



# the water we drink

## AN INTERNATIONAL COMPARISON OF DRINKING WATER QUALITY STANDARDS AND GUIDELINES

Drinking water is essential to life, yet it can be a source of exposure to pathogens and chemical, physical and radiological contaminants. Health experts generally agree that microbiological pathogens – including bacteria, viruses, and protozoa – are the most important risk posed by drinking water. These pathogens can cause gastrointestinal disease outbreaks that result in acute health problems for substantial proportions of an exposed population. Exposure to chemical and radiological contaminants in drinking water can also contribute to a range of adverse health effects including cancer, neurological disorders, damage to internal organs, gastrointestinal illness, reproductive problems, developmental disorders, and disruption of the endocrine system.

Canadians are painfully aware of severe, recent water contamination events in Walkerton, North Battleford and Kashechewan. These disasters are the tip of the iceberg. The Canadian government estimates that contaminated drinking water causes 90 deaths and 90,000 cases of illness annually. Independent health experts suggest a much higher number of Canadians suffer from gastrointestinal illnesses because of contaminated drinking water. Because of widespread under-reporting, the actual number of cases is probably 10 to 1,000 times higher than the number of confirmed cases.

Experts agree that a multiple barrier approach – comprehensively addressing threats to water quality all the way from water sources to taps – is necessary. The key elements of a comprehensive approach include:

- protection of water sources
- adequate treatment
- a well maintained distribution system
- strong water quality standards
- regular inspection
- testing
- monitoring
- operator training and certification
- public reporting
- contingency planning
- research
- adequate funding
- rigorous enforcement

While all levels of government play a role in protecting drinking water quality, the focus of this report is on the performance of Canada's federal government because Ottawa plays a vital role in establishing the Guidelines for Canadian Drinking Water Quality.

This study compares the voluntary Guidelines for Canadian Drinking Water Quality with corresponding frameworks in the U.S., the European Union, and Australia, as well as guidelines



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recommended by the World Health Organization. This report focuses on standards or guidelines that address various types of water treatment techniques, and set the Maximum Allowable Concentration (MAC) of various contaminants in drinking water after treatment has taken place.

Although Canada is envied around the world for its natural wealth of fresh water, there is a disturbing gap between the quality of our water and the quality of our drinking water guidelines. Compared to other nations, Canada's lack of outcome-based standards for effective drinking water treatment is a significant weakness in protecting the health of Canadians from bacteria, viruses, and protozoa. In addition, this study identifies 55 contaminants for which Canada has weaker guidelines for the protection of drinking water quality than at least one other jurisdiction or the World Health Organization recommendation. These contaminants include bacteria, pesticides, carcinogenic industrial chemicals, disinfection byproducts, naturally occurring toxic substances, and a radioactive substance released by nuclear reactors.

For many chemical contaminants, the Canadian guideline is 50, 100, or even 1,000 times weaker than the corresponding European standard or Australian guideline. Canada's continued reliance on voluntary national guidelines puts us behind the U.S. and the E.U. and at odds with the recommendations of both the World Health Organization and the Walkerton Inquiry. As Justice Dennis O'Connor wrote in his compelling analysis of the Walkerton water disaster, matters as important as safe drinking water and public health "should have been covered by regulations which, unlike guidelines, are legally binding."

The report also identifies a number of other areas where the federal government is failing to adequately protect the health of Canadians from hazards posed by drinking water. In particular: there are urgent water quality problems facing many Aboriginal communities; a law introduced in 1996 to ensure the safety of materials used in drinking water treatment was never passed; and Canadian rules governing bottled water appear to be weaker than the rules in other jurisdictions.

The David Suzuki Foundation believes that Canadians should enjoy a level of protection from environmental

threats to their health that is equal to or better than the highest standard enjoyed by the citizens of other industrialized nations. Citizens of the U.S. and Europe enjoy legally binding national standards for drinking water quality. There is no reason why Canadians should not enjoy the same level of protection.

By taking stronger steps to ensure safe drinking water, the federal government could prevent unnecessary deaths and illnesses, reduce health care expenses and productivity losses, and improve Canadians' quality of life. The David Suzuki Foundation offers the following recommendations, summarized below and explained in more detail in the report.

**RECOMMENDATION 1: Replace the Canadian Guidelines for Drinking Water Quality with a set of health-based long-term objectives for drinking water quality, and legally binding national standards for drinking water quality that are equal to or better than the highest standards provided in any other industrialized nation.**

**RECOMMENDATION 2: Take urgent steps to ensure the provision of clean drinking water on the reserves of Aboriginal and Inuit people.**

**RECOMMENDATION 3: Establish long-term targets and timelines for the reduction of water pollution.**

**RECOMMENDATION 4: Implement a national tax on polluters.**

**RECOMMENDATION 5: Provide funding for source water protection and increase funding for infrastructure upgrades.**

**RECOMMENDATION 6: Reintroduce and enact the Drinking Water Materials Safety Act; the same one promised in the 1990s.**

**RECOMMENDATION 7: Pursue real-time continuous monitoring of water treatment processes.**

**RECOMMENDATION 8: Address knowledge gaps by investing in research programs and bio-monitoring of the Canadian population.**

**RECOMMENDATION 9: Recognize that Canadians have the right to live in a healthy environment.**



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