



*In many mountainous parts of the world, people try to maximize the output of their land by terracing slopes to utilize every possible fragment of space.(PhotoDisc)*

## Geography Basics

# The Human Environment

No person lives in a vacuum. Every human being and community is surrounded by a world of external influences with which it interacts and by which it is affected. In turn, humans influence and change their environments: sometimes intentionally, sometimes not, and sometimes with effects that are harmful to these environments, and, in turn, to humans themselves. As the only tool-creating animal, humans have always shaped the world in which they live, but developments over the past few centuries have greatly enhanced this capacity.

During the last decades of the twentieth century, people became alarmed over the effects of modern technology and accelerating human population growth in the world. Travel and transportation among the world's regions have been made surer, safer, and faster, and global communication is virtually instantaneous. The human environment is no longer a matter of local physical, biological, or social conditions, or even of merely national or regional concerns--the postmodern world has become a true global community.

Students of human geography divide the human environment into three broad areas: the physical, biological, and social environments. The study of ecology describes and analyzes the interactions of biological forms (mainly plants and animals) and seeks to uncover the optimal means of species cooperation, or symbiosis. Everything that humans do affects life and the physical world around them, and this world provides potentials for and constraints on how humans can live.

As people gained and communicated ever-greater knowledge about the world, their abilities to alter and shape it increased. Even ten thousand years ago, people cut down trees, scratched the earth's surface with simple plows, and replaced diverse plant forms with single crops. From this basic agricultural technology grew more complex human communities, and people were freed from the need to hunt and

gather. The alteration of the local ecosystems could have deleterious effects, however, as gardens turned eventually to deserts in places like North Africa and what later became Iraq. Those who kept herds of animals grazed them in areas rich in grasses, and animal fertilizer helped keep them rich. Still, the herders moved on when their animals overgrazed, leaving erosion and even desertification in their wake. Modern people have a far greater ability to alter their environments than did Neolithic people, and ecologists are concerned about the negative effects of modern alterations.

### **The Physical Environment**

The earth's biosphere is made up of the atmosphere--the mass of air surrounding the earth; the hydrosphere--bodies of water; and the lithosphere--the outer portion of the earth's crust. Each of these, alone and working together, affect human life and human communities.

Climate and weather at their most extreme can make human habitation impossible, or at least extremely uncomfortable. Desert and polar climates do not have the liquid water, vegetation, and animal life necessary to sustain human existence. Elsewhere, people must adjust to even mild variations in temperature and precipitation, and do so with clothing and shelter. Excess rain can be drained off, and arid areas irrigated. Heating and, more recently, air conditioning can create healthy microclimates, whatever the external conditions. Most people live in temperate zones where weather extremes are rare or dealt with by technological adaptation. Food can be grown locally, and transportation is effective throughout the year. Local droughts, tornadoes, hurricanes, heavy winds, lightning, and hail can have devastating effects even in the most comfortable of climates.

The hydrosphere affects the atmosphere in countless ways, and provides the water so necessary for human and other life. Bodies of water provide plants and animals for food, transportation routes, and aesthetic pleasure to people, and often serve to flush away waste products. People locate near water sources for all of these reasons, but sometimes suffer from sudden shifts in the water level, as in tidal waves (tsunamis) or flooding. Encroachment of salt water into freshwater bodies (salination) is a problem that can have natural or human causes.

The lithosphere provides the solid, generally dry surface on which people usually live. It has been shaped by the atmosphere (especially wind and rain that erode rocks into soil) and the hydrosphere (for example, alluvial deposits and beach erosion). It serves as the base for much plant life and for most agriculture. People have tapped its mineral deposits and reshaped it in many places; it also reshapes itself through, for example, earthquakes and volcanic eruption. Its great variations--including vegetation--draw or repel people, who exploit or enjoy them for reasons as varied as recreation, military defense, or farming.

### **The Biological Environment**

Humans share the earth with something between five and thirty million different species of plants, animals, and microorganisms--about two million of which have been identified and named. As part of the natural food chain, people rely upon other life forms for nourishment. Through perhaps the first 99 percent of human history, people harvested the bounty of nature in its native setting, by hunting and

gathering.

Domestication of plants and animals, beginning about ten thousand years ago, provided humans a more stable and reliable food supply, revolutionizing human communities. Being omnivores, people can use a wide variety of plants and animals for food, and they have come to control or manage most important food sources through herding, agriculture, or mechanized harvesting. Which plants and animals are chosen as food, and thus which are cultivated, bred, or exploited, are matters of human culture, not, at least in the modern world, of necessity.

Huge increases in human population worldwide have, however, put tremendous strains on provision of adequate nourishment. Areas poorly endowed with foodstuffs or that suffer disastrous droughts or blights may benefit from the importation of food in the short run, but cannot sustain high populations fostered by medical advances and cultural considerations.

Human beings themselves are also hosts to myriad organisms, such as fungi, viruses, bacteria, eyelash mites, worms, and lice. While people usually can coexist with these, at times they are destructive and even fatal to the human organism. Public health and medical efforts have eradicated some of humankind's biological enemies, but others remain and baffle modern science.

The presence of these enemies to health once played a major role in locating human habitations to avoid so-called "bad air" (*mal-aria*) and the breeding grounds of tsetse flies or other pests. The use of pesticides and draining of marshy grounds have alleviated a good deal of human suffering. Human efforts can also control or eliminate biological threats to the plants and animals used for food, clothing, and other purposes.

### **Social Environments**

Human reproduction and the nurturing of young require cooperation among people. Over time, people gathered in groups that were diverse in age if not in other qualities, and the development of towns and cities eventually created an environment in which otherwise unrelated people interacted on intimate and constructive levels. Specialization, or division of labor, created a higher level of material wealth and culture and ensured interpersonal reliance.

The pooling of labor--both voluntary and forced--allowed for the creation of artificial living environments that defied the elements and met human needs for sustenance. Some seemingly basic human drives of exclusivity and territoriality may be responsible for interpersonal friction, violence and, at the extreme, war. Physical differences, such as size, skin, or hair color, and cultural differences, including language, religion, and customs, have often divided humans or communities. Even within close quarters such as cities, people often separate themselves along lines of perceived differences. Human social identity comes from shared characteristics, but which things are seen as shared, and which as differentiating, is arbitrary.

People can affect their social environment for good and ill through trade and war, cooperation and bigotry, altruism and greed. While people still are somewhat at the mercy of the biological and physical environments, technological developments have

balanced the human relationship with these. Negative effects of human interaction, however, often offset the positive gains. People can seed clouds for rain, but also pollute the atmosphere around large cities, create acid rain, and perhaps contribute to global warming and depletion of the ozone layer around the earth.

Human actions can direct water to where it is needed, but people also drain freshwater bodies and increase salination, pollute streams, lakes, and oceans, and encourage flooding by modifying river beds. People have terraced mountainsides and irrigated them to create gardens in mountains and deserts, but also lose about 75 billion metric tons of soil to erosion and 15 million acres (6 million hectares) of grazing land to desertification each year. These negative effects not only jeopardize other species of terrestrial life, but also humans' ability to live comfortably, or perhaps at all.

### **Globalization**

Humankind's ability to affect its natural environments has increased enormously in the wake of the Industrial Revolution. The harnessing of steam, chemical, electrical, and atomic energy has enabled people to transform life on a global scale. Economically, the Western world has come to dominate global markets, and computer and satellite technology have made even remote parts of the globe reliant on Western information and products. Efficient transportation of goods and people over huge distances has eliminated physical barriers to travel and commerce. The power and influence of multinational corporations, and of national corporations in international markets, has become great. With the Internet, a mastery of basic English is almost essential, and global news networks based in the United States further unite the peoples of the earth.

Human environmental problems also have a global scope: Ozone depletion, changes in ocean temperatures, global warming, and the spread of disease by travelers have become planetary concerns. International agencies seek to deal with such matters, and also social and political concerns once left to nations or colonial powers, such as population growth, the provision of justice, or environmental destruction within a country. Pessimists warn of horrendous trends in population and ecological damage, and further deterioration of human life and its environments. Optimists dismiss negative reports as exaggerated and alarmist, or expect further technological advances to mitigate the negative effects of human action.

*Joseph P. Byrne*

### **For Further Study**

Cartledge, Bryan. *Population and the Environment*. New York: Oxford University Press, 1995.

Goodall, Brian. *Dictionary of Human Geography*. New York: Facts on File, 1987.

Gotelli, Nicholas J. *A Primer of Ecology*. Sunderland, Mass.: Sinauer Associates, 1995.

Miller, G. Tyler. *Living in the Environment*. 11th ed. Pacific Grove, Calif.: Brooks/Cole, 1992.

Southwick, Charles H. *Global Ecology in Human Perspective*. New York: Oxford University Press, 1996.