

# A VISION FOR ENVIRONMENTAL POLICY

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As America begins to address the problems of the 21st century, few issues loom as large, and are as contentious, as environmental policy. The debate, however, is not new. It builds on the policy debates over the environment that evolved throughout the 20th century.

During the past century, two different attitudes toward public policy, in turn, dominated. During the first half, the focus was on *promotional* policies. The role of government, it was argued, was to “assist” in the rapid development of resources — forests, minerals, energy, and water. Government would either own or regulate these “national” resources, and taxpayers would subsidize their development.

The results of this interventionist policy were not good for the environment. Lawmakers tended to neglect both the risks and costs of such development. Whether it was the Tennessee Valley Authority, the Bonneville Power Administration, subsidized grazing and forestry, or nonsustainable western water policies, the emphasis was on government programs that expanded supply — regardless of costs to the environment or to society.

In part, as a reaction to these problems, the second half of the past century was dominated by *precautionary* policies. These policies tend to focus on preserving and conserving *everything*, emphasizing the value of the status quo over change. That precautionary emphasis led to the Endangered Species Act, wilderness areas, nonattainment policies, smart growth and other antidevelopment programs, and a general disregard for the impacts of such programs on local economic conditions.

The Bush administration has appointed to key environmental posts individuals who use both precautionary and promotional approaches to environmental protection. An eastern governor, Christine Todd Whitman, heads the Environmental Protection Agency, and a western attorney general, Gale Norton, heads the Department of the Interior.

The challenge for these appointees, their departments, and the new Congress is to move beyond the confrontational nature of the last century’s promotional and precautionary biases. To advance economic *and* ecological goals, environmental policy should balance all competing values.

America is ready for this integrative environmental vision. The Competitive Enterprise Institute’s *The Environmental Source* outlines steps that would advance that synthesis in policy. The magnitude of this reform task should not be underestimated. Both thoughtful analysis and an effective communications strategy will be required.



Many policy proposals have focused on such things as cost-benefit analysis, sound science, and risk assessment. To the American public, however, these approaches often seem cold and uncaring. Reformers are asked, “How can you put a price tag on the environment? Don’t you care about the children?” Technocratic answers to these concerns make policy makers appear out of touch and, on occasion, even heartless.

Yet there is a morally defensible, principled vision — one that appeals to American values without sacrificing free-market principles or environmental ideals. Taking the environment seriously means taking private property and other market institutions seriously.

## The Welfare Reform Model

In crafting an environmental reform program, we should look to areas where positive change already has been undertaken. Welfare reform, for example, was the result of both extensive research and a series of measures that encouraged state flexibility.

Author Marvin Olasky played a key role in changing the way people think about these issues. Olasky argued that while there might be some role for federal welfare programs, the primary hope for people dependent on those programs is the revitalization of America’s decentralized system of state and voluntary institutions.

Like today’s environmental policy, federal welfare programs were highly centralized and inflexible. Under the new regime, some states — most notably, Wisconsin and Michigan — explored a wide array of welfare alternatives. Some of these initiatives worked well, encouraging further reform. One result of these efforts was the bipartisan federal welfare reform bill enacted in 1996.

Environmental policy is at an earlier stage. To date, there has been little public attention paid to creative private efforts to improve environmental conditions. Likewise, most public debate has failed to consider how the federal government itself has harmed the environment.

Environmental policy makers should recognize the importance of these private efforts. For instance, we could allow extended leases or outright ownership of offshore reefs, or create private fishing rights in rivers, providing incentives, rather than penalties, for promoting environmental conservation. Such actions empower individuals to play a positive role in environmental protection.

## A Balanced Approach to Environmental Risk

Another aspect of the environmental question is how to manage environmental risk. Again, we need to move beyond the biases that characterized both the promotional and the precautionary approaches of the 20th century. The institutional framework for deciding which projects and technologies should go ahead, and which should be delayed or blocked, should be decided by those who face the risks of innovation *and* the risks of stagnation.

Precautionary regulations now dominating the rate and direction of technological change in so many areas — biotechnology, environmental cleanup, power technology, pest control — have focused exclusively on the risks that change *might* pose to some environmental value. These regulations have placed little emphasis on the risks posed by the failure to innovate. Such risks (while unseen) may be far more significant on both economic and environmental grounds.



Current pollution policy tends to rely on the use of centralized bureaucracies to mandate a zero-risk world. Ignoring the impossibility of their goal, proponents of this approach view “a zero-risk world” as one with zero technology, zero industry, and zero man-made chemicals. The result is an antitechnology bias, whereby groups and agencies seek to deny the use of new products until they can be proven safe. They call this position the “precautionary principle.”<sup>1</sup> Since a negative cannot be proven, this policy slows the adoption of new technology.

For example, some environmental activists want to eliminate risks to children by regulating pesticides, but they neglect the far greater risks posed by the pests themselves. A National Academy of Sciences report warns that pesticide regulation is making it harder to control vector-borne disease risks, which now appear to be on the rise.<sup>2</sup>

These attitudes can actually have fatal results for people in the developing world. Annually, at least one million people die and 300 million — 500 million people suffer from malaria.<sup>3</sup> Many of these victims are children. Those who have greatly demonized the use of pesticides — DDT in particular — have exacerbated their plight.<sup>4</sup>

## Principles for Successful Environmental Policy

This book contains a number of recommendations to guide America’s environmental policy. These recommendations are based on the following principles:

- Economic growth is the key to environmental protection. Wealthier nations have greater resources to protect the environment and, thus, are better able to achieve the level of environmental protection desired by all. By contrast, poor nations lack such resources, as they struggle to meet basic needs.
- Environmental risks must be examined in a balanced, risk-risk institutional framework. There are environmental risks associated with many activities — operating a factory, transporting materials, using technology — but there also are environmental risks associated with delaying, blocking, or eliminating such activities.
- The government should “do no harm” when it comes to the environment. In addition to the perverse incentives they provide, numerous government programs adversely affect the environment — government dam projects, subsidies that promote overfarming, and the mismanagement of public lands, are examples.
- Private property owners are better stewards of resources than public officials. The principle is simple: if an individual owns a resource, he has a stake in its management and its enhancement, and cares for it accordingly. Government property lacks individual stewards and is managed by the dictates of politics, usually leading to environmental damage.

<sup>1</sup> This definition is one of many interpretations. For more information on the precautionary principle, see Julian Morris, *Rethinking Risk and the Precautionary Principle* (London: Butterworth Heinmann, 2000).

<sup>2</sup> NAS Institute for Medicine, *Emerging Infections: Microbial Threats to Health in the United States* (Washington, D.C.: National Academy Press, 1992).

<sup>3</sup> World Health Organization, <http://www.who.int/inf-fs/en/fact094.html>.

<sup>4</sup> Richard Tren and Roger Bate, *When Politics Kills: Malaria and the DDT Story* (Washington, D.C.: Competitive Enterprise Institute, December 2000), <http://www.cei.org/pdfs/malaria.pdf>.



Private property owners should be compensated for regulatory takings. Private property is both the essential element for conservation and the key to the American dream. Federal, state, and even local bureaucracies threaten that dream by restricting private management. At a bare minimum, government agencies should compensate landowners when regulations reduce property values.

## Conclusion

Environmental policy in the 20th century swung between promotional and precautionary approaches. Throughout, policy makers neglected the ability of private parties to advance environmental values. As a result, streams, airsheds, aquifers, and wildlife have suffered far more harm than would have occurred otherwise.

Elements of a private environmental-protection system already exist. They provide the basis for empowering people to play a direct role in environmental conservation. The challenge, as in welfare reform, is less to proscribe than to empower. It is not to decide the optimal but rather to encourage exploration and innovation, to unleash the creative energies of the American people toward solving our environmental problems. We believe the policies outlined in this book will move us closer to that ideal.

— *Fred Smith*



## ENVIRONMENTAL TRENDS<sup>1</sup>

For the past 30 years, prognosticators have predicted an imminent environmental apocalypse. The air would choke the living; the water would poison the healthy. Comparing actual events to the predictions reveals a different picture. The environment and the quality and duration of life in the United States continue to improve.

### Human Life Span

The prognosticators often suggest that chemicals used in our modern technological society undermine public health. But the evidence shows that as chemical use has increased, the human life span has become longer.

- In 1900, the average life expectancy in the United States was 50 years. Now it is 77 years, an increase of more than 50 percent. The life expectancy for African-Americans has risen even more dramatically.<sup>2</sup>
- Cancer mortality has declined sharply since 1990. This drop was caused by a precipitous decline in lung cancer. Mortality caused by all forms of cancer besides lung cancer has declined since 1950, indicating that the overall increase in the cancer rate in the United States was solely due to smoking.<sup>3</sup>

### Land

Alexis de Tocqueville once described the United States as “the noblest habitation prepared by God for man.” Today, some complain that we are carelessly destroying this habitation by destroying the land at an ever-increasing rate. The numbers, however, indicate otherwise.

- In the early part of the 20th century, people cut down twice as many trees as they planted. Now, the United States grows 36 percent more trees than it harvests.<sup>4</sup>
- Some researchers estimate that there are more trees in North America today than there were when Columbus arrived in 1492.<sup>5</sup>
- Part of the reason for this surge in forest growth is decreased dependence on wood for fuel and construction. Per capita, Americans now consume half the wood they consumed in 1900.<sup>6</sup>
- Despite that the United States is the world’s number-one timber producer, for the six forest inventories taken in the United States between 1950 and the present, net forest growth always ex-

<sup>1</sup> This brief provides only a sampling of some key environmental trends. For additional information, see the other topical briefs in *The Environmental Source*, particularly the sections on air, water, drinking water, population, pesticides and agriculture, and chemical risk.

<sup>2</sup> Stephen Moore and Julian L. Simon, *It's Getting Better All the Time* (Washington, D.C.: Cato Institute, 2000), 26.

<sup>3</sup> Brad Rodu and Philip Cole, “The Fifty-Year Decline of Cancer in America,” *Journal of Clinical Oncology* 19, no. 1 (1 January 2001): 239-41.

<sup>4</sup> Roger A. Sedjo and Marion Clawson, “Global Forests Revisited,” in *The State of Humanity*, ed. Julian Simon (Cambridge, Mass.: Blackwell, 1995), 328-45.

<sup>5</sup> *Ibid.*

<sup>6</sup> Lynn Scarlett, “Doing More with Less: Dematerialization — Unsung Environmental Triumph?” in *Earth Report 2000*, ed. Ronald Bailey (New York: McGraw-Hill, 2000), 42.



ceeded harvests.<sup>7</sup>

Despite the fact that the federal government is the largest landowner in the United States, about 86 percent of reforestation is done by the private sector, with the remaining percentage done by the government.<sup>8</sup>

## Food Production

Changes in agriculture, such as improved plants and the use of pesticides and artificial fertilizers, have created a worldwide boom in the production of food.<sup>9</sup>

- The United States feeds three times the number of people than it did in 1900, on 33 percent less farmland.<sup>10</sup>
- Worldwide, the amount of food produced per acre has doubled in the past 50 years. Even though the global population increased by 250 percent, the amount of cropland only increased by 90 percent.<sup>11</sup>
- Enough food exists so that more than four pounds could be distributed to each person on earth every day.<sup>12</sup>
- Fewer people died from famine in the 20th century than they did in the 19th, despite the fact that the world population was four times greater at the close of the 20th century than it was at the beginning.<sup>13</sup>

## Wildlife

Agricultural changes have had a beneficial effect on conserving land and wildlife. Increasing the fertility of already rich cropland means that naturally poor, rocky hillsides have been taken out of crop production, decreasing the erosion of these places and returning them to a refuge for wildlife.<sup>14</sup>

- The number of documented animal extinctions has declined since 1930.<sup>15</sup>
- Three-quarters of all species extinctions have occurred on islands. Very few extinctions have occurred in continental tropical forest habitats.<sup>16</sup>
- Seventy-five percent of the land on every continent except Europe is available for wildlife.<sup>17</sup>
- Legislative protection of species, like the Endangered Species Act in the United States, has been

<sup>7</sup> Roger A. Sedjo, "Forests: Conflicting Signals," in *True State of the Planet*, ed. Ronald Bailey (New York: Free Press, 1995), 177-209.

<sup>8</sup> Julian L. Simon, *The Ultimate Resource 2* (Princeton: Princeton University Press, 1996), 155.

<sup>9</sup> Dennis Avery, "Saving the Planet with Pesticides," in *True State of the Planet*, ed. Ronald Bailey (New York: Free Press, 1995), 50-82.

<sup>10</sup> Moore and Simon, *It's Getting Better All the Time*, 94.

<sup>11</sup> *Ibid.*, 196.

<sup>12</sup> *Ibid.*

<sup>13</sup> *Ibid.*, 8.

<sup>14</sup> Avery, "Saving the Planet with Pesticides," 71-73.

<sup>15</sup> Stephen R. Edwards, "Conserving Biodiversity," in *True State of the Planet*, ed. Ronald Bailey (New York: Free Press, 1995), 212.

<sup>16</sup> *Ibid.*, 218.

<sup>17</sup> *Ibid.*, 223.



remarkably unsuccessful. There is an equal probability that a species listed will go extinct or recover, and some species have been “delisted” because of taxonomic confusion or “data error.”<sup>18</sup>

- The most successful method of species preservation has been through giving local people an incentive for protecting the wildlife.<sup>19</sup>

## Air Quality

In the past 20 years, air quality in the United States has undergone some impressive improvements:

- Carbon monoxide levels have dropped 58 percent, despite an increase in vehicle miles traveled.
- The ambient concentration of lead has plummeted 96 percent.
- Nitrogen dioxide ambient levels have declined by 25 percent.
- Ozone concentrations have decreased by 17 percent.
- Sulfur dioxide levels have dropped 53 percent.
- And in the last 10 years, particulate matter concentrations (PM 10) have declined by 25 percent.

These changes are all due to the Clean Air Act, right? Not necessarily, as Paul Portney, President of Resources for the Future notes, it is “extremely difficult to isolate the effects of regulatory policies on air quality, as distinct from the effects of other potentially important factors, because some measures of air quality were improving at an impressive rate before 1970.”<sup>21</sup>

Indur Goklany, an analyst at the United States Department of the Interior, expands upon this point in *Clearing the Air*. Through analysis of emissions per capita per unit of the gross national product (GNP), Goklany reveals that the cleanup of the air began well before the passage of the Clean Air Act. In fact, Goklany estimates that about 70 percent of the reductions of the emissions per unit of GNP occurred before the federalization of clean air. Economic growth, new technologies, as well as state and local laws brought about this reduction in pollution and likely would have continued even if the federal government hadn’t intervened.<sup>22</sup>

## Water Quality

The EPA’s National Water Quality Inventory (NWQI) provides the best available data for water quality. According to this report, 46 percent of the lakes and ponds sampled, 47 percent of the estuaries, and 55 percent of the streams and rivers are clean enough for any use.<sup>23</sup> However, there are

<sup>18</sup> Ibid., 241-42.

<sup>19</sup> Ibid., 223-28.

<sup>20</sup> U.S. Environmental Protection Agency, *Latest Findings on National Air Quality: 1999 Status and Trends* (Washington, D.C.: USEPA, August 2000).

<sup>21</sup> Paul R. Portney, “Air Pollution Regulation,” in *Public Policies for Environmental Protection*, ed. Paul Portney, (Washington, D.C.: Resources for the Future, 1990), 40.

<sup>22</sup> Indur M. Goklany, *Clearing the Air: The Real Story of the War on Air Pollution* (Washington, D.C.: Cato Institute, 1999), 133-39. Goklany does give some credit to federal law for the amount and pace of the pollution reduction occurring after 1970.

<sup>23</sup> U.S. Environmental Protection Agency, *Water Quality Conditions in the United States* (Washington, D.C.: U.S. EPA, 1998), <http://www.epa.gov/305b/98report/98summary.pdf>.



severe problems with these data. Unlike air quality data in the United States, water quality data “lacks consistent measurement standards to enable evaluation of progress over time.”<sup>24</sup> The number of water bodies assessed, indeed, the estimated number of water bodies, in a state varies widely from year to year. The EPA itself admits that the data collected under its own NWQI “cannot be used to determine trends in national water quality or to compare water quality among the individual states.”<sup>25</sup> The U.S. Geological Survey also has complained about the deficient data and practices.<sup>26</sup>

In the past 30 years, the United States has spent almost \$600 billion on improving water quality, and it would be surprising if water quality hadn’t improved during this time,<sup>27</sup> especially as industrial water pollution has decreased considerably since 1980. This discharge of toxic organics and metal plummeted by 99 percent and 98 percent, respectively, and the discharge of organic wastes fell by 46 percent.<sup>28</sup> Just as the lack of overall data quality hampers a true assessment of water quality, it also obscures the evaluation of water pollution remedies.

## Drinking Water

The quality of U.S. drinking water has improved dramatically since the beginning of the 20th century thanks to technology developed by the private sector and implemented by private utilities and local governments. By the time the federal government began to regulate drinking water, the private sector and local governments had largely addressed the most serious water problems. In particular, the development of chlorination to disinfect water has transformed water quality.

- As one researcher notes “... disinfection ranks with the discovery of antibiotics as one of the major public health accomplishments of the 20th century. In terms of risk, chlorination has allowed people to live long enough to worry about cancer.”<sup>29</sup>
- Since the 1880’s, when local engineers and industry introduced chlorination, waterborne-related deaths in the United States dropped from 75 to 100 per 100,000 people to less than 0.1 deaths per 100,000 annually by 1950.<sup>30</sup>
- In 1900, 25,000 people in the United States died from typhoid and cholera. As a result of water disinfection programs, typhoid killed only 20 people in 1960. Today, typhoid deaths in the United States are practically nonexistent.<sup>31</sup>
- Developing nations’ inability to afford basic sanitation and disinfection means that the quality of drinking water remains a serious environmental and public health concern in many parts of the world. Such realities highlight the critical importance of development and subsequent wealth creation that are necessary to achieve environmental goals and public health.

<sup>24</sup> Laura Steadman et al., “Water Quality,” in *Index of Leading Environmental Indicators 2000* (San Francisco: Pacific Research Institute for Public Policy, April 2000), 29, <http://www.pacificresearch.org>.

<sup>25</sup> *Ibid.*

<sup>26</sup> *Ibid.*

<sup>27</sup> *Ibid.*, 31.

<sup>28</sup> Steven Hayward, Erin Schiller, and Elizabeth Fowler, *1999 Index of Leading Environmental Indicators* (San Francisco: Pacific Research Institute for Public Policy, April 1999), 28-29, <http://www.pacificresearch.org>.

<sup>29</sup> I.H. Suffet, “Drinking Water Quality,” in *Southern California Environmental Report Card 2000*, ed. Richard Berk and Arthur Winer (Los Angeles: UCLA Institute for the Environment, 2000), <http://www.ioe.ucla.edu/publications/report00/html/drinkingquality.html>.

<sup>30</sup> Michael J. LaNier, “Historical Development of Municipal Water Systems in the United States, 1776 to 1976,” *Journal of the American Water Works Association* (April 1976): 177.

<sup>31</sup> Jefferson Parish Water Department, *Jefferson Parish Annual Water Quality Report* (Jefferson, La.: Jefferson Parish Water Department, 2001), <http://cfstaging.baileylink.net/pages/index.cfm?DocID=1142>.





## Energy

Despite today's industrial and technology-based society, the supply of energy is a continuing concern. It has been a concern for a while. But improved exploration and extraction techniques have increased the size of fossil fuel reserves and lowered the price of energy during the 20th century.

- Recent evaluations of proven reserves in natural gas and oil are larger than they were 30 years ago.<sup>32</sup>
- Oil is five times cheaper than it was in 1900 and, adjusting for inflation, is about the same price it was in 1950. Coal was seven times more expensive in 1900. Electricity was eight times as expensive.<sup>33</sup>
- Since 1929, it has taken 1 percent less energy each year to produce the same amount of goods and services. By 1989, the amount of energy needed to produce \$1 of GNP was 50 percent less than the amount of energy needed 60 years earlier.<sup>34</sup>

## Population

At least since the time when the Rev. Thomas Malthus wrote *Essay on the Principle of Population* in 1798, doomsayers have predicted that the sheer number of people in the world would destroy the earth. Not only do these dire predictions fail to acknowledge the positive contributions that human capital has made to our lives, they also have been proven wrong time and again. And as humans provide for themselves, trends in population growth are beginning to level off.

- The world population growth rate has dropped to 1.3 percent a year from its peak of 2.2 percent in the 1960s.<sup>35</sup>
- Demographers believe that half of the world's population lives in countries that have subreplacement fertility levels. The fertility rates are falling in countries that have above-replacement rates of fertility as well. Both Asia and Latin America's total fertility rates have declined by half since the 1960s.<sup>36</sup>

## Wetlands

Despite claims that there are fewer and fewer wetlands, trends are far more positive.

- The Department of the Interior's Fish and Wildlife Service, *Status and Trends of Wetlands in the Conterminous United States, 1986 to 1997*, estimates that the annual loss is 58,500 acres, an 80 percent reduction compared to the previous decade.<sup>37</sup>

<sup>32</sup> Jerry Taylor and Peter VanDoren, "Soft Energy Versus Hard Facts: Powering the Twenty-First Century," in *Earth Report 2000*, ed. Ronald Bailey (New York: McGraw-Hill, 2000), 121.

<sup>33</sup> Moore and Simon, *It's Getting Better All the Time*, 200.

<sup>34</sup> *Ibid.*, 192.

<sup>35</sup> Nicholas Eberstadt, "World Population Prospects for the Twenty-First Century: The Specter of 'Depopulation?'" in *Earth Report 2000*, ed. Ronald Bailey (New York: McGraw-Hill, 2000), 66.

<sup>36</sup> *Ibid.*

<sup>37</sup> T. E. Dahl, *Status and Trends of Wetlands in the Conterminous United States, 1986 to 1997* (Washington, D.C.: U.S. Department of the Interior, Fish and Wildlife Service, 2000), 9, [http://www.nctc.fws.gov/library/Pubs9/wetlands86-97\\_lowres.pdf](http://www.nctc.fws.gov/library/Pubs9/wetlands86-97_lowres.pdf).



- The United States Department of Agriculture's *National Resources Inventory* found an average annual net loss, from all sources, of 32,600 acres of wetlands.<sup>38</sup>
- When the buffered uplands that form part of the wetlands ecosystem are taken into account, the results are even more heartening: the United States seems to have achieved no net loss of wetlands.<sup>39</sup>
- What policies are responsible for this remarkable change? Certainly not regulatory ones. In 1995, for example, regulatory programs restored about 46,000 acres of wetlands. However, voluntary or incentive-based programs, such as Wetland Reserve, Waterfowl Management Plan, and Partners for Wildlife, restored 208,000 acres. Thus, economic incentive programs, and not regulatory measures, led the way to "no net loss" of wetlands.<sup>40</sup>

## Future Challenges

Despite all these gains, legitimate environmental and human problems exist, particularly in the developing world.

- Air pollution remains a serious concern in the developing world where the technologies of energy production lag behind the developed world. Of particular concern is indoor air pollution. Many people in developing countries still use biomass fuels, such as wood, as their energy source in houses without adequate ventilation. Such practices have a severe effect on the health of the people in those countries.<sup>41</sup>
- Unclean drinking water and inadequate sanitation remain major problems in the developing world. Four billion children a year contract diarrhea, killing 2.2 million a year. Estimates indicate that improved water and sanitation would reduce the number of cases of diarrhea by at least one-quarter.<sup>42</sup>
- Vector-borne disease continues to severely impact the developing world.<sup>43</sup> Malaria alone kills 200 to 300 children per hour.<sup>44</sup>

History demonstrates that the answer to these problems lies not in expensive and ineffective regulatory programs, but in increasing human potential. Wealthier is healthier, both for people and the environment, and the fastest way to make a nation wealthy is not by restricting commerce and trade, but by freeing it.

— Jennifer Zambone

<sup>38</sup> *National Resources Inventory* (Washington, D.C.: U.S. Department of Agriculture, 2000), 8; available at [http://www.nhq.nrcs.usda.gov/NRI/1997/summary\\_report/report.pdf](http://www.nhq.nrcs.usda.gov/NRI/1997/summary_report/report.pdf).

<sup>39</sup> Jonathan Tolman, *Swamped: How America Achieved "No Net Loss"* (Washington, D.C.: Competitive Enterprise Institute, April 1997), 2, <http://www.cei.org/MonoReader.asp?ID=117>.

<sup>40</sup> *Ibid.*, 1-2.

<sup>41</sup> Nigel Bruce, "Indoor Air Pollution: A Neglected Health Problem for the World's Poorest Communities," *Urban Health and Development Bulletin* 2, no. 2 (June 1999), <http://www.mrc.ac.za/UHDbulletin/june99/airpollution.htm>. The World Bank Group, "Indoor Air Pollution," *Energy and Health for the Poor*, no. 1 (September 2000), <http://wbln1018.worldbank.org/sar/sa.nsf/2991b676f98842f0852567d7005d2cba/a169d6e66c9c0c7585256990006a2631?OpenDocument>.

<sup>42</sup> World Health Organization, *Global Water Supply and Sanitation Assessment: 2000 Report* (Geneva: WHO and UNICEF, 2000), [http://www.who.int/water\\_sanitation\\_health/Globassessment/Global1.htm#1.1](http://www.who.int/water_sanitation_health/Globassessment/Global1.htm#1.1).

<sup>43</sup> Duane J. Gubler, "Resurgent Vector-Borne Diseases as a Global Health Problem," *Emerging Infectious Diseases* 4, no. 3 (July-September 1998), <http://www.cdc.gov/ncidod/eid/vol4no3/gubler.htm>.

<sup>44</sup> World Health Organization, "Malaria: Fact Sheet" (Geneva: WHO, 1998), <http://www.who.int/inf-fs/en/fact094.html>.

