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**Environmental Indicators**

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*by Laura Jones,  
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and Liv Fredricksen*



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# Introduction

Modern public attention to the environment dates roughly from the first Earth Day in 1970. But, despite a generation of concern, public opinion about environmental issues remains confused and contradictory and, as a consequence, public policy on the environment is highly contentious and unsettled.

It is difficult to judge public sentiment about the environment accurately because the environment, taken as a whole, is a broad and all encompassing idea. “The environment” is an evocative term, suggestive of our relationship to nature and conveying connotations of eternity and this generation’s bequest to succeeding generations. The environment, perhaps uniquely among public issues, invites citizens to engage in metaphysical speculation. Environmental issues comprise both narrow technical concerns, often measured in parts per billion, and broad emotional concerns, such as the symbolic value of a virgin forest.

The broad and amorphous nature of environmental issues works both for and against environmentalism. When pollsters ask specifically whether the environment is a serious problem, the majority answer strongly in the affirmative and people are generally pessimistic about environmental trends. According to a recent survey by the Wirthlin group, 79 percent think that “problems regarding pollution and the environment will get worse during my lifetime.” The Wirthlin survey similarly finds that 76 percent agree with the statement that “protecting the environment is so important that requirements and standards cannot be too high, and continuing environmental improvements must be made regardless of cost” (Wirthlin Group 1997).

On the other hand, if pollsters ask open-ended questions about what issues people regard as most important, the environment does very poorly, usually in the single digits. A 1995 Gallup Poll reported that only one percent of respondents ranked the environment as the “most important problem,” while a 1994 Roper Survey that listed the environment among 20 public problems ranked the environment sixteenth, just above alcoholism.

(The Gallup and Roper Surveys are included in Ladd and Bowman 1995). Crime, the economy, and education are usually picked as the most important public problems, with 40 to 60 percent being the typical range for respondents naming these as particular problems on open-ended or multiple-choice surveys. This is not to suggest that public concern about the environment is overstated or misunderstood. Contradiction within public opinion is not a new or remarkable phenomenon and the environment is similar to many other public issues where the public often tells pollsters that the government does not spend enough money on the specific problem while also saying that the government as a whole is too big and spends too much. (If policy makers made policy according to the polls on an issue-by-issue basis, total government spending would soar.)

The fact that people rank the environment low on an open-ended ranking of public problems means that, while many people may have strong opinions on the environment in the abstract, the environment does not hold their immediate interest in the same way crime and education do. While public-policy debates seldom command close public attention, citizens are more informed on high-profile issues such as crime and education than they are on environmental issues and public preferences are more accurately and fully reflected in policy changes that are made on the high-profile issues.

## How people form an opinion about the environment

Since the public does not pay close attention to the details of environmental issues, it is not surprising that public opinion is not in harmony with the general facts. Even as polls show that people think the environment is getting worse, by most measures environmental quality has dramatically improved over the last generation and is continuing to improve.

There are three ways in which the public comes to form its opinions about the environment. First, because people are less likely to spend time following environmental issues in detail and because the environment ranks low on the list of public concerns, environmental issues and policy tend to be driven by the most highly motivated interest groups, typically environmental organizations. And, since democratic government is most responsive to an atmosphere of crisis, it is in the interest of environmental organizations to promote a sense of crisis much of the time. A feature series on environmental issues in the *New York Times* observed that environmental organizations might be “in danger of becoming the green equivalent of the military lobby, more interested in sowing fear and protecting wasteful programs than in devising a new course” (Schneider 1993: A1). Other critics have described some environmentalists as “crisis entrepreneurs.”

Second, the news media are more likely to report bad news—especially when it can be sensationalized—and aggravate the sense of crisis by promoting images of environmental threats. News about positive environmental progress is down-played. In his magisterial book, *A Moment on the Earth*, environmental writer Gregg Easterbrook recounts how, in 1992, he was struck by finding the good-news story, “Air Found Cleaner in U.S. Cities,” in “a small box buried on page A24” of the *New York Times*. The story went unmentioned in most other media outlets. “Surely,” Easterbrook observed, “any news that air quality was in decline would have received front-page attention. The treatment suggested that the world was somehow disappointed by an inappropriately encouraging discovery” (Easterbrook 1995: xiii). This asymmetry in the way the media handle environmental issues further distorts public perception.

Third, public perception of environmental quality is powerfully driven by what economists call “the wealth effect.” Several studies have shown a positive correlation between rising incomes and demand for environmental quality. As people become more affluent, their tolerance for risk of all kinds diminishes. This is one of the reasons that citizens of wealthy nations believe their environment is getting worse even as the data show it is getting better.

### **The effect of public opinion on policy**

Incorrect public perceptions about environmental trends can have important consequences for policy since not

only do they cause anxieties that may be unwarranted by facts or out of proportion to the true risks involved but they can also lead to skewed policy priorities. In 1990, the United States Environmental Protection Agency’s Science Advisory Board warned that current laws and regulations “are more reflective of public perceptions of risk than of scientific understanding of risk” (USEPA Science Advisory Board 1990). And, a 1993 report from the Center for Resource Economics found that EPA resources were allocated in amounts inversely proportional to genuine risk. “EPA’s budget and staff resources are not allocated on the basis of risk,” the report concluded. “Consequently, more than 80 percent of EPA’s resources are spent on pollutants considered to be relatively low risk by federal scientists” (Smolonsky, Dickson and Caplan 1993: 1).

To be sure, public perceptions are often wrong on many other areas of public policy. Announcements of factories closing and layoffs often generate waves of anxiety among the public and the media and lower consumer confidence even when unemployment is falling and the economy is strong. In the fullness of time, however, public perception usually corrects itself as a clear sense of economic progress takes hold. One reason for this long-term confidence in the economy is that economic journalism and economic policy are fully informed today by a number of well-understood measures (i.e., money supply, the employment cost index, inflation, interest rates, housing starts, and, of course, the composite Index of Leading Economic Indicators).

### **Lack of reliable measures of environmental quality**

For the environment, however, we lack a series of good, clear measures of environmental quality and progress. In part, this is because our thinking about the environment is still in some ways in its infancy, which is reflected in the fact that the focus of environmental concern has so often shifted. Twenty-five years ago most environmental concern centered on problems of pollution and scarcity—the view that we were fouling our own nest and would quickly run out of natural resources. Today it is clear that anxieties about scarcity were unfounded and concern has shifted to problems of global warming and “biodiversity,” for which we lack uncontested scientific theory and objective data. In equal part, the lack of good measures of environmental quality stem from the methodological difficulty of constructing such measures. As

long ago as 1972, the President's Council on Environmental Quality (CEQ) wrote that "the process of developing dependable indices will be a long one," but the CEQ never got very far with the task. CEQ published a report on environmental trends only intermittently; the last *Environmental Trends* report was published in 1989. Environment Canada last published its *State of the Environment* report in 1996. The federal government recently announced, as part of the 2000 budget, that it will develop indicators for the environment and sustainable development.

## State of the environment: things are improving

To fill this gap in public knowledge and perception about environmental progress, to separate the facts from alarmist misinformation, and to bring balance to the environmental debate, The Fraser Institute in conjunction with the Pacific Research Institute for Public Policy, the Institute of Economic Affairs, and the Center for Free Enterprise (in South Korea) have developed *Environmental Indicators*. The main text of this edition of the report focuses on trends in Canada. Information on environmental trends in the United States, the United Kingdom, Mexico, and South Korea can be found in the last section of the report, Index of Environmental Indicators (pages 77 to 90).

The indicators are designed to help the public assess more accurately the state of the environment in several key areas: air quality, water quality, natural resources, land use and condition, solid wastes, energy, pesticides, toxic releases, and wildlife.

This report finds that, contrary to public opinion, in most instances objectives for protecting human health and the environment are being met, pollution and wastes are being controlled, and resources and land are being sustainably and effectively managed. Environmental quality in Canada is improving, not deteriorating. The United States, the United Kingdom, and South Korea show similar trends. In Mexico, environmental quality remains stable overall with improvements in specific areas such as air quality. Following are some salient points.

- Overall, environmental quality improved by 18 percent in Canada relative to 1980.
- Air pollution from sulphur dioxide, nitrogen dioxide, carbon monoxide, particulates, and lead has decreased considerably in Canada.

- The ambient level of sulphur dioxide decreased by 60.6 percent in Canada between 1974 and 1997.
- Ambient levels of carbon monoxide decreased by 73.9 percent between 1974 and 1997.
- Ambient lead concentration fell 88.2 percent in Canada between 1974 and 1997.
- DDE concentrations in birds' eggs have fallen by more than 80 percent in Lake Erie and Lake Superior since 1974, and in Lake Michigan since 1976; Lake Ontario and Lake Huron have shown decreases of over 85 percent since 1974.
- On the West Coast, concentrations of dioxins and furans measured in eggs of the great blue heron dropped by 95 percent between 1982 and 1994.
- Between 1983 and 1994, 21 percent more of the municipal population across Canada was provided with waste-water treatment.
- The amount of toxic chemicals released into the environment decreased by 26.5 percent between 1993 and 1997.
- Forest land is increasing in North America.
- The amount of land set aside for parks, wilderness, and wildlife has increased in Canada by 198 percent since 1973.
- Wetland habitat in Canada is not declining.
- Overall environmental quality improved by 18.6 percent in the United States, and 10.4 percent in the United Kingdom relative to conditions in 1980. South Korea showed an overall improvement of 9 percent since 1985. In Mexico, overall environmental quality remained the same relative to conditions in 1990.

## Objectives of the study

This document is designed to give the reader an overview of national environmental quality in Canada. While the indicators include many local or regional environmental issues, such as the air quality of selected cities, the main goal of this study is to provide a "big picture" of general, nationwide environmental trends. Information about trends in other countries is included in the last chapter of the report.

It is beyond the scope of this report to develop indicators for global controversies such as tropical rainforest deforestation, climate change, and bio-diversity.

Most of the data in this report comes from the *Environmental Data Compendium 1999* of the Organisation for Economic Cooperation and Development (OECD). Where OECD survey results were unavailable, data were supplemented by information from the Environmental Protection Agency (EPA), Environment Canada, the Department of Environment Transport Regions (DETR) in the UK or other official government sources.

The indicators are divided into primary and secondary categories. Within each category, there are several subsections. Primary environmental indicators include information about (1) air quality, (2) water quality, (3) solid waste, (4) land use and condition, and (5) natural resources. These indicators provide direct information about environmental quality.

The secondary indicators include often cited environmental measures such as (6) carbon-dioxide emissions, (7) oil spills, (8) use of pesticides, (9) toxic releases, and (10) numbers of wildlife species at risk of extinction. These indicators are considered "secondary" since they provide only indirect information about environmental quality. In some cases, such as carbon dioxide emissions, it is unclear whether the indicator contributes to an environmental problem. In other cases, wildlife, for example, available data make it difficult to draw reliable conclusions.

In the final section of the report, the trend in environmental performance for the primary environmental indicators is compiled into an index. The index shows considerable improvement in the environmental quality of Canada, the United States, and the United Kingdom. Mexico's overall environmental quality, as measured by the index, has been stable since 1990.