishment of Yosemite and King's Canyon National Parks which were established in 1916 under Stephen Mather, a disciple of Muir.

e. Modern Environmentalism

- i. 1273 King Edward I of England threatened to hang anyone burning coal in London due to the acrid smoke it produced.
- ii. 1661 John Evelyn of England complained about the noxious air pollution caused by coal fires and factories and suggested that sweet smelling trees be planted to purify city air.
- iii. 1880 Dangerous smog levels in Britain lead to the formation of national Fog and Smoke Committee
- iv. Industrial Expansion following WWII added to the concerns for the environment.
 1. The writing of *Silent Spring* 1962 by Rachel Carson awakened the public to the threats of pollution and toxic chemicals to humans as well as other species which lead to the use of the term environmentalism by encompassing both natural resources and pollution.
 2. Other pioneers of this movement was the director of the Sierra Club, Friends of the Earth and Earth Island Institute ; all promoted modern environmentalism to include litigation, regulatory hearings, book and calendar publishing.
 3. 1960 – 1970 the environmental agenda added issues such as human population growth, atomic weapons testing , atomic power, fossil fuel extraction, recycling, air and water pollution, wilderness protection and others.
 4. 1970 was the First Earth Day
 5. Many Americans now consider themselves environmentalists.
- v. Global Environmentalism "The Global Village"
 1. Minnesota geologist Roger Hooke estimates that the current human earth moving activities now rival those of natural geological forces.
 2. Global Warming is now a term that everyone's talking about, whether they believe it or not

- a. U.N. Conference on the Human Environment, Earth Summit are just examples of the global approaches that have been taken to address global issues.

III. Current Conditions

- a. Due to the geological/biological cycles, clean air, fresh water and fertile soil are constantly regenerated. The design of our Global Ecosystem is amazing and just a small tribute to our creator.
- b. Environmental Dilemmas
 - i. Many are concerned about the earth's population growth rate.
 - 1. Most over population occurs in the poorer countries with strained resources and services
 - 2. Some demographers believe that the current growth rate will slow down in this century as compared to the last.
 - ii. Food shortages are more often due to democracy, poverty and equitable distribution rather than with food availability.
 - iii. Clean, potable water is also a problem in over populated areas.
 - iv. Clean, renewable energy resources: solar, wind, biomass may eventually replace the current fossil fuel consumption usage.
 - v. The acid rain formation from fossil fuel use causes problems for the plants in certain areas.
 - vi. CFC's – chlorofluorocarbons have caused thinning of the ozone layer above the poles.
 - vii. Destruction of tropical forests, coral reefs, wetlands affects the biological diversity and their abundance.
 - viii. The disposal of dangerous materials produced in industrialized countries has become problematic. Their effect on the environment has become a greater threat than infectious diseases for many industrialized countries.
- c. Environmental Improvements
 - i. Many European and North American cities are now cleaner than a generation ago.
 - ii. Life threatening infectious disease has been sharply reduced in most countries during the past century while life expectancy has nearly doubled.

IV. North/South a divided World

- a. About 1/5th of the world's population live in acute poverty with an income of less than \$1 U.S. dollar per day. Seventy percent of this number are women and children.
 - i. In addition to this being a humanitarian concern, there is also a link between eliminating poverty and protecting the environment.
 - 1. Cultivation of erosion prone hillsides results in damage to the land
 - 2. Overcrowded slum conditions often result in inappropriate disposal of wastes.
 - 3. Faced with immediate survival needs and few options, these unfortunate poor have no choice but to overharvest resources.

- b. The Brandt line (pg.26)
- c. Political Economies
 - i. First World – Industrialized, market oriented democracies of Western Europe, N. America, Japan, Australia, New Zealand and their allies.
 - ii. Second World – Originally described socialist countries such as Soviet Union. Once, China, Mongolia, north Korea and Vietnam belonged here, but these are rapidly changing to market economies
 - iii. Third World – Used to describe developing countries in general
 - iv. Fourth World – Poorest nations with neither market economies nor central planning.
 - v. Today, few countries are purely socialist or capitalist, nearly every government plans centrally and intervenes in its economy to some extent.

V. Human Development

- a. Human Development Index (HDI) – Report of U.N ranking countries passed on average life expectancy, percentage of literate adults, mean years of schooling, infant mortality rates, daily calorie supply, child malnutrition.
 - i. Highest rating is 1.0 and lowest is 0.0
 - 1. In 2000 all Highest ratings were in North America or Western Europe, except Japan and Singapore.
 - 2. Lowest was Sierra Leone at 0.19. All lowest rankings were in Africa, except for Haiti and Bhutan.
 - ii. Race is another variable determining socioeconomic status.
 - 1. White South Africa would rate 24th in the world HDI
 - 2. Black South Africa would rate 123rd in world HDI
- b. Sustainable Development – “Meeting the needs of the present without compromising the ability of future generations to meet their own needs.”
 - i. Development means improving people’s lives thus sustainable development means progress in human well being extending over many generations.
 - ii. Sustainable Development can be tricky
 - 1. Some project intended to foster development have been environmental, economic and social disasters.
 - a. Quebec’s James Bay region and the Brazilian Amazon were intended to generate valuable electrical power, but it also displaced indigenous people, destroyed wildlife and poisoned local ecosystems with acids from decaying vegetation and heavy metals leached out of flooded soils.
 - b. Introduction of “miracle” crop varieties in Asia and huge grazing projects in Africa financed by international agencies crowded out wildlife, diminished diversity of traditional crops and destroyed markets for small scale farmers.
- c. 20:20 Compact for Human Development

- i. 1995 United Nations Summit for Social Development in Copenhagen called on all nations to ensure basic human needs for everyone.
 - 1. Goals:
 - a. Universal primary education for both girls and boys
 - b. Halving the adult illiteracy rates
 - c. Elimination of severe malnutrition
 - d. Family planning services
 - e. Safe drinking water and sanitation for all
 - f. Credit for all ensuring self employment opportunities
 - 2. Funding for this:
 - a. Developing Countries devote 13% of their national budgets to basic human needs.
 - b. These expenses are always compared to Military spending which greatly exceeds that put toward basic human needs.
- ii. Indigenous People
 - 1. Often the bottom social strata of countries are the indigenous/native peoples who are often more neglected.
 - a. Traditional ways of life are disrupted by dominant Western culture.
 - b. A few countries acknowledge indigenous title to extensive land areas

VI. Environmental Perspectives

- a. **Neo Malthusian viewpoint** – Views our world as one of scarcity and competition in which too many people fight for too few resources.
 - i. Predict overpopulation, misery, vice and starvation as a result.
- b. Technological optimists or “**Promethean Environmentalism**” – Believe human ingenuity and enterprise will find cures for all our problems.
 - i. Often critically described as “**the cornucopian fallacy**”
- c. Realistic Pragmatism – The balanced approach of honestly admitting our mistakes and by applying known principles of environmental science, to achieve a realistic outcome.
 - i. Author Wes Jackson – states that our alienation from nature has diminished both our knowledge of the world around us and our connection to it.
 - ii. Author Aldo Leopold – “All history consists of successive excursions from a single starting point to which man returns again and again to organize yet another search for the durable scale of values.