

Human Rights, Health and the Environment

by David Gillespie

The health and well being of humans cannot be separated from the natural environment. Many of the threats to human health are an intrinsic part of ecosystems. The challenge lies in maintaining people's health while simultaneously improving the health of ecosystems as a whole (Lada Kochtcheeva and Ashbindu Singh UNEP Assessment of Risks and Threats to Human Health, 1999).

All persons have the right to freedom from pollution, environmental degradation and activities that adversely affect the environment, threaten life, health, livelihood, well-being or sustainable development within, across or outside national boundaries (Draft Declaration on Human Rights and the Environment. United Nations, 1994. Article 5).

Environmental health and human rights are inextricably linked. According to the *Universal Declaration of Human Rights, Article 3*, “Everyone has the right to life, liberty, and security of person.” Given that the earth is the source of the basic necessities of human life, any discussion about health and human rights must be attentive to its inherent environmental aspects. International conventions, documents and reports such as *Agenda 21* (1992) and *The Draft Declaration of Human Rights and the Environment* (1994) have expressly argued for such an integrated approach. In response, a plethora of works over the past decade have expanded the discussion to include philosophical, medical, political, and legal perspectives.

This body of work has raised some important questions. To what extent has human interaction with the environment created hazards to human health and the environment? Which diseases can be directly linked to environmental change? Assuming that such diseases are preventable, what are the ethical concerns and legal consequences of our actions? The literature in this bibliography illustrates that changes to the environment *do* have an impact on health and wellbeing. Research has illuminated the link between poor environmental quality and many preventable illnesses including cancer, vector-borne diseases, and chronic respiratory disease, to name a few. A larger consensus is also developing about what health-related actions are ethical, and there is a growing international movement towards the creation of laws that protect the environment and human health. Scholars and professionals worldwide continue to develop pragmatic and realistic solutions to these problems.

However, more time needs to be devoted to the studying the affects of environmental degradation on human health. This bibliography hopes to aid in this learning process. Although the contribution is not exhaustive, it directs the reader to works that are crucial to a basic understanding of environmental health and human rights.

Basic Resources

- The United Nations | www.un.org
- The United Nations: Human Rights and the Environment | www.unhchr.ch/environment

- The United Nations Environment Programme (UNEP) | www.unep.org
- UNEP: Regional Office of North America (RONA): Environmental Issues | www.unep.org/issues/health_enviro.html
- UNEP: Global Environment Outlook | www.unep.org/geo
- The World Health Organization (WHO) | www.who.org
- WHO: Health and the Environment | www.who.int/health_topics/en

Conventions

- Agenda 21: World Summit on Sustainable Development (WSSD) Held in Johannesburg, South Africa from 26 August to 4 September 2002.
<http://www.un.org/esa/sustdev/agenda21text.htm>
- Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal.
(Basel, 22 March 1989) and Amendment (Geneva, 22 September 1995).
http://untreaty.un.org/English/TreatyEvent2002/Basel_Conv_16.htm.
- Basel Protocol on Liability and Compensation for Damage Resulting from Transboundary Movements of Hazardous Wastes and their Disposal
(Basel, 10 December 1999)
http://untreaty.un.org/English/TreatyEvent2002/Basel_Prot_17.htm.
- Cartagena Protocol on Biosafety to the Convention on Biological Diversity
(Montreal, 29 January 2000)
http://untreaty.un.org/English/TreatyEvent2002/Cartagena_21.htm.
- Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters.
(Aarhus, Denmark, 25 June 1998)
http://untreaty.un.org/English/TreatyEvent2002/Aarhus_23.htm.
- Convention on Biological Diversity.
(Rio de Janeiro, 5 June 1992).
http://untreaty.un.org/English/TreatyEvent2002/Biological_20.htm.

Other Documents

- Draft Declaration on Human Rights and the Environment. United Nations, 1994.
- Ebbesson, Jonas. 2002. Information, Participation and Access to Justice: the Model of the Aarhus Convention. Paper read at Joint UNEP-OHCHR Expert Seminar on

Human Rights and the Environment, 14-16 January 2002, at Geneva.

<http://www.unhchr.ch/environment/bp5.html>.

- Fabra, Adriana. 2002. The Intersection of Human Rights and Environmental Issues: A review of institutional developments at the international level. Paper read at Joint UNEP-OHCHR Expert Seminar on Human Rights and the Environment, 14-16 January 2002, at Geneva.
<http://www.unhchr.ch/environment/bp3.html>.
- Fabra, Adriana; and Eva Arnal. 2002. Review of jurisprudence on human rights and the environment in Latin America. Paper read at Joint UNEP-OHCHR Expert Seminar on Human Rights and the Environment, 14-16 January 2002, at Geneva.
<http://www.unhchr.ch/environment/bp6.html>.
- Global Environment Outlook 2000. 1999. Nairobi: UNEP and GEO: Division of Environmental Information, Assessment and Early Warning (DEIA&EW) United Nations Environment Programme. <http://www.unep.org/geo2000/index.htm>.
- N/A. 2002. Human Rights and the Environment: Jurisprudence of Human Rights Bodies. Paper read at Joint UNEP-OHCHR Expert Seminar on Human Rights and the Environment, 14-16 January 2002, at Geneva.
<http://www.unhchr.ch/environment/bp2.html>.
- Kochtcheeva, Lada; Singh, Ashbindu. 1999. An Assessment of Risks and Threats to Human Health Associated with the Degradation of Ecosystems. Sioux Falls, SD: UNEP. <http://grid.cr.usgs.gov>.
- McMichael, A.J.; D.H. Campbell-Lendrum; C.F. Corvalan; K.L. Ebi; A. Githeko; J.D. Scheraga; and A. Woodward. 2003. Climate Change and Human Health: risks and responses. Geneva: WHO New Publications.
- Razzaque, Jona. 2002. Human Rights and the Environment: the national experience in South Asia and Africa. Paper read at Joint UNEP-OHCHR Expert Seminar on Human Rights and the Environment, 14-16 January 2002, at Geneva.
<http://www.unhchr.ch/environment/bp4.html>.
- Rotterdam Convention on Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (Rotterdam, 10 September 1998).
http://untreaty.un.org/English/TreatyEvent2002/Rotterdam_24.htm.
- Shelton, Dinah. 2002. Human Rights and Environment Issues in Multilateral Treaties Adopted between 1991 and 2001. Paper read at Joint UNEP-OHCHR Expert Seminar on Human Rights and the Environment, 14-16 January 2002, at Geneva.
<http://www.unhchr.ch/environment/bp1.html>.

- [Stockholm Convention on Persistent Organic pollutants](http://untreaty.un.org/English/TreatyEvent2002/Stockholm_25.htm) (Stockholm, 22 May 2001). http://untreaty.un.org/English/TreatyEvent2002/Stockholm_25.htm.
- [United Nations Framework Convention on Climate Change](http://untreaty.un.org/English/TreatyEvent2002/UNFCCC_18.htm) (New York, 9 May 1992). http://untreaty.un.org/English/TreatyEvent2002/UNFCCC_18.htm.
- World Health Organization. 1997. Health and Environment in Sustainable Development: Five Years after the Earth Summit. Geneva: WHO.
- N/A. 2002. World Health Report 2002: Reducing Risks, Promoting Healthy Life. Geneva: WHO.

Disease and the Environment: Cause and Effect

As the tide of chemicals born of the Industrial Age has arisen to engulf our environment, a drastic change has come about in the nature of the most serious public health problems. Only yesterday mankind lived in fear of the scourges of smallpox, cholera, and plague that once swept nations before them. Now our major concern is no longer with the disease organisms that once were omnipresent; sanitation, better living conditions, and new drugs have given us a high degree of control over infectious disease. Today we are concerned with a different kind of hazard that lurks in our environment a hazard we ourselves have introduced into our world as our modern way of life has evolved (Rachel Carson, Silent Spring, 1962).

This section emphasizes the variety of illnesses linked to environmental degradation. The following literature illustrates that there is a growing concern that human destruction of the environment is responsible for exacerbating, if not creating illness. Many authors blame global warming and ozone depletion for increases in the incidences of skin cancer, malaria, and other vector-borne diseases. Some argue that chronic illnesses such as asthma and allergies are directly related to air pollution. Others cite the use of anthropogenic chemicals as a cause for serious problems ranging from cancer to behavioral disorders. Each of the following subsections provides examples of works that analyze these kinds of causal relationships between disease and the environment.

Linking Environment to Disease

Carson, Rachel. 1962. *Silent Spring*. Cambridge: The Riverside Press.

Kerns, Thomas. 2001. *Environmentally Induced Illness: Ethics, Risk Assessment and Human Rights*. Jefferson, NC: McFarland & Company, Inc.

This volume is especially helpful in linking environmental health and illness to the international legal conception of human rights. Kerns shows how environmental health relates directly to the Universal Declaration of Human Rights and other international human rights documents, many of which are included in an appendix.

McMichael, Tony. 2001. *Human Frontiers, Environments and Disease: Past Patterns, Uncertain Futures*. Cambridge: Cambridge University Press.

This book attempts to show how social and natural environments affect patterns of disease and survival. The author uses an ecological perspective to examine disease patterns in human biohistory.

Air Pollution and Disease

Brunekreef, Bert and Stephen T. Holgate. 2002. "Air Pollution and Health." *Lancet* 360 (9341):1233.

Abstract: The health effects of air pollution have been subject to intense study in recent years. Exposure to pollutants such as airborne particulate matter and ozone has been associated with increases in mortality and hospital admissions due to respiratory and cardiovascular disease. These effects have been found in short-term studies, which relate day-to-day variations in air pollution and health, and long-term studies, which have followed cohorts of exposed individuals over time. Effects have been seen at very low levels of exposure, and it is unclear whether a threshold concentration exists for particulate matter and ozone below which no effects on health are likely. In this review, we discuss the evidence for adverse effects on health of selected air pollutants.

D'Amato, G. 2002. "Outdoor Air Pollution, Climate and Allergic Respiratory Diseases: Evidence of a Link." *Clinical & Experimental Allergy* 32(10):1391.

"The Effects of Pollution." 2003. *American Fitness* 21(1):14.

Essig, Maria G. 2002. "Particulate Pollution Poses Greater Threat to Diabetic Patients." *Diabetes Week*: 5.

Etzel, Ruth A. 2003. "How Environmental Exposures Influence the Development and Exacerbation of Asthma." *Pediatrics* 112(1):233.

Glantz, Stanton A. 2002. "Air Pollution as a Cause of Heart Disease: Time for action." *Journal of the American College of Cardiology* 39(6):943.

Hampton, Tracy. 2004. "Diesel Fumes and Allergies." *Journal of the American Medical Association* 291(8):933.

"Heartache Over Air Pollution." 2004. *Environment* 46(2):6.

Hong, Yun-Chul; Jong-Tae Lee; Ho Kirn; Eun-Hee Ha; Joel Schwartz; and David C. Christian. 2002. "Effects of Air Pollutants on Acute Stroke Mortality." *Environmental Health Perspectives* 110(2):187.

Jang, A.S.; C.H. Yeum; and M.H. Son. 2003. "Epidemiologic Evidence of a Relationship Between Airway Hyper-responsiveness and Exposure to Polluted Air." *Allergy* 58(7):585.

Lin, Chin An; Luiz Alberto Amador Pereira; Gleice Margarete de Souza Coneicao; Humberto S. Kishi; Rodolfo Milani Jr.; Alfesio Luis Ferreira Braga; and Paulo Hilario Nascimento Saldiva.

2003. "Association Between Air Pollution and Ischemic Cardiovascular Emergency Room Visits." *Environmental Research* 92(1):57.

McCarthy, Mark. 2003. "Health Impacts of Transport." *Lancet* 361(9376):2168.

Pope III, C. Arden. 2000. "Review: Epidemiological Basis for Particulate Air Pollution Health Standards." *Aerosol Science and Technology* 32(1):4.

Pyne, Solana. 2002. "Stronger Link Between Air Pollution, Disease." *Science Now*: 1.

Schwartz, Joel. 2004. "Air Pollution and Children's Health." *Pediatrics* 113:1037.

Wilson, Richard; and John D. Spengler. (eds.). 1996. Particles in Our Air: concentrations and health effects. Cambridge: Harvard University Press.

Genetics And Environmental Illness Susceptibility

Calabrese, E.J. 1997. "Genetic Predisposition to Environmental Induced Diseases." *Environmental Toxicology and Pharmacology* 4(3-4):273-276.

Assesses nature of genetic predisposition to environmental induced diseases. Need for such dispositions in understanding the impact of environmental contaminants on human populations.

Jirtle, R.L.; M. Sander; and J.C. Barrett. 2000. "Genomic Imprinting and Environmental Disease Susceptibility." *Environmental Health Perspectives* 108(3):271-278.

Olshan, A.F. 1995. "Lessons Learned from Epidemiologic Studies of Environmental Exposure and Genetic Disease." *Environmental and Molecular Mutagenesis* 25(26):74.

Omaye, Stanley T. 2002. "Metabolic Modulation of Carbon Monoxide Toxicity." *Toxicology* 180(2):139.

Suk, W.A.; G. Collman; and T. Damstra. 1996. "Human Biomonitoring: Research Goals and Needs." *Environmental Health Perspectives* 104(3):479-483.

Toxins, Chemicals and Chronic Illness

Lawson, Lynn. 1993. *Staying Well in a Toxic World: Understanding environmental Illness, multiple chemical sensitivities, chemical injuries, and sick building syndrome*. Chicago: The Noble Press, Inc.

This book examines chronic illness and its relationship to the exposure of toxins and chemicals. The goal of this book is to educate readers on the dangers of living in a "toxic world," who is most susceptible to chemically induced illnesses, who is to blame, and what can be done about it.

- Edelstein, Michael R. 2004. *Contaminated Communities: coping with residential toxic exposure*. 2nd ed. Boulder: Westview Press.
- Grigg, J. 2004. "Environmental Toxins; their impact on children's health." *Archives of Disease in Childhood* 89(3):244.
- Hess, Evelyn V. 2002. "Environmental Chemicals and Autoimmune Disease: Cause and Effect." *Toxicology* 181/182:65.
- Lippmann, Morton (ed.). 2000. *Environmental Toxicants: Human Exposures and their Health Effects*. 2nd ed. New York: Wiley-Interscience.
- Lipson, Juliene G. 2001. "We Are the Canaries: Self-Care in Multiple Chemical Sensitivity Sufferers." *Qualitative Health Research* 11(1):103.
- McGinn, Anne Platt. 2000. *Why Poison Ourselves?: A precautionary approach to synthetic chemicals*. Edited by C. Bright. Washington, D.C.: Worldwatch Institute.
- Williams-Johnson; M. Mildred; Annette E. Ashizawa; and Christopher T. De Rosa. 2001. "Trichloroethylene in the Environment: Public Health Concerns." *Human & Ecological Risk Assessment* 7(4):737.

Climate Change and Human Health

- Arnell, N.W.; M.J.L. Livermore; S. Kovats; P.E. Levy; R. Nicholls; M.L. Parry; and S.R. Gaffin. 2004. "Climate and Socio-economic Scenarios for Global-Scale Climate Change Impacts Assessments: characterizing the SRES Storylines." *Global Environmental Change Part A: Human & Policy Dimensions* 14(1):3.
- Brown, Donald A. 2003. "The Importance of Expressly Examining Global Warming Policy Issues Through and Ethical Prism." *Global Environmental Change Part A: Human & Policy Dimensions* 13 (4):229.
- Kalkstein, Laurence S. 1996. Climate and Human Health. 2nd ed. Geneva: World Meteorological Organization; World Health Organization; United Nations Environment Programme.
- Leslie, Mitch. 2003. "Hot Spots for a Warming Planet." *Science* 302(5652):1871.
- Martens, Willem J.M.; Theo H. Jetten; and Dana A. Focks. 1997. "Sensitivity of Malaria, Schistosomiasis and Dengue to Global Warming." *Climate Change* 35(2):145.
- McMichael, Anthony J.; and R. Sari Kovats. 2000. "Climate Change and Climate Variability: adaptations to reduce adverse health impacts." *Environmental Monitoring & Assessment* 61(1):49.
- McMichael, Anthony J.; A. Haines; R. Sloof; and S. Kovats (eds.). 1996. Climate Change and Human Health. London: World Health Organization.

This volume is an assessment prepared by a task group commissioned by the WHO, the World Meteorological Organization and UNEP. The authors examine the diverse range of health effects of global climate change. Included are discussions on the increase of vector-borne diseases, the impact of a rising sea level, and the potential health effects of increased ground-level exposure to ultraviolet radiation.

Patz, J.A.; D. Engelberg; and J. Last. 2000. "The Effects of Changing Weather on Public Health." *Annual Review of Public Health* 21:271-307.

Ponsonby, Anne-Louise; Anthony McMichael; and Ingrid van der Mei. 2002. "Ultraviolet Radiation and Autoimmune Disease: insights from epidemiological research." *Toxicology* 181/182:71.

Sims, R.E.H. 2004. "Renewable Energy: A Response to Climate Change." *Solar Energy* 76(1-3):9.

Spear, Stuart. 2003. "Refugees Escape Ravages of Climate Change." *Journal of Environmental Health* 66(1):38.

Children: Special Threats

America's Children and the environment: measures of contaminants, body burdens and illnesses. 2003. 2nd ed. Washington, D.C.: U.S. Environment Protection Agency, Office of Children's Health Protection: National Center for Environmental Economics, Policy Economics Innovation.

Charnley, Gail and Resha M. Putzrath. 2001. "Children's Health, Susceptibility, and Regulatory Approaches to Reducing Risks from Chemical Carcinogens." Environmental Health Perspectives 109 (2):187.

Gulland, Anne. 2002. "Air Pollution Responsible for 600,000 Premature Deaths Worldwide." *BMJ: British Medical Journal* 325(7377):1380.

Kohn, Carol and Henderson, C.W. 2004. "Childhood allergies can be induced by the environment early in development." *Proteomics Weekly*: 9.

Kokish, Rebecca. 2003. "Children's Environmental Health--International Actions and Implications." *Colorado Journal of International Environmental Law and Policy* 14(1):143-166.

Mattison, Donald R. (ed.). 2003. The Role of Environmental Hazards in Premature Birth. Washington, D.C.: National Academy Press.

Nicolai, T. 2002. Pollution, Environmental Factors and Childhood Respiratory Allergic Disease. *Toxicology* 181/182:371.

"Polluted Food, Water Killing Millions of Children Every Year." 2002. *Nation's Health* 32(6):12.

United Nations Environment Programme; United Nations Children's Fund; World Health Organization. 2002. Children in the New Millennium: Environmental Impact on Health. Malta: UNEP, UNICEF, & WHO.

This book examines the underlying causes of children's environmental health problems and the environmental threats to children. It examines issues such as lack of safe water and sanitation, chemical pollution and radiation, indoor and outdoor air pollution, and natural resource degradation.

Yang, Chun-Yuh; Chih-Ching Chang; Hung-Yi Chuang; Chi-Kung Ho; Trong-Neng Wu; and Po-Ya Chang. 2004. "Increased Risk of Preterm Delivery Among People Living Near the Three Oil Refineries in Taiwan." *Environment International* 30(3):337.

Cancer and the Environment

Clapp, Richard. 2000. "Environment and Health: 4. Cancer." *Canadian Medical Association Journal* 163(8):1009.

"Is Endocrine Hypothesis Valid?" 199. *Journal of the American Medical Association* 276(4):273.

Perera, Frederica P. 1997. "Environment and Cancer: Who are Susceptible." *Science* 278(5340): 1068.

Examines environmental factors which combine with individual susceptibility to play a role in most human cancer. Specific groups with heightened risks; Studies of environmental carcinogens; Need to develop policies to protect susceptible groups; Need to revise risk assessment methodologies; Susceptibility related to genetics, ethnicity, race, age, gender, prior health, and nutrition; Application to cancer prevention.

Water Pollution and Disease

Baumstark-Khan, Christa; Riaz A. Khan; Petra Rettberg; and Gerda Horneck. 2003. "Bacterial Lux-Fluoro Test for Biological Assessment of Pollutants in Water Samples from Urban and Rural Origin." *Analytica Chimica Acta* 487(1):51.

Curtis, Val; and Sandy Cairncross. 2003. "Water, Sanitation, and Hygiene at Kyoto." *British Medical Journal* 327(7405):3.

Howd, Robert A. 2002. "Can We Protect Everybody from Drinking Water Contaminants?" *International Journal of Toxicology* 21(5):389.

Hunter, Paul Raymond; Mike Waite; and Elettra Ronchi (eds.). 2003. Drinking Water and Infectious Disease: Establishing the Links. Boca Raton: CRC Press.

Kirby, Roy M.; Jaime Bartram; and Richard Carr. 2003. "Water in Food Production and Processing: Quantity and Quality Concerns." *Food Control* 14(5):283

Luby, Stephen; Abida Raza; Farooq Ghouri; Mohammad Rahbar; Mubina Agboatwalla; Jeremy Sobel; Eric Mintz; Kathleen Baier; Shahida Qureshi; Rumina Hassan; Robert M. Hoekstra; and Eugene Gangarosa. 2001. "A Low-Cost Intervention for Cleaner Drinking Water in Karachi, Pakistan." *International Journal of Infectious Diseases* 5(3):144.

Singh, Kunwar P.; Dinesh Mohan; Sarita Sinha; and R. Dalwani. 2003. "Impact Assessment of Treated/Untreated Wastewater Toxicants Discharged by Sewage Treatment Plants on Health, Agricultural, and Environmental Quality in the Wastewater Disposal Area." *Chemosphere* 55 (2):227.

Snape, Jason R.; Steve J. Maund; Daniel B. Pickford; and Thomas H. Hutchinson. 2004. "Ecotoxicogenomics: the challenge of integrating genomics into aquatic and terrestrial ecotoxicology." *Aquatic Toxicology* 67(2):143.

United Nations World Assessment Programme. 2003. Water for People, Water for Life: The United Nations World Water Development Report. Barcelona: UNESCO and Berghahn Books.

This report, developed by twenty-three U.N. specialized agencies provides a comprehensive view of today's water problems and offers wide-ranging recommendations for meeting future water demands. Concerning environmental health and disease, the most useful section is Part III which discusses issues of water pollution, disease, and the need to protect ecosystems for the health of people and the planet.

The Built Environment as a Source of Illness

Assimakopoulos, Vasiliki D. and Costas G. Helmis. 2004. "On the Study of a Sick Building: the case of Athens Air Traffic Control Tower." *Energy & Buildings* 36(1):15.

Jaakkola, Jouni J.K. 1998. "The Office Environment Model: a conceptual analysis of the sick building syndrome." *Indoor Air* 8(1):7.

Lahtinen, Marjaana; Pekka Huuhtanen; and Kari Reijula. 1998. "Sick Building Syndrome and Psychosocial Factors-- A Literature Review." *Indoor Air* 8(1):71.

O'Reilly, James T. 1998. Keeping Buildings Healthy: how to monitor and prevent indoor environmental problems. New York: Wiley.

Perdue, Wendy C.; Lawrence O. Gostin; and Lesley A. Stone. 2003. "Public Health and the Built Environment: Historical, Empirical, and Theoretical Foundations for an Expanded Role." *Journal of Law, Medicine & Ethics* 31(4):557.

Saunders, Thomas. 2002. The Boiled Frog Syndrome: Your Health and the Built Environment. Hoboken, NJ: John Wiley & Sons, Ltd.

This book presents compelling evidence to show that the source of the majority of the Western diseases of civilization that have multiplied over the past 100 years, ranging from cancers to debilitating sickness and allergies, can be traced to the modern built environment.

Tate, Nicholas. 1994. *The Sick Building Syndrome: how indoor air pollution is poisoning your life--and what you can do*. Far Hills, NJ: New Horizon Press.

Environment, Health and Human Interactions

*The history of life on earth has been a history of interaction between living things and their surroundings. To a large extent, the physical form and the habits of the earth's vegetation and its animal life have been molded by the environment. Considering the whole span of earthly time, the opposite effect, in which life actually modifies its surroundings, has been relatively slight. Only within the moment of time represented by the present century has one species—man—acquired significant power to alter the nature of his world...The most alarming of all man's assaults upon the environment is the contamination of air, earth, rivers, and sea with dangerous and even lethal materials (Rachel Carson, *Silent Spring*, 1962).*

We live in an unprecedented era of human dominance over the natural environment—even more so since the publication of *Silent Spring*. Humans have not simply conquered the natural world but have mastered collecting and exploiting its resources to meet human needs and desires. But at what cost? To what extent has man's interaction with the environment created unnecessary hazards to human health and the health of Earth's ecosystems? This section identifies works that examine, from a variety of perspectives, the dynamic relationship between health and the environment, with an emphasis on the consequences of human activity. Some of these works offer a broad general understanding. Others examine particular human activities that affect the environment and health. Together they serve as a starting point for a fundamental understanding of the overall relationship between health and human rights.

Cartledge, Bryan (ed.). 1994. *Health and the Environment: The Lincare Lectures 1992-93*. Oxford: Oxford University Press.

The focus of this collection of essays is to turn away from an analysis that focuses solely on the way in which human activity is affecting the long-term future of our planet, but to the more immediate health concerns, which are already acute, resulting from existing environmental problems.

Chesworth, Jennifer (ed.). 1996. *The Ecology of Health: Identifying Issues and Alternatives*. Thousand Oaks: Sage Publications.

In this edited volume of essays, contributors examine the public concerns and challenges inherent in linking health and environmental quality. They discuss issues such as environmental and occupational cancer, ionizing radiation, and rational public policy, and they debate environmental issues in relation to national and international public health. Divided into three main parts, this volume looks at the environment and health from both philosophical and policy standpoints.

Evans, Robert G.; Morris L. Barer; and Theodore R. Marmor (eds.). 1994. Why are some people healthy and others not? The determinants of health of populations. New York: Aldine De Gruyter.

The contributors to this volume analyze issues ranging from societal differences, genetics, and environments. Concerning the environment, the most useful pieces of this book are Chapter Two by R.G. Evans and G.L. Stoddart for broader conceptual understandings and Chapter Six by R.G. Evans, M. Hodge, and I.B. Pless for specifically understanding the relationship between health and the environment.

“Halting Environmental Degradation.” 1998. *Population Today* 26(6): 8.

States that as a result of environmentally related diseases, an estimated one in five children will not live to see their fifth birthday in the less developed regions of the world. Information on an estimated 11 million childhood deaths globally; Reference to a report on health and the environment worldwide; WHO released this report.

Honari, Morteza and Thomas Boleyn (eds.). 1999. Health Ecology: health, culture and human-environment interaction. London; New York: Routledge.

An edited volume presenting a holistic approach to understanding human health from a human ecological perspective. The general aim of the contributors is to create a foundation for sustainable human health in a healthy environment. This volume is especially helpful for coming to a conceptual understanding of “health ecology.”

“How Does the Environment Affect Your Health.” 2001. *Natural Health* 31(5): 1.

Presents a quiz assessing one’s knowledge on the impact of the environment on people’s health. Types of food with high levels of toxic chemicals; Overexposure to the sun; Second-hand smoke; Diseases linked to air pollution.

Karr, James R. “Health, Integrity, and Biological Assessment: The importance of measuring whole things,” in Laura D. W. Pimentel and Reed F. Noss (eds.) Ecological Integrity: Integrating Environment, Conservation, and Health. 2000. Washington D.C.: Island Press.

In this essay, the author attempts to demonstrate the link between health, well being and environmental integrity. He argues that current environmental challenges are a result of our failure to understand risks and how they lead to sickness and death of life on Earth.

Kroll-Smith, Steve; Phil Brown; and Valerie J. Gunter (eds.). 2000. Illness and the Environment: A reader in contested medicine. New York: New York University Press.

This volume brings together previously published and original essays on the relationships of bodies, biospheres, science, and politics. Specifically, this book is aimed at social aspects of environmentally induced illnesses and the politics surrounding them.

McMichael, A.J. 1993. Planetary Overload. Cambridge; New York: Cambridge University Press.

McMichael argues that population growth, technology and over consumption are overloading Earth's capacity to meet the needs of human beings, and as such pose certain health risks. In this book he argues that environmental problems such as ozone destruction lead not only to diseases such as skin cancer, but also indirectly as climate change can affect food production, the spread of infections, and the depletion of freshwater.

McMichael, A.J. and Woodward Alistair. 2001. "Environmental Health," in Clarence C. P. Koop and Roy M. Schwarz (eds.) Critical Issues in Global Health. San Francisco: Jossey-Bass.

This essay focuses on the evolution of global environmental change and its affect on health. In this essay, the authors outline the main types of global environmental change and the anticipated health impacts of these changes, while acknowledging uncertainties in the forecasting of health impacts of global environmental change.

Moore, Gary S. 1999. *Living with the earth: concepts in environmental health science*. Boca Raton: Lewis Publishers.

This volume serves as a reference for environmental professionals and those training in the environmental field.

Nkhuwa, D.C.W. 2003. "Human Activities and Threats of Chronic Epidemics in a Fragile Geologic Environment." *Physics & Chemistry of the Earth - Parts A/B/C* 28(20-27):1139.

The quality of groundwater in the Lusaka aquifer is becoming matter of great concern to the city's inhabitants. Access to good quality water in sufficient quantities to support life is becoming increasingly scarce, while waterborne diseases are becoming rife and on the increase. As a result of rapid urbanization and a proportionate increase in human activities, there has been increased use of the ground to dispose of different types of solid and liquid wastes. Usually, this has been with no due consideration of the underlying geology. Such unsatisfactory management of wastes over a fragile geologic environment has heightened threats of aquifer pollution through unhindered access of components of the wastes to the groundwater store. Consumption of such water may be responsible for the near-endemic outbreaks of diarrhea and dysentery cases in parts of the city. As the demand for water continues to heighten, current trends of aquifer pollution of the meager available water resources threaten to exacerbate this scenario. Consequently, this will impose further restrictions on the city environment's ability to sustain human life. This paper highlights some of Lusaka's typical and pertinent water supply problems. It also implicitly expresses the urgent need for reconciliation between human activities and the underlying geology and hydrogeology in order to preserve an environment that promotes and perpetuates good human health.

Philp, Richard B. 1995. Environmental Hazards and Human Health. Boca Raton: Lewis Publishers.

This volume takes on the assumption that "all that is natural is good." Dr. Philp argues that when it comes to discerning what is harmful in our environment, we need to consider both human made toxins, as well as toxins found in the natural environment (such as natural radon gas, arsenic, and mercury). This volume also includes a collection of 24 case study reviews.

Other Resources

- The United Nations | www.un.org
- The United Nations: Human Rights and the Environment | www.unhchr.ch/environment
- The United Nations Environment Programme (UNEP) | www.unep.org
- UNEP: Regional Office of North America (RONA): Environmental Issues | www.unep.org/issues/health_enviro.html
- UNEP: Global Environment Outlook | www.unep.org/geo
- The World Health Organization (WHO) | www.who.org
- WHO: Health and the Environment | www.who.int/health_topics/en

Conventions

- Agenda 21: World Summit on Sustainable Development (WSSD) held in Johannesburg, South Africa from 26 August to 4 September 2002.
<http://www.un.org/esa/sustdev/agenda21text.htm>
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http://untreaty.un.org/English/TreatyEvent2002/Basel_Conv_16.htm
- Basel Protocol on Liability and Compensation for Damage Resulting from Transboundary Movements of Hazardous Wastes and their Disposal (Basel, 10 December 1999).
http://untreaty.un.org/English/TreatyEvent2002/Basel_Prot_17.htm
- Cartagena Protocol on Biosafety to the Convention on Biological Diversity (Montreal, 29 January 2000).
http://untreaty.un.org/English/TreatyEvent2002/Cartagena_21.htm
- Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (Aarhus, Denmark, 25 June 1998).
http://untreaty.un.org/English/TreatyEvent2002/Aarhus_23.htm
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Risk Assessment and Ethical Considerations

Environmental health risk assessment is the practice of attempting to assess the likely future costs to community health and the environment that would result from any given environmental policy decision, and then weighing them against the potential future benefits. Good risk assessment practices should require that all potential costs and benefits be evaluated in both the value and probability dimensions (Thomas Kerns, Environmentally Induced Illness, 2001).

Cost-benefit analysis is a useful tool for environmental policy formation. Policy makers weigh the good against the bad to arrive at “the greatest good for the greatest number.” Cost-benefit analysis, however, is not value-free. The decision-maker must decide what counts as “good”, what counts as “bad,” and the threshold at which the benefits exceed the costs. Do the benefits of using pesticides, for example, outweigh the environmental and health costs? Ultimately, the answer depends on the perspective of the decision-maker and what she values.

The following sampling demonstrates the importance of values in environmental health and policymaking. Included are sources of varying perspectives on the issue of risk assessment itself, as well as its relationship to environmental health. The literature also illustrates just how heated the debate has become. The works chosen address issues ranging from accusations of bias, to the role of the media in shaping the debate, to the political and legal battles between environmentalists and industry. This section is helpful for an understanding of the various ethical, legal, and political dimensions of environmental health, and how they relate to human rights.

Allan, Stuart; Barbara Adam; and Cynthia Carter (eds.). 2000. Environmental Risks and the Media. London; New York: Routledge.

Environmental Risks and the Media explores the ways in which environmental risks, threats and hazards are represented, transformed and contested in the media. At a time when popular conceptions of the “environment” as a stable, “natural” world with which humanity interferes are being increasingly challenged, the media’s methods of encouraging audiences to think about environmental risks, from the BSE or “mad cow” crisis to global climate change, are becoming more and more controversial.

Ball, David J. 2002. Environmental risk assessment and the intrusion of bias. *Environment International* 28(6):529.

Abstract: The concept of managing the environment and any associated human health impacts by means of such science-based tools as toxicological evaluation, risk assessment, and economic appraisal has become widely accepted in professional circles. These increasingly complex methodologies have not won universal support, however, even among the technically minded, and the wider public has in many cases remained skeptical. The public’s seeming lack of enthusiasm has frequently been assigned to ignorance of science, irrationality even, and some attempts have been made to ameliorate the situation by means of education, though with little evidence of success. However, this review advances an alternative explanation, namely, that the disenchantment has more to do with procedural than

technical matters. Many issues, although treated with technical risk assessment, appear to have forced themselves onto the agenda because of factors only passingly connected with risk, and which are more related to the intrusion of disputed values and other sources of bias. This paper also notes that the intervention of bias in decision making is rife, and is found as much in professional as in public approaches. This need not itself be a problem, providing it is recognized and openly expressed. However, there remains a need for much greater circumspection and frankness by professions about the status of their art, and a determined effort if the full social benefits of environmental risk assessment (ERA) are to be realized.

Bates, David B. 1994. *Environmental Health Risks and Public Policy: decision making in free societies*. Seattle: University of Washington Press.

David Bates outlines and analyzes five environmental hazards (including summaries and data) on human health. In addition, Bates assesses the role of the media, of scientists, of industry, of legislators, and of the courts in relation to each of the five hazards, and notes some differences between the open societies of Britain, Canada, and the United States in respect of them.

Benarde, Melvin A. 2002. *You've Been Had!: How the media and environmentalists turned America into a nation of hypochondriacs*. New Brunswick: Rutgers University Press.

This book is concerned with two questions: what do we really know, and what is falsely perceived? The author argues, as the title suggests, that Americans are getting healthier and some of the problems cited by environmentalists are either exaggerated or altogether unfounded.

Davis, Derva. 2002. *When Smoke Ran Like Water: Tales of Environmental Deception and the Battle Against Pollution*. New York: Basic Books.

This book is an attack on industrialists that claim that there is little proof that a "polluted" environment is harmful to humans. In support of this, the author points to scientific literature that demonstrates how pesticides and industrial pollutants cause significant numbers of cancers and diseases throughout the world.

Graham, John D. and Jonathan Baert Wiener (eds.). 1995. *Risk versus Risk: Tradeoffs in Protecting Health and the Environment*. Cambridge: Harvard University Press.

As the title suggests, the authors of this volume analyze the tradeoffs involved with the risks to life brought about by environmental degradation and the regulations that governments actually impose. While the authors argue that risk-risk tradeoffs are unavoidable, they offer a diagnosis and constructive suggestions for the future.

Hodges, J. 2003. Livestock, ethics, and quality of life. *Journal of Animal Science* 81(11):2887.

This article argues that agricultural and animal scientists need to embrace a new vision beyond the single-minded existing pursuit of biological efficiency. The public in the West is no longer concerned solely with cheap food. Other paramount issues define quality of life, including: health and safety of foods; nutritional value; traditional, regional, locally produced, and organic foods; animal welfare; sustainable farming; environment; and rural resources. The paper provides examples of how the credibility of animal scientists has been lost due to some instances of unethical behavior. Research, teaching and application of agricultural and animal science and

biotechnology need to be reshaped into a new “Quality of Life Agricultural Era” to replace the “Era of Intensification.” This new era will need fresh assumptions, beliefs and leadership to match the emerging social agenda of the 21st century. Animal scientists have a special role in implementing this new plausibility structure.

Hofrichter (ed.). 2000. *Reclaiming the Environmental Debate: The politics of health in a toxic culture*. Cambridge: MIT Press.

This volume is primarily concerned with the social dimension of environmental health, forwarding the idea of a “toxic culture.” The contributors to this volume provide critical perspectives on areas of risk assessment, urban development, toxic waste, and occupational health, as well as the need for holistic social change.

Karr, James R. Health, “Integrity, and Biological Assessment: The importance of measuring whole things.” In *Ecological Integrity: Integrating Environment, Conservation, and Health*, edited by D. W. Pimentel, Laura; Noss, Reed F. Washington D.C.: Island Press.

This essay attempts to demonstrate the link between health, well-being and environmental integrity. It argues that current environmental challenges are a result of our failure to understand risks and how they lead to sickness and death of life on Earth. Furthermore, the essay argues that the lens through which we have seen challenges to human health have been too narrow.

Kearns, Robin A. 1994. “Putting health and health care into place: An invitation accepted and declined.” *Professional Geographer* 46(1):111.

Here Robin Kearns discusses the need to resituate medical geography within social geography. The aim of this reorientation is to describe complex relationships between disease and environment; better understand the social construction of health; and to create space for biomedical models and disease ecology.

Kerns, Thomas. 2001. *Environmentally Induced Illness: Ethics, Risk Assessment and Human Rights*. Jefferson, NC: McFarland & Company, Inc.

This volume is especially helpful in linking ethics and environmental health to human rights. Kerns shows how environmental health relates directly to the Universal Declaration of Human Rights and other international human rights documents. This volume includes many of these documents in an appendix.

Kochtcheeva, Lada and Ashbindu Singh. 1999. *An Assessment of Risks and Threats to Human Health Associated with the Degradation of Ecosystems*. Sioux Falls, Sd: United Nations Environmental Programme/Division of Environmental Information.

This report comes out of a 1998 meeting of the United Nation Environmental Programme’s Division of Environmental Information, Assessment & Early Warning (DEIA&EW) to discuss the risks associated with environmental degradation. The report examines and explains the consequences of environmental change and provides a basis for decision-making in international environmental policy.

Kroll-Smith, Steve; Phil Brown; and Valerie J. Gunter (eds.). 2000. Illness and the Environment: A reader in contested medicine. New York: New York University Press.

This volume brings together previously published and original essays on the relationships of bodies, biospheres, science, and politics. Specifically, this book is aimed at social aspects of environmentally induced illnesses and the politics surrounding them.

Krupp, Staci Jeanne. 2000. "Environmental Hazards: assessing the risk to women." *Fordham Environmental Law Journal* 12(1):111-139.

In this essay the author argues that environmental risk assessments often fail to take into account gender and sex-related differences; and when they do, they are usually limited to the protection of fetuses and children. Such assessments lead to poor environmental protection for women. This article presents a critique of such shortcomings and presents ways to correct them.

Markowitz, Gerald and David Rosner. 2002. Deceit and Denial: The Deadly Politics of Industrial Pollution. Berkeley: University of California Press.

While probably most useful for those interested specifically in industrial pollution, this volume does offer some insights into the politics that are constantly surrounding environmental policy issues, especially the regulation of industry. It also provides some helpful information concerning health research and industrial pollution.

Montague, Peter. 2003. "Research Ethics and the Precautionary Principle: Marching Toward Environmental Decay." *Cambridge Quarterly of Healthcare Ethics* 12(4):466.

Neimark, Peninah and Peter Rhoades Mott (eds.). 1999. The Environmental Debate: A Documentary History. Westport: Greenwood Press.

This volume is a compilation of some of the most important documents from the Bible to the 1960s Environmental Movement to current events that have shaped environmental thought and actions. Documents include original essays, case laws, international conventions, and important books.

Nussbaum, Rudi H. and Charles M. Grossman. 2003. "Environmental Contamination and Health Studies: Conflicts of Interest and Reasons for Community-Based Participatory Studies." *Archives of Environmental Health* 58(5):261.

Nussbaum and Grossman comment on the impact of the reliance of public health agencies to scientists on the pollution caused by industries. In addition to conducting surveys of disease among residents in areas where there is suspected contamination, the authors claim a correlation between increased incidence of disease and toxic releases in the environment. Through the study the importance of the community participation is stressed.

Parvis, Leo. 2002. "Our Line of Duty." *Journal of Environmental Health* 65(5):43.

This recent article discusses the need to focus on protection of basic human rights while working towards improving environmental health. Among the broad issues discussed are the difficulty in controlling public nuisance; the significance of alerting the public when there is an

immediate health threat; and the need to promote public awareness of individual rights related to the environment.

Paustenbach, Dennis J. (ed.). 2002. Human and Ecological Risk Assessment. New York: Wiley-Interscience.

This project was undertaken by 60 researchers who have conducted major assessments in the United States. The outcome is an outline of the progress of environmental and human risk assessment, as well as some guides to carrying out successful risk assessments.

Sharp, Richard R. 2003. "Ethical Issues in Environmental Health Research." *Environmental Health Perspectives* 111(14):1786.

Abstract: Environmental health research encompasses a wide range of investigational topics, study designs, and empirical methodologies. As an arm of public health research concerned with understanding the health effects of the environments in which humans live and work, the field is intimately connected with social concerns about environmental quality and disparities of power and privilege that place differential burdens upon members of underserved communities. Environmental health researchers thus engage many ethical and social issues in the work they do. These issues relate to the choice of research topics to study, the methods employed to examine these topics, the communication of research findings to the public, and the involvement of scientific experts in the shaping of environmental policy and governmental regulation. These and other topics are reviewed in this article. These ethical, legal, and social issues are becoming increasingly more complex as new genetic and molecular techniques are used to study environmental toxicants and their potential influence on human and ecologic health. In this article the author argues that the main goal of environmental health research is to improve human and ecological health; and as such, researchers in the field are forced to make assessments about the best means to achieve this goal. Such assessments bring up social, ethical, legal, and political challenges, and in this article, the author attempts to define and analyze some of these challenges.

Solomons, Noel W. 2002. Ethical consequences for professionals from the globalization of food, nutrition, and health. *Asian Pacific Journal of Clinical Nutrition (Blackwell)* 11(4):s653.