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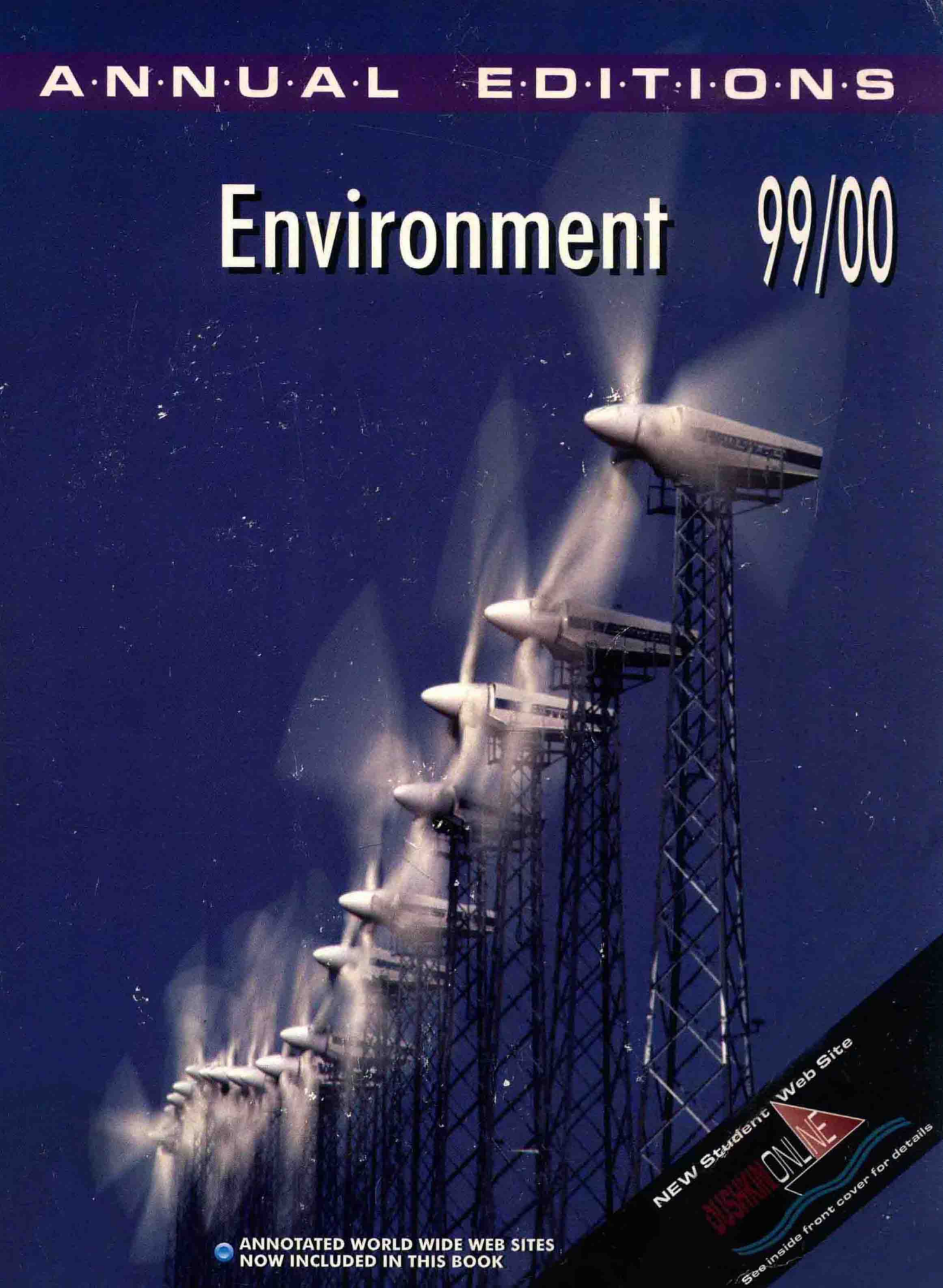
Environment 99/00



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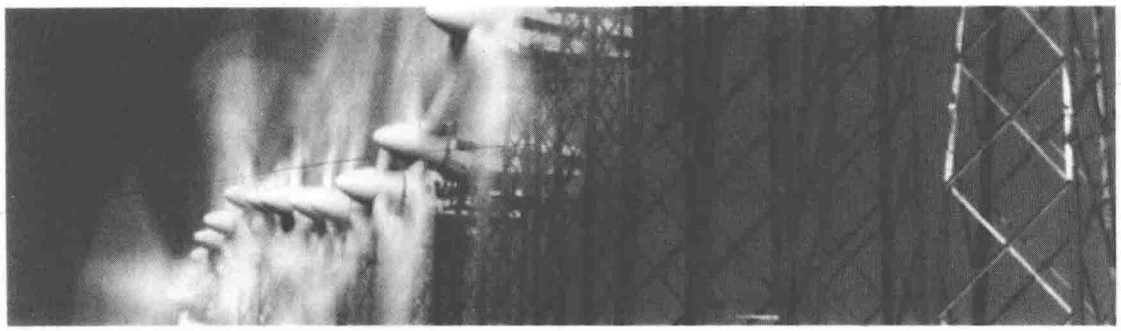
ANNUAL EDITIONS

ENVIRONMENT 99/00

Eighteenth Edition



EDITOR

John L. Allen
University of Connecticut

John L. Allen is professor of geography at the University of Connecticut. He received his bachelor's degree in 1963 and his M.A. in 1964 from the University of Wyoming, and in 1969 he received his Ph.D. from Clark University. His special area of interest is the impact of contemporary human societies on environmental systems.

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Credits

1. The Global Environment: An Emerging World View
Facing overview—photo courtesy of NASA.
2. The World's Population: People and Hunger
Facing overview—United Nations photo by Ian Steele.
3. Energy: Present and Future Problems
Facing overview—United Nations photo by Sean Sprague.
4. Biosphere: Endangered Species
Facing overview—U.S. Fish and Wildlife Service Photo by James Powell.
5. Resources: Land, Water, and Air
Facing overview—photo courtesy of U.S. Department of Agriculture. 148-149, 151—Photos from the Bureau of Reclamation.
6. Pollution: The Hazards of Growth
Facing overview—U.S. Department of Agriculture Soil Conservation Service photo.

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Eighteenth Edition

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Members of the Advisory Board are instrumental in the final selection of articles for each edition of ANNUAL EDITIONS. Their review of articles for content, level, currentness, and appropriateness provides critical direction to the editor and staff. We think that you will find their careful consideration well reflected in this volume.

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To the Reader

In publishing ANNUAL EDITIONS we recognize the enormous role played by the magazines, newspapers, and journals of the public press in providing current, first-rate educational information in a broad spectrum of interest areas. Many of these articles are appropriate for students, researchers, and professionals seeking accurate, current material to help bridge the gap between principles and theories and the real world. These articles, however, become more useful for study when those of lasting value are carefully collected, organized, indexed, and reproduced in a low-cost format, which provides easy and permanent access when the material is needed. That is the role played by ANNUAL EDITIONS.

New to ANNUAL EDITIONS is the inclusion of related World Wide Web sites. These sites have been selected by our editorial staff to represent some of the best resources found on the World Wide Web today. Through our carefully developed topic guide, we have linked these Web resources to the articles covered in this ANNUAL EDITIONS reader. We think that you will find this volume useful, and we hope that you will take a moment to visit us on the Web at ***http://www.dushkin.com/*** to tell us what you think.

As the millennium nears, environmental predicaments long foreseen by natural and social scientists have begun to emerge in a number of guises: population/food imbalances, problems of energy scarcity, acid rain, toxic and hazardous wastes, ozone depletion, water shortages, massive soil erosion, global atmospheric pollution, forest dieback and tropical deforestation, and the highest rates of plant and animal extinction the world has known in 65 million years.

These and other problems have worsened in spite of the increased environmental awareness and legislation that characterized the last decades of the 1900s. The problems resulted from centuries of exploitation and unwise use of resources, accelerated recently by the misguided environmental "counter-revolution," which typified public policy of the 1970s and 1980s and favored the short-term, expedient approach to problem solving over longer-term economic and ecological good sense. In Africa, for example, the drive to produce enough food to support a growing population has caused the use of increasingly fragile and marginal resources, resulting in the dryland deterioration that brings famine to that troubled continent. Similar social and economic problems have contributed to massive deforestation in Middle and South America and Southeast Asia.

The economic problems generated by resource scarcity have caused the relaxation of environmental quality standards or have contributed to the refusal to enact environmentally sound protective measures that are viewed as too costly. The lack of adequate environmental policy has been particularly apparent in those countries that are striving to become economically developed. But even in the more highly developed nations, the economic climate has favored the slackening of environmental controls. In the name of jobs for the timber industry, for example, many of the last areas of old-growth forests in the United States are imperiled, and in the name of mineral resource development, a threat to one of the nation's treasures—Yellowstone National Park—was removed only by a last-second presidential "deal" that transferred a proposed mining operation elsewhere. In addition, concerns over energy availability have created the need for military action to save the developed nations' access to cheap oil and have prompted increasing reliance on technological quick fixes.

There is some reason to hope that, globally, a new environmental consciousness is awakening at the dawning of a new millennium. The dissolution of the Soviet Union lifted the Iron Curtain, and the environmental horror stories that have emerged from Eastern Europe and the newly independent states that made up the former USSR have given new incentives to international cooperation. Several major publications have named the 1990s "The Decade of the Environment," major international conferences have been held on such subjects as global warming, and there is growing public clamor to do something about environmental quality before it is too late.

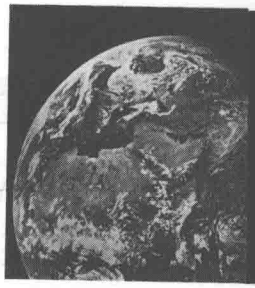
The articles contained in *Annual Editions: Environment 99/00* have been selected for the light they shed on these and other problems and issues. The selection process was aimed at including material that will be readily assimilated by the general reader. Additionally, every effort has been made to choose articles that encourage an understanding of the nature of the environmental problems that beset us and how, with wisdom and knowledge and the proper perspective, they can be solved or at least mitigated. Accordingly, the selections in this book have been chosen more for their intellectual content than for their emotional tone. They have been arranged into an order of topics—the global environment, population and food, energy, the biosphere, resources, and pollution—that lends itself to a progressive understanding of the causes and effects of human modifications of Earth's environmental systems. We will not be protected against the ecological consequences of human actions by remaining ignorant of them. Although the knowledge gained through the use of this book may not allow any of us to escape the environmental predicament, it should ensure that we do not continue to act and react in ways that will make that predicament worse.

The *World Wide Web* sites in this edition can be used to further explore the topics. These sites will be cross-referenced by number in the *topic guide*. In addition, this edition contains both a newly refreshed *Environmental Information Retrieval* guide and *glossary*.

Readers can have input into the next edition of *Annual Editions: Environment* by completing and returning the postpaid *article rating form* at the back of the book.

John L. Allen
Editor

Contents

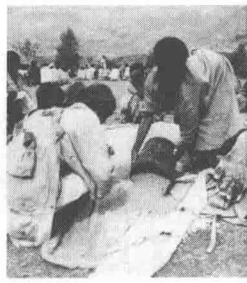


UNIT 1

The Global Environment: An Emerging World View

Four selections provide information on the current state of Earth and the changes we will face.

The concepts in bold italics are developed in the article. For further expansion please refer to the Topic Guide and the Index.

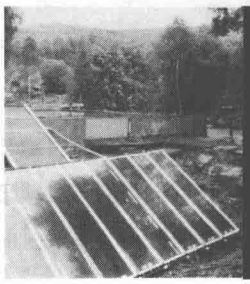


UNIT 2

The World's Population: People and Hunger

Four selections examine the problems the world will have in feeding its ever-increasing population.

The concepts in bold italics are developed in the article. For further expansion please refer to the Topic Guide and the Index.



UNIT 3

Energy: Present and Future Problems

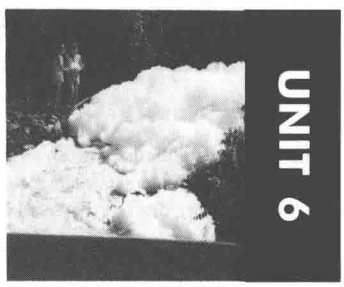
Four article consider the problems of meeting present and future energy needs. Alternative energy sources are also examined.

UNIT 4

Biosphere: Endangered Species

Seven articles examine the problems in the world's biosphere. Not only are plants and animals endangered, but many human groups are also disastrously affected by deforestation and primitive agricultural policies.

The concepts in bold italics are developed in the article. For further expansion please refer to the Topic Guide and the Index.



Pollution: The Hazards of Growth

Five selections weigh the environmental impacts of the growth of human population.

Topic Guide

This topic guide suggests how the selections and World Wide Web sites found in the next section of this book relate to topics of traditional concern to environmental students and professionals. It is useful for locating interrelated articles and Web sites for reading and research. The guide is arranged alphabetically according to topic.

The relevant Web sites, which are numbered and annotated on pages 4 and 5, are easily identified by the Web icon ( ) under the topic articles. By linking the articles and the Web sites by topic, this ANNUAL EDITIONS reader becomes a powerful learning and research tool.

TOPIC AREA	TREATED IN
Agricultural Chemicals	6. How Much Food Will We Need? ***11, 12, 13, 14***
Agricultural Production	8. Myth of Global Hunger ***11, 12, 13, 14***
Agriculture	7. Food Scarcity ***11, 12, 13, 14***
Air and Water Quality	2. Global Challenge ***5, 6, 7, 24, 27***
Atmospheric and Oceanic Systems	2. Global Challenge ***5, 6, 7, 24, 27***
Atmospheric Change	4. Human Domination of Earth's Ecosystems ***5, 6, 7, 24, 27***
Atmospheric Pollution	28. Earth's Last Gasp? ***29, 31***
Biodiversity	13. Work of Nature 14. Strategies for Conserving Biodiversity ***19, 20, 21, 22***
Biological Accumulation	26. Nowhere to Hide ***29, 31***
Carbon Dioxide Emissions	25. Warming Up to Kyoto ***26, 27, 29, 31***
Chemical Pollution	30. Chemical Chokehold ***26, 27, 29, 31***
Climate Change	24. Great Climate Flip-Flop 25. Warming Up to Kyoto ***23, 24, 26, 27***
Coastal Ecosystems	21. Oceanfront Battlefront ***24***
Coastal Erosion	21. Oceanfront Battlefront ***24***
Conservation Strategy	19. Wild Success ***19, 20, 21, 22***
Conventional Energy Source	11. Sunlight Brightens Our Energy Future ***23, 27***
Conventional Oil	10. End of Cheap Oil ***16, 18***
Doubling Time	5. Before the Next Doubling ***14***
Economic Growth	29. Our Real China Problem ***31***
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Energy Resource	10. End of Cheap Oil ***16, 18***
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Fertilizer	27. Recycling Human Waste ***7, 9, 10***
Flood Control	22. Dam Fools ***25***
Food Scarcity	6. How Much Food Will We Need? 7. Food Scarcity ***11, 12, 13, 14***
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Freshwater Systems	4. Human Domination of Earth's Ecosystems ***6, 8, 25***

TOPIC AREA	TREATED IN
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Global Commons	2. Global Challenge ◎ ***6, 7, 8, 23, 24, 27***
Global Economy	7. Food Scarcity ◎ ***6, 7, 8, 11, 12, 13, 14***
Global Food Crisis	8. Myth of Global Hunger ◎ ***6, 7, 8, 11, 12, 13, 14***
Global Warming	24. Great Climate Flip-Flop 25. Warming Up to Kyoto 28. Earth's Last Gasp? ◎ ***2, 6, 7, 8, 19, 23, 26, 27***
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Greenhouse Gases	28. Earth's Last Gasp? ◎ ***23***
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Land Transformation	4. Human Domination of Earth's Ecosystems ◎ ***19, 20, 21, 22***
Low-Orbit Satellite	9. Beam It Down ◎ ***15, 16, 17, 18***
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Plant and Animal Species	4. Human Domination of Earth's Ecosystems 13. Work of Nature ◎ ***2, 7, 19, 20, 21, 22***
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Population Growth	1. Special Moment in History 3. Windows on the Future 16. Green Awakening in a Poor Country ◎ ***9, 10, 12, 14***
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Sustainability	3. Windows on the Future ◎ ***2, 6, 8***
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Wilderness Preserves	19. Wild Success ◎ ***19, 20, 21, 22***
Wildlife	18. Not in My Backyard ◎ ***19, 22, 31***
Wind Power	12. Inherit the Wind ◎ ***23, 24, 27***

AE: Environment

The following World Wide Web sites have been carefully researched and selected to support the articles found in this reader. If you are interested in learning more about specific topics found in this book, these Web sites are a good place to start. The sites are cross-referenced by number and appear in the topic guide on the previous two pages. Also, you can link to these Web sites through our DUSHKIN ONLINE support site at *http://www.dushkin.com/online/.*

The following sites were available at the time of publication. Visit our Web site—we update DUSHKIN ONLINE regularly to reflect any changes.

General Sources

1. eBlast: Britannica's Internet Guide
http://www.ebig.com/expanded_outline.html
This site presents extensive links to material on world geography and culture, encompassing material on wildlife, human lifestyles, and the environment.

2. EnviroLink
http://www.enrirolink.org/
One of the world's largest environmental information clearing houses, EnviroLink is a grassroots nonprofit organization that unites organizations and volunteers around the world and provides up-to-date information and resources through its Web site.

3. Library of Congress
http://www.loc.gov/
Examine this extensive Web site to learn about resource tools, library services/resources, exhibitions, and databases in many different subfields of environmental studies.

4. SocioSite: Sociological Subject Areas
http://www.pscw.uva.nl/sociosite/TOPICS/
This huge sociological site from the University of Amsterdam provides many discussions and references of interest to students of the environment, such as the links to information on ecology and consumerism.

5. U.S. Geological Survey
http://www.usgs.gov/
This site and its many links are replete with information and resources in environmental studies, from explanations of El Niño to discussion of concerns about water resources.

The Global Environment: An Emerging World View

6. Earth Science Enterprise
http://www.hq.nasa.gov/office/mtpe/
This site will direct you to information about NASA's Mission to Planet Earth program and its Science of the Earth System. Surf here to learn about satellites, El Niño, and even "strategic visions" of interest to environmentalists.

7. National Geographic Society
http://www.nationalgeographic.com/
This site provides links to National Geographic's huge archive of maps, articles, and other documents. There is a great deal of material related to the atmosphere, the oceans, and other environmental topics.

8. Santa Fe Institute
http://acoma.santafe.edu/
This home page of the Santa Fe Institute—a nonprofit, multidisciplinary research and education center—will lead you to many interesting links related to its primary goal: to create a new kind of scientific research community, pursuing emerging science. A variety of topics related to the environment are addressed.

9. United Nations
http://www.unsystem.org/
Visit this Official Web Site Locator for the United Nations System of Organizations to get a sense of the scope of international environmental inquiry today. Various UN organizations concern themselves with everything from maritime law to habitat protection to agriculture.

10. United Nations Environment Programme
http://www.unep.ch/
Consult this home page of UNEP for links to critical topics of concern to environmentalists, including desertification, migratory species, and the impact of trade on the environment. The site will direct you to useful databases and global resource information.

The World's Population: People and Hunger

11. The Hunger Project
http://www.thp.org/
Browse through this nonprofit organization's site to explore the ways in which it attempts to achieve its goal: the sustainable end to global hunger through leadership at all levels of society. The Hunger Project contends that the persistence of hunger is at the heart of the major security issues threatening our planet.

12. Penn Library Resources
http://www.library.upenn.edu/resources/websitest.html
This vast site is rich in links to information about virtually every subject you can think of in environmental studies. Its extensive population and demography resources address such concerns as migration, family planning, and health and nutrition in various world regions.

13. World Health Organization
http://www.who.ch/Welcome.html
This home page of the World Health Organization will provide you with links to a wealth of statistical and analytical information about health and the environment in the developing world.

14. WWW Virtual Library: Demography & Population Studies
http://coombs.anu.edu.au/ResFacilities/DemographyPage.html
This is a definitive guide to demography and population studies. A multitude of important links to information about global poverty and hunger can be found here.

Energy: Present and Future Problems

15. Communications for a Sustainable Future
gopher://csf.colorado.edu/
This gopher site will lead you to information on topics in international environmental sustainability. It pays particular attention to the political economics of protecting the environment.

16. Energy and the Environment: Resources for a Networked World
http://zebu.uoregon.edu/energy.html
This University of Oregon site will point you to an extensive array of materials having to do with energy sources—both

renewable and nonrenewable—as well as other topics of interest to students of the environment.

17. Institute for Global Communication/EcoNet
http://www.igc.org/igc/issues/energy/
This environmentally friendly site provides links to dozens of governmental, organizational, and commercial sites having to do with energy sources. Resources address energy efficiency, renewable generating sources, global warming, and more.

18. U.S. Department of Energy
http://www.doe.gov/
Scrolling through the links provided by this Department of Energy home page will lead you to information about fossil fuels as well as a variety of sustainable/renewable energy sources.

Biosphere: Endangered Species

19. Friends of the Earth
http://www.foe.co.uk/index.html
Friends of the Earth, a nonprofit organization based in the United Kingdom, pursues a number of campaigns to protect the Earth and its living creatures. This site has links to many important environmental sites, covering such broad topics as ozone depletion, soil erosion, and biodiversity.

20. Smithsonian Institution Web Site
http://www.si.edu/
Looking through this site, which will provide access to many of the enormous resources of the Smithsonian, will give you a sense of the biological diversity that is threatened by humans' unsound environmental policies and practices.

21. Tennessee Green
http://korrnet.org/tngreen/
Visit this site to find a wealth of information related to sustainability and ways that we can "lighten our load on the environment." It provides links to other environmental sites and guidance to articles and books.

22. World Wildlife Federation
http://www.wwf.org/
This home page of the WWF will lead you to an extensive array of links to information about endangered species, wildlife management and preservation, and more. It provides many suggestions for how you can take an active part in protecting the biosphere.

Resources: Land, Water, and Air

23. Global Climate Change
http://www.puc.state.oh.us/consumer/gcc/index.html
PUCO (Public Utilities Commission of Ohio) aims for this site to serve as a clearinghouse of information related to global climate change. Its extensive links provide for explanation of the science and chronology of global climate change, acronyms, definitions, and more.

24. National Oceanic and Atmospheric Administration
http://www.noaa.gov/
Through this home page of NOAA, part of the U.S. Department of Commerce, you can find information about coastal issues, fisheries, climate, and more. The site provides many links to research materials and other Web resources.

25. National Operational Hydrologic Remote Sensing Center
http://www.nohrsc.nws.gov/
Flood imagery is available at this site of the NOHRSC, which works with the U.S. National Weather Service to track weather-related information.

26. Virtual Seminar in Global Political Economy/Global Cities & Social Movements
http://csf.colorado.edu/gpe/gpe95b/resources.html
This site of Internet resources is rich in links to subjects of interest in regional environmental studies, covering topics such as sustainable cities, megacities, and urban planning. Links to many international nongovernmental organizations are included.

27. Websurfers Biweekly Earth Science Review
http://shell.rmi.net/~michaelg/index.html
This is a biweekly compilation of Internet sites devoted to the terrestrial and planetary sciences. It includes a list of hyperlinks to related earth science sites and news items. A great deal of information about climate and the atmosphere can be found here.

Pollution: The Hazards of Growth

28. IISDnet
http://iisd1.iisd.ca/
This site of the International Institute for Sustainable Development, a Canadian organization, presents information through links on business and sustainable development, developing ideas, and Hot Topics. Linkages is its multimedia resource for environment and development policymakers.

29. School of Labor and Industrial Relations: Hot Links
http://www.ssc.msu.edu/~lir/hotlink.htm
This Michigan State University SLIR page takes you to sites regarding industrial relations throughout the world. It has links to U.S. government and statistics, newspapers and libraries, international intergovernmental organizations and more. With this level of access, you should be able to research virtually every labor and industrial relations topic of relevance in environmental studies.

30. Space Research Institute
http://arc.iki.rssi.ru/Welcome.html
For a change of pace, browse through this home page of Russia's Space Research Institute for information on its Environment Monitoring Information Systems, the IKI Satellite Situation Center, and its Data Archive.

31. Worldwatch Institute
http://www.worldwatch.org/
The Worldwatch Institute is dedicated to fostering the evolution of an environmentally sustainable society in which human needs are met without threatening the health of the natural environment. This site provides access to *World Watch* magazine and *State of the World 1998*. Click on Alerts and Press Briefings for discussions of current problems.

32. WWW-LARCH-LK Archive: Sustainability
http://www.clr.toronto.edu/ARCHIVES/HMAIL/larchl/0737.html
This site gives you the opportunity to read—and respond to—a discourse on sustainability, with many different opinions and viewpoints represented.

We highly recommend that you review our Web site for expanded information and our other product lines. We are continually updating and adding links to our Web site in order to offer you the most usable and useful information that will support and expand the value of your Annual Editions. You can reach us at: *http://www.dushkin.com/annualeditions/*.

www.dushkin.com/online/

Unit Selections

1. **A Special Moment in History,** Bill McKibben
2. **The Global Challenge,** Michael H. Glantz
3. **Windows on the Future: Global Scenarios & Sustainability,** Gilberto C. Gallopín and Paul Raskin
4. **Human Domination of Earth's Ecosystems,** Peter M. Vitousek, Harold A. Mooney, Jane Lubchenco, and Jerry M. Melillo

Key Points to Consider

- In what parts of the world does human population growth pose the greatest problems for the future of environmental systems? How has the growing awareness of global environmental systems created more unanimity regarding environmental problems among the international scientific community?
- What are "global commons"? How does management of commonly held resources pose different problems from management of other kinds of resources?
- What is meant by the term "scenarios" and how does the use of scenario analysis aid policy makers in coming up with appropriate environmental strategies? How does the concept of sustainability fit into the various scenarios describing the world's future?
- How are human enterprises linked to changes in global biogeochemistry? Are there ways of measuring the role of humans in modifying global systems, and if so, what are they?

DUSHKIN ONLINE Links www.dushkin.com/online/

6. **Earth Science Enterprise**
   http://www.hq.nasa.gov/office/mtpe/
7. **National Geographic Society**
   http://www.nationalgeographic.com/
8. **Santa Fe Institute**
   http://acoma.santafe.edu/
9. **United Nations**
   http://www.unsystem.org/
10. **United Nations Environment Programme**
    http://www.unep.ch/

These sites are annotated on pages 4 and 5.