

Summary



Chapter Highlights:

Today, the health of our natural environment compares favourably with that of other countries. Canadians enjoy one of the safest food supplies on Earth, the overall quality of our air and drinking water is very high, and our built environment is generally cleaner and healthier today than it was 100 years ago. Despite this, however, we still face a variety of potential threats to our health from the environment. These include:

- issues related to air quality, such as asthma, air contaminants such as tobacco smoke, outdoor air pollution, indoor air pollution, ultraviolet radiation and global warming;
- contaminants in our water, including micro-organisms in drinking water and water disinfection by-products;
- food contaminants, such as bacteria and endocrine disruptors;
- lead in our soil environment; and
- injuries and the impact of automobiles, which are related to our built environment.

In order to ensure our long-term health and the health of our environment, we must create a more sustainable society—or, in other words, we must embrace the concept of *sustainable development*. Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

Canada's Green Plan, which began in 1990, provided a framework to help Canadians move towards sustainable development. The Action Plan on Health and the Environment (APHE) was Health Canada's contribution to the Green Plan and addressed the critical link between health and the environment. APHE was initiated in April 1992 and lasted for five years.

Health Canada continues to build upon the work achieved by APHE largely through Health and Environment, a new program being undertaken by the Department's Health Protection Branch and Health Promotion and Programs Branch. The program focusses on reducing health impacts of environmental origin and identifying and managing emerging environmental health issues.

Health Canada is continuing initiatives directed specifically at the health of Aboriginal Peoples through the Drinking Water Safety Program for Native People, the Effects on Aboriginals from the Great Lakes Environment (EAGLE) Project and the Northern and Arctic Pollution Initiative.

The federal *Auditor General Act* was amended in 1995 in order to promote and support sustainable development within the context of health and environmental issues. The amendment, *Bill C-83*, requires all federal government departments to prepare, by December 1997, a sustainable development strategy, consisting of action plans that identify goals, objectives and targets for furthering sustainable development activities. *Bill C-83* is intended to ensure that environmental concerns are considered in the Auditor General's annual reports to the House of Commons.

SUMMARY

Humans have always used the environment as a convenient site for the disposal of wastes. Human activity has led to the production and release of a wide variety of chemical, radioactive, biological and physical contaminants. Fortunately, since reaching a peak in the 1970s, environmental levels of many hazardous contaminants have declined dramatically in Canada. For example, airborne lead concentrations have fallen to trace levels as a result of a ban on leaded gasoline. The levels of many other common air pollutants have also dropped significantly. As well, since the 1970s, as a result of various control strategies, levels of polychlorinated biphenyls (PCBs), dioxins and organochlorine pesticides found in water, food, soil and human tissues have fallen in most of Canada, with the possible exception of the Arctic.

Today, the health of our natural environment compares favourably with that of other countries. Canadians enjoy one of the safest food supplies on Earth, the overall quality of our air and drinking water is very high, and our built environment is generally cleaner and healthier today than it was 100 years ago. Despite this, however, we still face a variety of

potential threats to our health from the environment. These potential threats are briefly summarized below.

Air

- **Asthma**—Asthma is a respiratory disease that affects more than one million Canadians, resulting in more than 60 000 hospital admissions and 250 000 days in hospital annually from 1990 to 1993 and more than 450 deaths annually from 1990 to 1995. In 1990, the total cost of asthma was estimated at over \$500 million. Asthma is a common chronic illness among children and is the leading cause of school absenteeism. The rate of hospitalization for asthma has increased by 27% for boys and by 18% for girls in the last decade.
- **Tobacco Smoke**—Recent research suggests that each year, more than 40 000 Canadians die from smoking and about 300 non-smoking Canadians die of lung cancer caused by prolonged exposure to other people's tobacco smoke.
- **Outdoor Air Pollution**—Recent studies have revealed a strong association between the number of hospital admissions in Canada for respiratory symptoms and air pollutant levels on the previous day.

- **Indoor Air Pollution**—Improper ventilation and maintenance of buildings can lead to the buildup of contaminants in indoor air. Depending on the types and concentrations of contaminants present, air quality problems, such as sick building syndrome, can result.
- **Ultraviolet (UV) Radiation**—UV radiation is one of the main causes of skin cancer in Canada. In 1995, more than 55 000 Canadians developed various forms of skin cancer. Over the last 15 years, the incidence of malignant melanoma (lethal skin cancer) has doubled.
- **Global Warming**—Since 1895, average global temperatures have increased by 0.5°C. Climate models predict that temperatures will further increase by about 0.3°C *per decade* over the next 100 years. If these models are correct, global warming could trigger profound environmental and health effects, such as widespread coastal flooding, an increase in severe weather events and the northward migration of tropical diseases.

Water

- **Micro-organisms in Drinking Water**—In 1993, more than 200 people became ill during an outbreak of cryptosporidiosis, caused by the *Cryptosporidium* parasite, in Kitchener-Waterloo, Ontario. Since then, further outbreaks have been reported in Collingwood, Ontario, and Kelowna, British Columbia, affecting an estimated 15 000 people. Symptoms may include diarrhea, stomach cramps or a mild fever, and the disease may be fatal in people with weakened immune systems.
- **Water Disinfection By-products**—Chlorine is a simple, effective, yet relatively inexpensive agent for destroying harmful micro-organisms in tap water, although it can generate potentially harmful disinfection by-products, such as

trihalomethanes (THMs), which have been linked to certain cancers. The health risks associated with drinking unchlorinated water are, however, much higher than the risks posed by chlorination by-products, as is evident in developing countries with inadequate water treatment systems.

Food

- **Bacterial Contamination**—Food-borne bacterial contamination results in over 10 000 reported cases of food-related illness in Canada, and it is estimated that for every reported case there may be many unreported incidents. The leading causes of food-borne illness are *Salmonella*, *Campylobacter* and *Escherichia coli* (*E. coli*) bacteria, which are often present in raw meat products.
- **Endocrine Disruptors**—Certain naturally occurring and synthetic pollutants have been shown to cause adverse effects on wildlife populations by disrupting the endocrine (hormonal) system. Workplace exposure to high levels of some endocrine disruptors is associated with lower sperm counts, decreased fertility and altered development of the reproductive tract. It is not known whether such substances can cause adverse effects at the levels found in our environment.

Soil

- **Lead**—Older homes are a potential source of lead-based paint dust and contaminated soil. Elevated blood lead levels are associated with behavioural and developmental problems in children and with adverse reproductive effects in adults. To estimate the number of children for whom a concern may exist, it is assumed that 5–10% of urban children have more lead in their bloodstream than the lowest level (10 µg/dL) at which adverse effects have been identified.

The Built Environment

- **Injuries**—Injury, not disease, is the leading cause of death in infants and children under the age of 14. Each year, approximately 1000 children die from causes related to unintentional injuries. Motor vehicle traffic accidents are the leading injury-related cause of death in this age group
- **The Impact of Automobiles**—Engine exhaust from motor vehicles is the single largest source of outdoor air pollution. Automobiles alone account for 10% of all carbon dioxide emissions in Canada.

Future Challenges: Sustainable Development and Environmental Health

Perhaps the greatest challenge we face to ensure our long-term health and the health of our environment is to create a more sustainable society—or, in other words, to embrace the concept of *sustainable development*. Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Sustainable development involves the integration of economic, social and environmental goals, taking into account effects on health. It reflects the fact that development is essential to satisfy human needs and to improve the quality of human life, but it must be based on the efficient and environmentally responsible use of all of society's scarce resources: natural, human and economic.

Initiatives to address the specific issues of health protection and promotion within a context of sustainable development, and to address the broad concept of sustainable development itself, are being undertaken within Health Canada and government-wide. Some are briefly described below.



Health Canada: Protecting and Promoting the Health of Canadians

In December 1990, the federal government announced Canada's Green Plan, which provided a framework to help Canadians move towards sustainable development. The Action Plan on Health and the Environment (APHE) was Health Canada's contribution to the Green Plan and addressed the critical link between health and the environment. APHE was initiated in April 1992 and lasted for five years.

The APHE strategy consisted of a series of initiatives to identify environmental contaminants, investigate their effects on the health of Canadians and reduce and prevent health risks associated with the contaminants. APHE provided funding to monitor water, air and food; ensure that safety standards were met; enhance existing regulations; and help develop new regulatory measures to prevent or reduce pollution. It also fostered individual, community and international health protection and health promotion initiatives.

Health Canada continues to build upon the work achieved by APHE largely through Health and Environment, a program being undertaken by the Department's Health Protection Branch and Health Promotion and Programs Branch. The

Health and Environment program focusses on reducing health impacts of environmental origin and identifying and managing emerging environmental health issues. The program has four priorities:

- control of toxic substances in the environment;
- assessment and management of bioregional health effects;
- environment-related disease surveillance and control; and
- promoting and supporting population health.

The Health and Environment program uses a variety of approaches to fully address risk management objectives, including science, legislation, community action and social marketing, and it involves partnerships with other government departments and agencies as well as international organizations, such as the World Health Organization.

Health Canada is continuing initiatives directed specifically at the health of Aboriginal Peoples through the Drinking Water Safety Program for Native People, the Effects on Aboriginals from the Great Lakes Environment (EAGLE) Project and the Northern and Arctic Pollution Initiative. Although these initiatives are not formally part of the Health and Environment program, they share similar goals.

Bill C-83: An Amendment to the Auditor General Act

The federal *Auditor General Act* was recently amended in order to promote and support sustainable development within the context of health and environmental issues. The amendment, *Bill C-83*, went into effect in December 1995 and is intended to ensure that environmental concerns are considered in the Auditor General's annual reports to the House of Commons. The Bill requires all federal government departments to prepare, by December 1997, a sustainable development strategy, consisting of action plans that identify goals, objectives and targets for furthering sustainable development activities.

A Guide to Green Government was developed to help departments prepare their strategies and lists a number of key objectives to consider, including sustaining our natural resources through sustainable jobs, communities and industries; protecting the health of Canadians and ecosystems; ensuring equity (between current and future generations and between the poor and more affluent); maintaining our quality of life and well-being; and meeting international obligations with respect to global environmental issues.