

**TRAGEDY ON TAP:
WHY ONTARIO NEEDS A
*SAFE DRINKING WATER ACT***

**VOLUME I:
AN OVERVIEW**

Submissions of the
Concerned Walkerton Citizens
and
Canadian Environmental Law Association
to Part II of the Walkerton Inquiry

Date: May 15, 2001

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This report is dedicated to the people of Walkerton. May their struggle bring clean water to all future Ontarians ...

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Special thanks goes to Erik Olson of the Natural Resources Defense Council in Washington, DC for his generosity in sharing twenty seven years experience of the US *Safe Drinking Water Act*.



FOREWORD

A year ago, as spring arrived in the picturesque farming community of Walkerton, Ontario, it ushered in an intruder, *E. coli* 0157:H7, that invaded the community water delivery system, causing the death of seven people and sickening thousands of others. Shortly after this, the Concerned Walkerton Citizens invited the Canadian Environmental Law Association to represent them in the public inquiry convened to examine the tragedy and the safety of Ontario's drinking water systems. Both groups have prepared this Issue Paper for the Part II Study Phase of the Inquiry. It has drawn on the experience of the people of Walkerton, the Inquiry evidence to date, the history of Ontario water protection and our examinations of the best models drawn from water protection regimes around the world. It is our collective hope that the legacy of Walkerton will be a *Safe Drinking Water Act* built on the recommendations offered in this study. Walkerton has made waves world-wide and caused many jurisdictions to examine and change drinking water protections and practices. This paper is accurate up to May 15, 2001, the date of its submission to the Honourable Justice Dennis R. O'Connor, Commissioner of the Walkerton Inquiry.

**TRAGEDY ON TAP: THE NEED FOR AN ONTARIO
SAFE DRINKING WATER ACT**

Volume I: An Overview

Walkerton Inquiry Part II Issue Paper

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Part I: We Need A *Safe Drinking Water Act* to Protect Public Health

“It’s as if somebody tells you a silent killer is going door to door.” Bruce Davidson, Walkerton resident, Owen Sound Sun Times, May 29, 2000

At the turn of the century, cholera and other devastating diseases were carried from house to house by the pumps and pipes of the water supply system. When public health pioneers discovered drinking water was literally killing hundreds of people, there was a rush to put in place treatment methods to disinfect water with chlorine.

This was a revolutionary moment in restoring confidence in drinking water. The public health movement inspired far-reaching and protective legislation to safeguard public drinking water supplies in Canada, Europe and the United States. However, since these early pioneering efforts, the absence of a serious public health scare has led to complacency about drinking water safety.

The protection of drinking water has not been a legislative priority for any government in Canada. Various provincial and federal governments have assumed that existing legislation indirectly leads to clean drinking water. Thus, a rigorous, well-crafted legal regime has never been put in place, either at the federal or provincial level, to guarantee the public a safe and clean supply of drinking water.

“There are so many unknowns. That’s the fear. Water is our life. We’re not used to this in Canada.” George Nichol, Walkerton businessman, Owen Sound Sun Times, May 31, 2000

The current regime for protecting Ontario’s drinking water is a diverse mix of general legislation, regulation, standards, objectives and guidelines. Information about the quality of drinking water has always been spotty and difficult to find in the files and reports of various ministries, municipal offices and public utilities. If a contaminant was found in a drinking water supply, members of the public were rarely informed. If they did find out, they had very little recourse to correcting the problem.

Yet, since the early 1960s, drinking water has been under siege. There has been a dramatic increase in the industrial, agricultural and household chemicals spilling into waterways and emerging at low levels in drinking water. There has been a move to large factory farms where cattle and pigs generate more raw sewage than small cities, and more recently, there has been the threat of new and emerging pathogens. Little known but lethal pathogens, like *Cryptosporidium* and new strains of *E. coli*, are being found more frequently in drinking water supplies. In 1993 in Milwaukee, Wisconsin, more than 400,000 people became sick and 100 died from a *Cryptosporidium* outbreak.

More recently, the Walkerton tragedy has shown that deadly bacteria can still be carried from house to house by the drinking water supply. The continuing *Cryptosporidium* problems in North Battleford, Saskatchewan demonstrate that drinking water concerns are not confined to Ontario. Clearly, complacency about drinking water is no longer justifiable.

“It’s a nightmare. I had people just streaming in here doubled over with cramps looking for Pepto-Bismol, not knowing what was happening to them.” Lorri Uhrig, Triangle D Discount, Walkerton, Toronto Star, May 27,2000

Every provincial government in Canada is now scrambling to upgrade and improve its procedures and legislation. Ontario has put into place long-overdue drinking water regulations in the wake of Walkerton, but, in contrast to the priority that has been accorded drinking water in other parts of North America and Europe, these regulations represent a small step.

There are still glaring gaps and inadequacies in Ontario’s current legal framework for drinking water safety. For example, the regulations do not guarantee the public a right to safe drinking water. They do not enshrine in legislation the need for water to be protected for drinking above all other uses. There is no consideration of protecting the sources of drinking water – either surface or ground water. There are no mandatory provisions for setting new standards or revising outdated ones. There are inadequate opportunities for public involvement in the standard-setting or approval processes. There is no mandatory enforcement regime for maintaining drinking water standards. And there is no consideration of the future – any research commitment or advisory council to identify new directions and new approaches to drinking water safety.

“This is an everyman story...This could happen to you tomorrow. Nobody knows.” Bruce Davidson, Walkerton resident, Owen Sound Sun times, May 29,2000

The protection of public health and safety demands a clear, workable legislative regime. A robust regime means fewer outbreaks of waterborne disease. It makes a commitment to the public that universal health-based standards will be upheld. It reassures members of the public that any violations will be immediately reported to them and corrected. It creates a well-informed public involved in the protection of their drinking water sources. It outlines clear lines of responsibility and accountability, and fosters a higher degree of protection and a higher level of public confidence in the safety of drinking water. Where there is specific drinking water legislation, governments react more quickly and decisively to new threats like *Cryptosporidium*.

These basic protections should be enshrined in drinking water legislation. Where there is public involvement in legislative improvements and where drinking water is the focus of specific legislation, there is more likely to be safe drinking water provided to the public. Where there is disinterest and complacency, there is the potential for tragedy. Now, more than ever before, we need a *Safe Drinking Water Act*.

To design this Act, we will look at how our current system works and who has the authority to enact drinking water legislation in Canada. We will look at why we need to improve the present framework; we will identify what other jurisdictions are doing that would help us; and we will outline the basic principles and provisions that should be incorporated into safe drinking water legislation.

Part 2: This is How the Current System Works in Canada

In Canada we have diverse, overlapping and piecemeal environmental laws, covering various aspects of water, air and pesticides, but there is no specialized or comprehensive safe drinking

water legislation either at the federal level, in Ontario, or in any other province. In Ontario, as in many other provinces, there is not even a specialized office or agency that specifically (and solely) deals with drinking water concerns.

Although the responsibility for water is shared between the federal, provincial and municipal governments, Ontario and municipalities have the primary responsibility for making sure water is safe to drink.

The Constitution Does Not Clearly Delineate the Responsibility for Drinking Water

Canada's *Constitution Act, 1867* divides legislative powers between the federal government and the provinces, but the Constitution Act does not specify which level of government has jurisdiction over "environment", "public health" or "drinking water".

Both environmental quality and public health have in practice been shared by both levels of government. The federal government has taken responsibility for water in the areas that have the potential for significant economic impact – navigation and fisheries – and for waters that lie on or across international boundaries.

In general, however, the provinces have assumed most of the day-to-day responsibility for water. They are responsible for flow regulation, water supply, pollution control, thermal and hydroelectric power development. In Ontario the Ministry of Environment has taken the lead in managing water resources through its statutes, regulations and policies.

Despite this well-established provincial regime, there is a strong constitutional basis for federal laws aimed at protecting water quality. The federal government could enact a national *Safe Drinking Water Act*, which would establish common requirements across Canada, or at the very least, enact binding national drinking water standards rather than guidelines. However, in the absence of any federal interest in developing a *Safe Drinking Water Act*, Ontario and the other provinces have clear constitutional authority to enact and enforce drinking water legislation.¹

The Federal, Provincial and Municipal Governments All Play a Role in Managing Drinking Water

1. The Federal Government Plays a Limited Role in the Management of Drinking Water

"We just hope it never happens in any other town. Maybe people will learn." Margaret Rapp, Walkerton grandmother, Toronto Star, May 27, 2000

The most significant contribution of the federal government has been the establishment of guidelines for allowable levels of contaminants in drinking water.

¹ This authority does not apply to First Nations, but some cooperative arrangements should be entered into so that Ontario standards are formally adopted by the federal authorities, and First Nations can avail themselves of Ontario's treatment, testing and training initiatives.

Representatives from Environment Canada, Health Canada, each of the provinces and territories, including Ontario's Ministry of Environment, serve on a joint Federal Provincial Subcommittee on Drinking Water that was set up in 1983. This committee develops non-binding drinking water guidelines for microbiological, physical, chemical and radiological contaminants. These guidelines are periodically updated through meetings held twice a year.

Maximum Acceptable Concentrations (MACs) are established for substances that are known or suspected of having adverse health effects, and Interim Maximum Acceptable Concentrations (IMACs) are used where there is not enough toxicological data to set a standard with certainty. Finally, there are aesthetic objectives for substances that do not threaten health but affect the appeal of drinking water, like taste and odour. Unfortunately, acceptable concentrations such as Health Canada's tritium guideline are not necessarily health-based.

Another problem with this closed standard setting process is the lack of any mechanism for public input.

In comparison, the United States in 1974 used its public health service guidelines as the original impetus for their *Safe Drinking Water Act*, making previously non-enforceable guidelines enforceable standards that must be met by all public drinking water suppliers. Similarly, the European Union has established legally binding standards that must be adopted by all European Union member states.

Health Canada's guidelines could be used by the federal government as the basis of a national *Safe Drinking Water Act*. Instead, the federal government has bowed to the provinces and left it up to them to impose or not to impose standards. Before Ontario introduced its recent regulation, Alberta and to a lesser extent, Québec, were the only two provinces to use these federal guidelines as the basis for mandatory minimum standards.

The federal government has tried unsuccessfully to introduce drinking water legislation in the mid-1980s. At that time, the U.S. Environmental Protection Agency had an advisory program to provide information on additives for use in the treatment of drinking water and system components to help meet drinking water objectives. Many Canadian provinces relied on the EPA's advice and when this program ended, Health Canada tried to bridge the gap by proposing new legislation, the *Drinking Water Materials Safety Act*.

This Act was to regulate drinking water materials such as water treatment devices, chemical additives, or water system components. The Act allowed the Minister to establish national drinking water guidelines, to conduct research on drinking water, to certify drinking water materials, and to prohibit unsafe drinking water materials. However, because drinking water has never been a legislative priority, the federal government did not pass this Act.

Health Canada has also undertaken other initiatives such as conducting drinking water research, assessing water treatment processes and products and promoting public awareness of drinking water safety.

Existing federal laws are primarily aimed at reducing discharges into water and prohibiting polluting activities, but there is nothing that regulates water at the tap. The laws that indirectly protect our drinking water by limiting pollution are the *Canada Water Act*, the *Canadian Environmental Protection Act*, and the *Fisheries Act*.

The *Canada Water Act* is not specifically used to regulate drinking water, but contains a number of provisions for water quality. The Act authorizes federal-provincial arrangements regarding water resources management, and regulates discharges of waste into prescribed water quality management areas. It establishes federal water quality management programs for interjurisdictional waters.

The *Canadian Environmental Protection Act* (CEPA), passed in 1999, is the centrepiece of the federal government's pollution control laws. It is administered primarily by Environment Canada, but Health Canada shares responsibilities with Environment Canada under the Act for the assessment and regulation of toxic substances. The goal of this Act is to control substances deemed to be toxic, and to eliminate persistent and bioaccumulative toxics. CEPA also requires pollution prevention plans from companies who use highly toxic substances.

The *Fisheries Act* is one of the oldest pieces of environmental legislation in Canada. It is aimed primarily at protecting fish and their habitat. It contains some strong provisions for the protection of surface water – prohibiting destruction of fish habitat, and prohibiting the deposit of “deleterious substances” into waters frequented by fish. Regulations limiting effluent from various types of industries have also been enacted under this Act – chlor-alkali plants, meat and poultry plants, metal mining, petroleum refiners, potato processing plants, and pulp and paper mills.

2. The Provincial Government Plays the Primary Role in Protecting Drinking Water

“I certainly hope they have a hard look at how the water supply for the people of Ontario is protected.” Dr. Murray McQuigge, Medical Office of Health, Bruce-Grey-Owen Sound Health Unit, Toronto Star, May 27, 2000

Like federal water legislation, most of Ontario's current laws are directed at the control of pollution into waterways, rather than the protection of drinking water at the tap.

Caught unprepared by the tragedy at Walkerton, however, the provincial government hastily introduced a long-overdue regulation under the *Ontario Water Resources Act* (OWRA). Passed in the 1950s, the OWRA applies to both ground and surface water. Its provisions are generally meant to protect water from pollution by prohibiting the discharge of polluting materials in or near water, and by prohibiting or regulating sewage discharges. The OWRA makes it an offence to contravene the Act or its regulations, and penalties such as fines, jail terms, profit stripping, restoration orders or licence suspension may be imposed against anyone convicted under the Act.

Approved by Cabinet in August 2000, the Drinking Water Protection Regulation under the Ontario Water Resources Act creates legally binding standards for drinking water quality.

The regulation also makes other practices previously covered by directives and manuals part of a mandatory regime. The regulation sets out requirements for taking samples and testing drinking

water. There must be regular and frequent sampling of treated water for microbiological contaminants, chlorine residuals, turbidity, volatile organics and other health-related parameters.

Tests for health-related parameters must now be done by a laboratory that is accredited to perform these tests. Operational tests may be performed by licensed operators at the waterworks. Laboratories are also required to provide the Ministry of Environment with analytical data.

The Ontario government has also tried to clarify notification requirements through the new regulation. All notification must be made to a “live” person and followed up in writing within 24 hours. Where there is a violation of a health-related parameter or problems with water quality, the laboratory must immediately inform the Ministry of Environment, the local Medical Officer of Health and the owner of the waterworks. When the owner of the waterworks learns of any problems detected by the laboratory, the water supplier must inform the Ministry of Environment and the local Medical Officer of Health. Similarly, the water supplier must inform the Ministry and the Medical Officer of Health if sample results indicate unsafe drinking water.

As of December 31, 2002, all drinking water that goes through a water distribution system or plumbing must be disinfected through chlorination or an equivalent process to kill disease-causing organisms. All surface source water must be treated by chemically assisted filtration and disinfection, without exceptions.

Disinfection is also required for drinking water from groundwater sources, although an exemption would be considered if rigorous conditions are met including two years of exemplary water quality tests. All waterworks staff who conduct tests for operational parameters must now be licensed by the Ministry of Environment.

The Ontario public also has for the first time the right to information about the quality of their drinking water. Water suppliers must provide quarterly reports to their customers free upon request. The reports must contain basic system and water source information, summarize water-testing results, and outline the steps taken to comply with the Ontario regulation. Waterworks serving more than 10,000 people must post their reports on the Internet. In cases where drinking water has not been tested or where drinking water does not meet acceptable standards and action has not been taken, water suppliers must post public notices.

This regulation is so recent that it is difficult to assess its effectiveness. The wrapping paper has just barely been removed. Although the new regulations strengthen treatment, monitoring and reporting requirements in the province, there are still many gaps and inadequacies that need to be addressed.

Because the Ministry of the Environment’s ability to inspect and enforce has been hampered by the staff cuts and budget reductions in recent years, additional resources will be necessary to make the new system work, both for the Ministry of the Environment as well as for municipalities and health units.

The other provincial Acts that relate to water quality in Ontario are the *Environmental Protection Act*, the *Environmental Assessment Act*, and the *Environmental Bill of Rights*.

The *Environmental Protection Act* is Ontario's main anti-pollution statute. It does not address drinking water quality but like the *Ontario Water Resources Act*, it prohibits contaminants being discharged into water in excess of prescribed regulatory amounts. It gives the Ministry the right to issue binding orders to prevent or control discharges of contaminants, and has been used as the statutory basis for the Municipal Industrial Strategy for Abatement (MISA) regulations. These regulations set effluent limits on industrial discharges for the petroleum industry, the pulp and paper sector, the electricity industry, municipal sewage treatment plants and others.

The *Environmental Assessment Act* is an environmental planning statute. New roads and new water or sewage treatment plants can be approved through a Class Environmental Assessment (EA). In the context of water projects, the municipal Class EA requires that problems of existing water systems and water source contamination be addressed when these projects are proposed.

The 1993 *Environmental Bill of Rights* (EBR) is largely a procedural statute designed to ensure public participation in environmental decisions, and to increase government accountability. It was also meant to increase access to the courts for environmental protection. The EBR does not specifically address drinking water quality, but concerns about water quality have surfaced through the EBR. The Environmental Commissioner has identified drinking water problems in every annual report to the Legislature since 1994. A special report filed in July 2000 in the wake of the Walkerton tragedy raised concerns about groundwater and intensive farming. Where Ontario residents have wanted action on drinking water, they have filed applications for review and asked for investigations under the EBR. These include requests to review Ontario's drinking water objective for tritium, the need for guidelines for trichloroethylene, *Cryptosporidium*, viruses, dichloroethane, dichloroethylene and atrazine, the need for a groundwater management strategy, and for a *Safe Drinking Water Act* in Ontario. The provincial response to the *Safe Drinking Water Act* request was that the new regulation and existing laws offer all the protection needed to safeguard drinking water in Ontario.

3. Municipalities Are Responsible for the Day-to-Day Operation of Water Treatment Plants

Municipal governments can have a great influence over source water protection, development of adequate treatment technology and protection of public health. However, as Waterloo Region has indicated in their brief to the Walkerton Inquiry, municipal governments do not have all necessary tools to effectively protect drinking water sources. Municipalities also have the greatest challenge – they must actually provide water treatment facilities and safe drinking water to their communities.

There are five main pieces of legislation that create, empower and regulate the local institutions, specifically municipal corporations, public utility commissions, conservation authorities, and medical officers of health.

Municipalities are generally empowered under the *Municipal Act*, and can enact and enforce by-laws on water-related issues, among many other things. For example, they can enter into water supply contracts and agreements with other municipalities for joint waterworks operations,

conduct investigations and report on water supply systems, impose water charges on buildings that constitute a heavy load on the municipal water system, and set water rates and require building owners to connect to municipal water works.

The municipal responsibility for safe drinking water is also subject to the *Health Promotion and Protection Act*. This Act contains provisions that are directly related to the investigation, reporting, and reduction of waterborne diseases in Ontario. It creates Boards of Health and requires that they hire full-time medical officers of health who must carry out inspections with the objective of preventing, eliminating or decreasing the effects of health hazards. The Medical Officer of Health must keep informed on environmental health matters, and can issue orders, such as boil water orders, that require specific action with respect to contaminants in drinking water.

The *Planning Act* can be used by municipalities to protect aquifers or surface waters that serve as sources of drinking water through planning and zoning by-laws. This Act also permits the province to declare a provincial interest in “protecting ecological systems and functions, conserving natural resources, ensuring the supply and efficient use of water, ensuring adequate provision of sewage and water services, ensuring the orderly development of safe and healthy communities, and protecting public health and safety.” Municipalities may also prohibit or restrict the use of land that is “a sensitive groundwater recharge area, or headwater area, or land that contains a sensitive aquifer”. Unfortunately, a municipality’s land use decisions, even those which attempt to stop developers from building upon sensitive lands, are subject to appeals to the Ontario Municipal Board. The fact that drinking water protection (or source water protection) is not given primacy in the *Planning Act* or Provincial Policy Statement makes it even more difficult for municipalities to constrain development for public interest purposes.

Conservation Authorities are another possible avenue for source water protection. The *Conservation Authorities Act* establishes the statutory framework for the creation, funding and operation of local and regional Conservation Authorities. Their primary mandate is to undertake programs to further conservation, restoration, development and management of natural resources. Although they are known primarily for regulation related to flood control, they have the power to undertake watershed management programs, acquire or expropriate lands, enter into landowner agreements, and construct dams and reservoirs.

Some Conservation Authorities have exercised these powers quite broadly. The Grand River Conservation Authority is a good example of innovative approaches to watershed management. Generally, however, Conservation Authorities are limited by their local or regional municipalities’ willingness to provide funding and to cooperate with other municipalities.

The *Public Utilities Act* deals more directly with actual infrastructure for drinking water provision. This Act allows municipalities to establish waterworks and to expropriate lands necessary for operating or protecting waterworks “or preserving the purity of the water supply”. Similarly, municipalities may regulate the distribution of water, set water rates and fees, and generally control and manage waterworks. The Public Utility Commissions are established under the authority of this Act.

Part 3: Public Health Demands A *Safe Drinking Water Act*

“We’re getting bits and pieces of information. Honest to God, you get more info from your neighbours than from the authorities. I don’t even want to turn the water on I’m so scared”, Stephanie Linville, Walkerton resident, *Hamilton Spectator*, May 26, 2000.

Ontario has never had a strong regulatory regime for protecting drinking water and its sources. There has never been a statutory guarantee of a legal right to safe drinking water. Before the Walkerton tragedy, the province generally lacked enforceable drinking water standards, and did not clarify roles and responsibilities of people and agencies within the system. There has been a drought of resources, with funding being withdrawn from public labs that once tested drinking water, and municipalities being starved for infrastructure funds. There has been neglect in the training and certification of operators, and there has been no attention to protecting drinking water sources.

The deaths and illness at Walkerton are a powerful reason for correcting these systemic problems. Drinking water legislation is an effective tool for the protection of public health and for restoring public confidence in drinking water. It not only repairs the problems inherent in the system, but it entrenches these commitments into law.

A robust regulatory regime prevents waterborne disease.

The United States has had the *Safe Drinking Water Act* in place since 1974. The data collected from the United States Centers for Disease Control shows the number of disease outbreaks related to drinking water has been going down since the introduction of the *Safe Drinking Water Act*. Similarly, since the introduction of its own Act in 1983, New Jersey has not had a single outbreak of waterborne disease from a public drinking water supply.

A *Safe Drinking Water Act* sets a benchmark that commits the government to principles and programs for the protection of drinking water.

A *Safe Drinking Water Act* would guarantee the quality of drinking water and sets out a system for treatment, testing, monitoring and notifying the public. It promises a supply of drinking water that meets health-based standards, and those standards are periodically reviewed to ensure that they are in line with the best and most recent scientific information. An Act ensures that all residents receive the same high quality drinking water and the same standards of treatment. This instills public confidence.

The United States has a national inventory that tracks monitoring violations and violations of their drinking water standards. This monitoring data shows that every year, there are fewer violations of drinking water standards among all systems across the country. Similarly in Britain, the number of violations has decreased over the period during which drinking water standards have been in place. In both instances, strong drinking water legislation has led to identifiable improvements in drinking water quality. Both water suppliers and governments are held accountable by the tracking and reporting of water quality parameters.

These inventories provide benchmarks to measure and demonstrate improvements in drinking water quality consistent with legislative goals. They also provide important evidence that water quality is improved and public health better protected as a result of living within a strong legislative framework.

A Safe Drinking Water Act clarifies roles and responsibilities.

Water delivery systems are complex and demand coordination and cooperation between individuals, agencies and ministries. In Walkerton, many of the crucial players did not understand or carry out their responsibilities. The managers of the water supply system did not do the required testing. They did not report adverse results. The laboratory was not instructed to report monitoring results to health officials or the Ministry of Environment. A whole system based on guidelines and directives failed.

When these responsibilities are delineated in one Act, all roles and responsibilities are clearly spelled out and there is a legal onus on each player to perform his or her role professionally. An Act would mandate certification of water treatment plant operators and ensure ongoing training. It would set out clear reporting lines when contaminants are found, and puts the onus on specific officials to take action.

Clear delineation of responsibility is our best avenue for ensuring that public health will not be jeopardized by confusion or abdication of duty.

With a Safe Drinking Water Act, the public is directly involved in the decision-making framework.

The public has a visible and transparent set of rules that hold governments and water suppliers accountable. There is regular, periodic reporting on drinking water quality to the public so people have information and the power to act.

In Ontario, very few citizens know what is in their drinking water. Only in trouble spots like Elmira or Walkerton have contaminants in the drinking water become well known within the community.

One of the most important provisions of any *Safe Drinking Water Act* is the public's "right to know". If members of the public are well-informed about drinking water quality in their communities, they would accept and comply with boil water orders, they would support funding of infrastructure improvements, and they would agree with restrictions that protect sources of drinking water.

Whenever the United States Environmental Protection Agency issues a rule (the detailed regulations that spell out the goals of the Act), there is an intensive public review and comment period before that rule is finalized.

The most recent amendments to the U.S. *Safe Drinking Water Act* require that the public be consulted in the assessments of drinking water sources. Wherever there are legislated watershed

reserves, public advisory groups help determine the restrictions that will limit polluting activities in the watershed. The New York City Watershed Agreement brought together citizens from all the communities in the watershed area with environmental groups and government representatives. Together they forged an agreement that reduced pollution in the waterways.

In many jurisdictions, governments have appointed advisory councils, made up of a cross-section of interests and stakeholders who can help the government identify new threats, promising new treatments for drinking water, and the need for improvements in the legislation.

Strong drinking water legislation injects money into the system.

Strong regulatory requirements help drive technological improvements and stimulate the financing of infrastructure repairs, upgrades and maintenance. In Ontario, municipalities have been reluctant to raise water rates, or they have used water revenues to finance other municipal programs or activities. By legislating requirements for treatment such as filtration or disinfection, municipalities must plan and set aside money for meeting the requirements of the Act.

Where legislation has required upgrading of water treatment equipment, governments often provide money to help fund these new requirements. In the United States, a multi-billion dollar fund has been set up to finance implementation of the most recent amendments to the Act. Funding is available for upgrading infrastructure and treatment capabilities. Even the purchase of land for the protection of drinking water sources can be financed through this fund. Injecting money into the drinking water system and improving treatment is an important step to protecting public health.

Legislation for drinking water provides avenues for enforcement.

Guidelines, directives and manuals are weak substitutes for the force of law. Where there are no legally binding rules that govern drinking water, there is a lack of rigour in the regime. The public is largely excluded because there is no enforceable commitment to standards of treatment or standards of quality. Even regulations do not carry the same weight as a stand-alone law.

Legislation, in the form of a separate Act opens up opportunities for public enforcement of drinking water requirements. Water suppliers can be held legally accountable for not reporting, or for not meeting water quality standards. Governments can be held accountable if they do not live up to their duties under the law.

Most jurisdictions include administrative penalties in their legislation for these violations. Where water suppliers have a problem with their water supply and are working to correct it, they are not vigorously pursued. Where they are neglecting their duties, they are immediately fined. The penalties can be severe.

Often the public is given an opportunity to pursue remedies under safe drinking water legislation. The opportunity to launch a citizen's suit against the water supplier or the government is

enshrined in the U.S. Act. Other environmental Acts require government investigation into drinking water problems where more than one citizen requests it.

Drinking water legislation is a catalyst for innovation.

Safe drinking water legislation is a dynamic force for change. The drinking water regime in Ontario has been stagnant for many years, relying on old technology, existing institutional structures, and traditional ways of operating. In Walkerton, this resulted in a fatal lack of knowledge of the gravity of new bacterial strains that threatened drinking water supplies.

In Britain, when *Cryptosporidium* hit several drinking water supplies, the government launched an extensive Expert Group investigation into ways of eliminating it. The constant renewal of drinking water standards has forced the United States to evaluate the threat of *Cryptosporidium* and the by-products of the drinking water disinfection process. Besides the introduction of new standards, rigour can be added through re-evaluating treatment processes, specifying greater care in the treatment process, and developing newer, safer technologies.

In the United States, filtration of surface drinking water has been mandatory for the past 15 years. However, communities that can protect drinking water sources can avoid filtration. This has resulted in local efforts to control or regulate polluting activities around drinking water sources.

Safe drinking water legislation provides a continual focus for addressing the issues of drinking water. When there are regular reviews of an Act, there are ongoing opportunities to improve the standards for drinking water quality. Each time the United States has amended its Act, new ideas have been promoted and adopted. More opportunities for public involvement have been created, and higher operating and treatment standards have been incorporated. With the latest amendments, groundwater protection has become an ongoing concern and new rules have been put out for discussion.

Part Four: Other Jurisdictions Have Paved the Way for Ontario

The United States has had the longest history of living within a *Safe Drinking Water Act* regime. It has been a leader in the pursuit of safe drinking water legislation, and there is evidence that these efforts have prevented illness and improved water quality.

In our survey of other jurisdictions, however, we have found that most governments pass legislation or regulations only after there has been a public health scare or tragedy. Rather than introducing legislation to prevent outbreaks of disease, governments are generally reactive. In many instances, laws are passed only when the public demands better protection of drinking water.

Nevertheless, many jurisdictions have made progress in developing laws to enhance drinking water quality and to inject rigour into their regimes. This is not an exhaustive survey, but we have tried to identify the stellar aspects of other jurisdictions. Their vision can guide Ontario in the development of innovative remedies for our drinking water problems.

Other Canadian Provinces Have Gone Partway towards Drinking Water Legislation

“It’s unfortunate, very unfortunate. But it’s a wake-up call for all of us to tighten up and do a better job if we’re not doing it already.” Wayne Carmichael, Owen Sound water superintendent, Owen Sound Sun Times, May 31, 2000

In the aftermath of Walkerton, almost every province and territory is in the process of either proposing new legislation or regulations, upgrading their requirements in areas such as training and lab certification, or taking action to improve and enforce existing regulations.

1. British Columbia Has Enacted a *Drinking Water Protection Act*:

British Columbia has had more problems with waterborne disease than any other province in Canada, and has become the most aggressive in trying to address these problems through the law.

In 1999, the Provincial Auditor pointed out that British Columbia’s drinking water was showing signs of strain. According to his report, B. C. has the highest reported incidence of intestinal illness of any province in Canada. B.C. has also had a number of well-publicized waterborne disease outbreaks – a *Giardia* outbreak in Penticton in 1986 and *Cryptosporidium* outbreaks in Kelowna and Cranbrook in 1996.

After a long public process that began with the Provincial Auditor’s report, British Columbia recently enacted Bill 20, the *Drinking Water Protection Act*, in April, 2001. Among other things, this Act was organized into six main parts:

1. Creation of drinking water officers, provincial drinking water coordinators, and drinking water advisory committees; protection of drinking water supply through treatment, monitoring, training, notification, and emergency response requirements;
2. Development of water source and system assessments and response plans;
3. Creation of various prohibitions, penalties and administrative orders to protect drinking water;
4. Development of drinking water protection plans for prescribed areas; and
5. Creation of investigation and enforcement powers, and consequential amendments to other provincial water laws.

Possibly, the single most important recommendation that the Auditor General made was a plea for a single agency or "voice of water" within government. Under this Act, a provincial drinking water co-ordinator from each of the ministries of Health and Environment would become the province’s lead authorities on drinking water. They would provide direction on drinking water issues, support regional drinking water programs, and issue an annual report. Each health region would have its own drinking water officer. Province-wide and system specific standards would be established.

The Auditor also stressed the importance of protecting drinking water sources. British Columbia's new Act requires drinking water source assessments and the identification of potential threats. Community-based drinking water protection plans will be developed under the legislation. The public will have the right to know the results of the assessments, water monitoring results and emergency response plans. The public will also be able to request an investigation if they believe there is a threat to drinking water.

British Columbia has had watershed protection in place since the turn of the century, but this protection has often been compromised by agreements with the forest industry. Until now, only Vancouver and Victoria have been able to reclaim and protect their watershed areas. Victoria owns the land within the catchment basin and restricts activities in its watershed. Vancouver leases their watershed lands from the province, and after allowing logging operations for many years, has finally decided to revoke the licences and protect the watershed.

2. Alberta Adopts All Canadian Drinking Water Guidelines as Standards

Alberta has not had any major waterborne disease outbreaks. However, there is concern about the concentration of feedlots in southern Alberta, known as Feedlot Alley, where farmers raise more than one million head of livestock. Cattle, hogs and chickens from these farms produce manure that is the equivalent of the sewage from a city like New York. Health officials have found high levels of nitrate and disease-causing bacteria in surface water used for drinking purposes.

Alberta was the first and, for a long time, the only province that made a commitment to adopt all of the Canadian Drinking Water Guidelines as legally binding standards. It also has a process in place for updating these standards. Each municipality or water supplier has a written approval document that guides the operation and requirements of the water supply system. The Canadian drinking water guidelines are written into the approvals which are renewed every 10 years. If the standards are revised or strengthened, the new standards are incorporated into the approval document when it is reviewed. If there is a health-based parameter that requires an immediate change, a notice goes out to all water suppliers notifying them that they must meet the new standard.

3. Québec Has Proposed A New Regulation Covering Private Wells

Québec is in mid-stream between its old regulation on drinking water, and its introduction of a proposed new regulation.

Since there have not been many apparent outbreaks of waterborne disease in Québec, the province has been slow to improve its drinking water regime. Large municipalities like Montreal enjoy generally good quality drinking water, but nitrate pollution from agriculture is a problem in the countryside, particularly since Québec has also experienced a large influx of factory farms.

The recently proposed new regulation includes some provisions that go farther than other provincial drinking water regimes. Not only would they would make the current Canadian

drinking water guidelines mandatory for water supplies, but Québec would also adopt American standards for turbidity and trihalomethanes, which are stricter than the Canadian guidelines.

The strictest provision, however, is the requirement for testing individual wells. Unlike most drinking water regimes (which typically cover drinking water systems serving large numbers of people), Québec is proposing to require testing for single wells. Under the proposal, well owners would do three tests each year -- twice for bacteria, and once for nitrates. This could affect as many as 700,000 people in Québec.

4. New Brunswick Has Protected Watershed Areas and Wellheads

New Brunswick has put in place perhaps the most far-reaching and innovative legislation for the protection of surface and ground water drinking water sources. New Brunswick has recognized that it is more effective and efficient to protect drinking water sources rather than to try and clean up after a serious contamination problem.

The Watercourse Setback Designation Order is for the protection of watersheds used as sources of drinking water. It now applies to all 30 communities in New Brunswick that take their drinking water from surface waters. It designates a 75 metre protected area, called a setback zone, around every lake, river or stream within a municipal watershed.

Land use activities within these setback zones are severely restricted. For example, someone wishing to build a cottage on a lake that is used for drinking water cannot build within 75 metres of the watercourse.

A second phase of this order will soon extend the protected area to the outer limit of the watershed. Restrictions on agriculture, forestry, road construction, commercial and industrial development, mining recreation, aquaculture and residential development are in place. No motorized boating is permitted within drinking water supply watersheds. New Brunswick's newer wellhead protection regulation is similar to the watershed protection regulation. It aims to protect groundwater recharge areas where the groundwater is the source of public drinking water. The Wellfield Protected Area Designation Order came into effect last year, and will eventually apply to the 54 communities using groundwater.

High-risk activities will not be allowed within the protected areas because of their potential for harming the water supply. The order identifies three different zones surrounding ground water recharge areas.

The first zone is the most sensitive and closest to the wellhead. It has the tightest restrictions on the use and storage of potential pollutants. For example, not more than 25 litres of home heating oil can be stored in this zone. In Fredericton, this affects about 500 families who will have to phase in a different method of heating their homes. No livestock can be kept in this zone and no manure can be spread or stored.

The next two zones are farther from the wellhead and therefore have fewer restrictions. Dry cleaning operations cannot be carried on in any of the three zones because of the threat of perchloroethylene to wells.

United States Jurisdictions

"I think a fundamental promise we must make to our people is that the food they eat and the water they drink are safe", former President Bill Clinton at the signing of the 1996 amendments to the *Safe Drinking Water Act*

The U.S. *Safe Drinking Water Act* is the most dynamic and effective legislation for the protection of drinking water in the world. Introduced in 1974, more than 25 years ago, this Act has gone through two major overhauls – one in 1986 and the most recent one in 1996.

The data collected from the Centers for Disease Control (CDC) seem to confirm this. It shows the number of disease outbreaks related to drinking water has been going down since the introduction of the Act. With the exception of the outbreak in Milwaukee of *Cryptosporidium*, disease outbreaks have been primarily in small ground water systems. Even with the Act, however, the CDC estimates that from 200,000 to 1,300,000 Americans become sick every year from microbes in the drinking water, with 50 to 1200 people dying as a result.

1. The U.S. *Safe Drinking Water Act*

The original *Safe Drinking Water Act*, passed in 1974, took the significant step of setting enforceable standards for contaminants in drinking water. The public was guaranteed that, for 18 different contaminants, the levels would not be allowed to exceed certain maximum allowable levels. The setting of standards has been the driving force behind the U.S. *Safe Drinking Water Act*, and has been a catalyst for the interest and innovation in the protection and treatment of drinking water in the United States.

At the same time, the U.S. Environmental Protection Agency (which administers the Act) was mandated to establish monitoring and reporting requirements. It was also charged with ensuring that water systems were properly operated and maintained. In what was the first legal requirement for public reporting, the Act required water suppliers to advise their customers if there was an exceedance of any of the legislated contaminants.

Under the *Safe Drinking Water Act*, the EPA is authorized to file civil suits or issue administrative orders against public water systems that violate the Act when the individual states are slow to take appropriate enforcement action or when states ask them to act. Maximum civil penalties are \$25,000 per day of violation. In addition, the Act gives any individual or organization the right to bring suit against anyone violating the law – the water supply system, the state, or the EPA.

With the 1986 amendments, in light of concerns that microbial contamination was not well controlled under the original Act, filtration and disinfection were made mandatory. The Environmental Protection Agency was also forced to speed up the development of new standards.

The *Safe Drinking Water Act* that is in place today is an evolution of the experience of more than 25 years of applying this legislation. The 1996 amendments took the Act in significant new directions, increasing the flexibility of the Act, placing a new emphasis on the protection of

drinking water sources, including groundwater, and enhancing the public's right to information about their drinking water.

The most important provisions of the amended U.S. *Safe Drinking Water Act* are:

1) Standards Development

The *Safe Drinking Water Act* aims to ensure that public water supplies meet national standards that protect consumers from harmful contaminants in their drinking water. The EPA currently has a total of 83 enforceable contaminant levels. Whenever the EPA proposes a new standard, there is public notice and a comment period before the standard is finalized.

The U.S. Environmental Protection Agency was instructed by the 1996 amendments to choose contaminants for regulation and set maximum contaminant values based not only on the risk to human health and on sound science but also taking into account the prevalence of these contaminants and the cost of compliance.

As part of its new regime for standard setting, the Environmental Protection Agency has developed a list of candidate contaminants. These contaminants will be monitored throughout the United States, and based on the monitoring data, the EPA will decide which contaminants will be regulated. The EPA must also review its current standards every six years.

2) Source Water Assessment

Since 1974, the *Safe Drinking Water Act* has had provisions for the protection of groundwater. The original Act contained the Underground Injection Control program, designed to ensure that fluids injected into underground wells are contained within the wells and do not threaten drinking water. There was also a provision for designating Sole Source Aquifers, important community sources of drinking water. If an aquifer is designated, the EPA must ensure that any new federal projects proposed near the aquifer do not pollute the aquifer. There is also a voluntary Wellhead Protection Program established in 1986, encouraging states to develop programs to protect land areas around water supply wells.

The most recent amendments, however, make pollution prevention a major focus. The amendments require that all waters serving as drinking water sources be identified and assessed for their susceptibility to contamination. Public participation is an important component of these assessments. The individual states are doing the assessments. They should be completed by 2003 and shared with the public. Once they are completed, the assessments can be used as a guide to protecting drinking water sources from harm.

Special attention is being paid to ground water. The EPA has proposed that all ground water that is used for drinking water be assessed for contamination problems. If ground water is found to be contaminated or at risk of contamination, it must be disinfected.

3) Public Right to Know (Consumer Awareness)

Many water suppliers were not complying with their responsibilities for alerting the public to water quality violations. Although this requirement is still in place, environmentalists lobbied effectively for an expanded public right to know, requiring community water systems to provide annual reports, usually with their water bills.

These reports are generally called “Consumer Confidence Reports” and must describe the drinking water source, and summarize the susceptibility of the source based on source water assessments that will be done over the next few years. They must provide information on the levels of contaminants found in the drinking water and the US EPA standard for comparison, as well as any potential health effects and the likely source of the contamination. They must also show what the water supplier is doing to restore water quality if there are any violations, and document the water system’s compliance with other drinking water rules.

An educational statement for vulnerable populations about avoiding *Cryptosporidium* must be included in the report, and information on nitrate, arsenic or lead must be included in areas where they are detected above 50 per cent of EPA’s standard.

4) Public Involvement

The National Drinking Water Advisory Council was established under the original 1974 *Safe Drinking Water Act*, and is considered by the EPA to be one of its most valuable vehicles for public involvement. The 15 member Council supports the drinking water program by providing advice and recommendations on drinking water issues.

The Council advises the EPA on proposed regulations of the *Safe Drinking Water Act*, on research and special studies, on drinking water standards, and on emerging hazards. The Council sets up its own working groups which gather information, conduct meetings and provide advice to the Council. These working groups have addressed many of the critical issues including consumer confidence reports, small drinking water systems, source water assessment, and the contaminant candidate lists. All meetings are open to the public and include time for public comment.

2. New York State

The 1974 *Safe Drinking Water Act* allowed the US Environmental Protection Agency to confer “primacy” on individual states. This meant that if a state incorporated the entire Act into its own laws and was prepared to enforce the Act, the regulation and enforcement would be carried on by the State.

States may also enact stricter requirements for drinking water than the federal legislation requires. New York State has gone beyond the federal act in the area of chemical sampling. It requires testing for principal organic chemicals which cannot exceed 5 parts per billion, and for unspecified organic chemicals which cannot exceed 50 parts per billion. Propylene glycol is an example of an unspecified organic chemical.

New York City: A Special Case

New York City is an example of intensive watershed protection efforts. About 9 million people living in one of the largest cities in the United States drink water that has not been treated by filtration.

Under the 1996 amendments, water suppliers who use reservoirs, lakes or rivers were required to plan for filtration or design adequate watershed protection plans. Several major cities (such as New York, Boston and Seattle) have waivers that allow them to avoid filtration if they prove they can control the quality of the water coming into their basins. To avoid billions of dollars in filtration costs, New York chose to try and protect its watershed.

Right now, New York City still has relatively clean drinking water. It takes its drinking water from surface water sources in upstate New York. There are two watersheds that supply drinking water, the Croton and the Catskill-Delaware. They run through 80 communities and there are more than 100 sewage treatment plants that discharge into the watershed area. The water is treated only with chlorine at the reservoirs before it is distributed so there is a chlorine residual in the pipes.

However, increasing population and development in the watersheds are constant threats to drinking water quality. The other major environmental problems are runoff from the dairy farms and discharges from the sewage treatment plants.

To prove that it had an effective watershed protection plan, New York City, together with representatives of environmental groups, New York State and the watershed communities, proposed a New York City Memorandum of Agreement. Under the agreement, New York will only purchase land from willing sellers and will use voluntary approaches.

The agreement also sets up the Whole Farm program. The Whole Farm program is a voluntary program with dairy farmers to limit agricultural pollution of the watershed. Demonstration farms were selected to work out how this could be done in a practical way.

New York City has been successful in limiting runoff from the dairy farms, in acquiring land in key watershed areas, and in reducing the discharges from sewage treatment plants. However, many sewage treatment plants still need upgrading and New York City has not acquired land around a key watershed area that is crucial to preserving water quality.

The 1996 amendments allow for assistance for pollution prevention efforts and for activities such as voluntary land acquisitions. New York has been specifically allocated 15 million dollars to implement its watershed protection strategies.

3. New Jersey

New Jersey is another state that has effectively implemented the *Safe Drinking Water Act*. New Jersey passed its own New Jersey *Safe Drinking Water Act* in 1977, a separate and distinct Act that mirrors the federal legislation. Because New Jersey has had a cluster of childhood cancers

in Toms River and mercury poisoning in Monroe Township as a result of poisoned drinking water, it has strengthened state legislation so that it is even more protective than the federal legislation. It also has its own Bureau of Safe Drinking Water that carries out its responsibilities under the Act.

New Jersey has recently introduced legislation to offer protection for individual wells which are not covered in the federal Act. It will require mandatory testing for wells when an owner sells or rents their land. The wells would be tested for all regulated contaminants as well as the pesticides and radionuclides that may be present in New Jersey drinking water. These parameters would depend on the region. The results of the testing would have to be disclosed to the buyers or renters.

New Jersey also has stronger requirements for the new source water assessments. Federal legislation requires the assessment of current and future threats from EPA regulated substances, but New Jersey also wants unregulated substances that threaten drinking water to be assessed. This is a direct result of Toms River, where fifty childhood cancers were linked to a plasticizer found in the town wells.

Where federal law requires consumer confidence reports to feature warnings to vulnerable people, New Jersey law requires these vulnerable warnings to be prominently displayed at the top of the report along with any violations. A New Jersey environmental group, New Jersey Environmental Federation, lobbied successfully for these reports not only to be sent to consumers but to be posted in daycare and health facilities, schools and apartments.

In 1983, there was a major review of the New Jersey Act, and in 1984 new provisions were signed into law. The most important requirement was that public community water suppliers must test for volatile organic compounds

New Jersey has made a commitment to standards based on health criteria. There is no consideration of the cost of meeting the New Jersey standards. If the standards are set higher than a risk factor of 1 cancer per 1 million people, citizens can sue the State for exposing them to a higher than acceptable risk. The New Jersey Environmental Foundation is suing the New Jersey government over the arsenic standard.

The Act called for the formation of a Drinking Water Institute, which is a research group that provides recommendations to the department. This Institute is unique in that it looks at New Jersey's needs. It has been funded since 1984 by a drinking water tax that collects 3 cents for every 1000 gallons of water sold. The money is used to supplement the money provided by the federal government. It takes care of provisions for New Jersey not covered under the Act. For example, it funds a section in the Department of Health that does epidemiological studies.

The State is very rigorous in enforcing all environmental legislation. It has a zero tolerance for water suppliers who do not regularly report their monitoring results. There is mandatory enforcement of the monitoring law. Depending on the severity of the problem, an administrative penalty is available, with a minimum \$1,000 fine. If water suppliers fail to report, they are immediately fined.

Europe

1. European Union

The Environment Directorate-General of the European Commission administers environmental policy for all the countries that are members of the European Union.

Just as the United States has made standards the backbone of its drinking water regulation, the European Union has set binding standards that all its member countries must comply with. Two Directives on drinking water have been issued – one in 1980 and a new one in 1998 that regulated 28 health-related contaminants. The Directive also establishes the minimum frequency for testing for these parameters. There is a requirement that they be reviewed every five years. These Directives have been instrumental in making all countries in the European Union improve the quality of their drinking water to meet these standards.

Europe has also had surface water quality protection measures in place since 1976 for surface water used as a drinking water source. They are also currently implementing the Watershed Framework Agreement, designed to improve source water protection based on a watershed model.

2. England and Wales

“There is a tendency to think that waterborne illness events won’t happen now in this country without realising that our current high level of safety is achieved only by highly effective treatment and good monitoring systems. Without this we could easily return to having outbreaks of typhoid and cholera let alone the more recently understood and more difficult to handle threats from other organisms such as *Cryptosporidium*”, Michael Rouse, Drinking Water Inspectorate

The major improvements in drinking water quality in England in the last 10 years have been driven by the introduction of regulations, both external from the European Union and internal from the Department of Environment, Transportation and the Regions, the British environmental ministry.

In 1980, the first European Directive on Drinking Water put pressure on England to renovate its aging treatment plants and upgrade its infrastructure in order to meet the new standards. Before this directive, England had no mandatory drinking water standards.

As a result of the European Directives, England, like the United States, now has national legislation and mandatory drinking water standards. England has also put in place a good regulatory system, although it does not match the United States in terms of comprehensiveness of standards and openness of public participation.

The current regulatory regime and administrative framework was introduced after 1989 when England sold its water treatment plants and infrastructure to private water companies. The *Water Industry Act 1991* is the main statute governing drinking water and the activities of the private

water companies. This Act makes it a criminal offence to supply water that is “unfit for human consumption”.

One of the strengths of the regime in England is the designation of a single agency, the Drinking Water Inspectorate, with the lead responsibility of ensuring the safety and quality of drinking water. The *Water Industry Act* created the Drinking Water Inspectorate as part of the Department of Environment, Transport and the Regions. The Drinking Water Inspectorate ensures that drinking water meets the quality and standards set out by the regulation. In addition to the standards set by the European Union, England has incorporated eleven national standards into the drinking water regulation.

The Drinking Water Inspectorate carries out inspections and audits of water companies, provides a publicly available report each year on the companies' comparative performance, and provides direction and advice to the water companies on fulfilling their regulatory obligations. In 1999, the Inspectorate's annual report showed that drinking water quality samples met the required standards in 99.82 per cent of the tests.

The Inspectorate also investigates customer complaints and prosecutes water companies when they provide water "unfit for human consumption".

In the 1990s, Britain experienced several high profile outbreaks of disease caused by *Cryptosporidium* – one in Northwest London and one in Hertfordshire. Between 1992 and 1995 there were reports of 26 outbreaks in Britain, the largest one affecting more than 500 people. Although there were no deaths, public pressure on the government led to a thorough investigation by an Expert Group on *Cryptosporidium* in the Water Supplies. *Cryptosporidium* is difficult to detect in water treatment systems because it is masked by turbidity, and it is difficult to treat because of its resistance to chlorine. This Group was asked to consider strategies for controlling *Cryptosporidium* such as source water protection, improved water treatment, monitoring programs, and the need for further research.

This Expert Group concluded that there was a strong correlation between outbreaks and the inadequacies in the treatment process. Peaks of turbidity in water leaving the treatment plants were found to be common to all outbreaks, making turbidity monitoring essential. The Group recommended controversial tough new treatment and monitoring requirements. The recommendation resulted in new *Cryptosporidium* regulations coming into force in June 1999.

The regulations required water companies to carry out assessments to establish whether there was a significant risk from *Cryptosporidium* in any treatment plant. These assessments showed 335 of 1500 water treatment plants were at risk. The new regulations forced many substandard plants to close, and the remaining plants to improve the entire treatment process, to implement continuous monitoring, and to strengthen reporting requirements.

Australia

Australia has a constitutional structure much like Canada. Although guidelines are set at the national level, the actual regulation of drinking water quality is done at the state and territory level.

There was a suspected *Cryptosporidium* and *Giardia* outbreak in Sydney in 1998, resulting in an inquiry that recommended significant new legislation and institutional arrangements. These represent the most innovative initiatives in Australia, but it should be noted that they are not general, country-wide improvements.

The *Sydney Water Act* requirements apply only to the Metropolitan Sydney area, and the statutory basis is the legislation setting up the water authority, rather than a drinking water protection statute. The national drinking water guidelines, along with operating and customer standards, are incorporated in the operating licence for the Sydney Water Corporation (the water supplier) rather than applying generally through state-wide regulations.

Sydney also has legislation protecting the catchment area, known as the *Sydney Water Catchment Management Act* 1998. Under this legislation, the Sydney Catchment Authority is mandated to manage and protect the catchment areas (both inner and outer and special areas to which access by the public is strictly limited) and catchment infrastructure works; protect and enhance the quality of water taken from catchments; undertake research on the health of its own catchment and on catchments generally; and undertake an educational role within the community on water management and pollution control.

The Sydney regime also provides for operational monitoring and audits, coordination with respect to drinking water incidents, notification to the public, and a consumer contract that the consumer is assumed to have entered into when he or she is hooked up to the water supply. This contract allows for consumer rebates when safe drinking water is not provided. This Customer Contract outlines customers' rights to the supply of water, sewerage and drainage services, consultation, information and assistance, notice of interruption to supply, and customer redress.

In addition, the Water Corporation publishes on the Internet every three months a consumer confidence report on the quality of the water it has on supply for its customers. The report is to include details of the quality and quantity of water in the catchment areas; an evaluation of the effectiveness of the Corporation's treatment of water during the immediately preceding three months; a review of developments in the literature concerning issues relating to drinking water quality; an overview of issues relating to catchment management that were current during the immediately preceding three months; and any other matters that the regulations prescribe. Daily water testing updates on *Cryptosporidium* and *Giardia* are provided on the Water Corporation's web site.

Part Five: The Present Regime in Ontario is Inadequate

Ontario's main regulation that specifically targets certain drinking water matters came into effect last summer. Called the Drinking Water Protection Regulation, it is one of the few provincial

regulatory initiatives to create legally enforceable requirements governing drinking water in Ontario.

The Regulation was born in the political aftermath of the E.coli 0157 deaths at Walkerton, and it addresses some of the weaknesses that were demonstrated by the disastrous events that led to the community's suffering. The strength of this regulation is the clarification of responsibilities of the treatment plant operators in the areas of sampling and reporting. The chain of reporting is spelled out in the regulation, and operators are now legally bound to comply with the regulation. The requirement that labs be accredited and that operators be properly trained is also an important advance over the previous reliance on manuals and guidelines.

The new Drinking Water Protection Regulation:

- Creates legally binding parameter limits for drinking water for the first time in the history of Ontario.
- Regulates sampling and the frequency with which that sampling is done.
- Requires that sampling be done at an accredited laboratory and that licensed operators perform operational sampling.
- Requires laboratories to provide the analyses to the Ministry of Environment.
- Requires surface water to be filtered and disinfected, and states that all water that goes through distribution systems must be disinfected.
- Ensures that the public has a "right to know" water sampling results.
- Clarifies the system of reporting when there are adverse sampling results.

However, because of the rush to put in place drinking water protection, the Drinking Water Protection Regulation is not comprehensive. It establishes and fixes in law the practices of drinking water treatment, sampling and reporting, but it falls far short of the vision evident in other legislation.

There is no single statute that consolidates the commitments to safe drinking water.

A regulation does not have the status, profile or priority of an Act. A *Safe Drinking Water Act* establishes the permanence of the government's commitment to safe drinking water. Unlike regulations, legislation must have the consent of the Legislature before it can be changed. A *Safe Drinking Water Act* frames the broad intention of protecting drinking water by creating provisions for principles and programs. The detailed instructions for carrying out those programs are generally contained in regulations. The public needs an Act that they can easily identify, and that informs them about how their drinking water is protected.

Britain, the United States and individual states such as New Jersey have all passed effective acts to safeguard drinking water. More recently, British Columbia has passed a Bill to protect drinking water. A *Safe Drinking Water Act* consolidates all the rules governing drinking water, and confers an importance on drinking water protection that is not conferred by regulation.

An Act also can take precedence over other conflicting legislation. This is called paramountcy. A *Safe Drinking Water Act* can clarify the relationship of other ministries' Acts with the government's goal of protecting drinking water.

There is still no public right to safe drinking water.

A *Safe Drinking Water Act* should express the public right to safe drinking water. This right does not exist in any provincial or federal law or regulation. Although the public believes that they are entitled to safe drinking water, there has never been a formal commitment made to this goal in legislation.

By entrenching such a right in a *Safe Drinking Water Act*, all decisions affecting water would have to respect drinking water quality. The safety of drinking water and the protection of public health would become crucial considerations in all approvals, permits or licences that affect sources of drinking water.

There are few mechanisms for holding drinking water suppliers or governmental officials accountable.

The Ontario regulation does not provide mechanisms for accountability. There is no centralized inventory of parameter exceedances or regulatory contraventions. Similarly, there is no requirement that the Minister of Environment report to the Legislature or the public on the state of drinking water in the province.

In contrast, the United States requires reporting of all violations and keeps an inventory that is readily accessible to the public. The British Drinking Water Inspectorate reports annually on whether water quality conforms to its standards, and must also report on its performance in response to consumer inquiries. Water suppliers under specific legislation in Australia must publish a consumer confidence report on the Internet every three months that discusses the quality of water being supplied, and proceedings can be brought to the Supreme Court for an order restraining the breach or threatened breach of a consumer contract.

There is no requirement to undertake comprehensive source water assessment or protection programs.

Environmentalists, the public and, in some cases, governments have recognized that it is more difficult to clean up contaminated water and make it drinkable than it is to protect the sources. They have advocated a multi-barrier approach to drinking water, with the first barrier being identification and protection of the best possible sources of drinking water. However, the new Ontario regulation does not offer any protection of sources of drinking water, other than engineering reviews, which do not include comprehensive source water assessments.

The United States has mandated assessments of all sources – surface and groundwater. Water suppliers must also identify the possible contamination threats. This information will be used to reduce the contaminants that threaten the quality of water. The United States is developing new rules for groundwater assessment and protection in particular.

The *Drinking Water Protection Act* in British Columbia mandates the assessment of drinking water sources and the development of plans to protect them. New Brunswick has strong regulations that restrict polluting activities in areas surrounding watershed areas used for drinking water. It has also begun to restrict the storage and use of pollutants in lands that are recharge areas for groundwater sources of drinking water. The more dangerous the chemical is to drinking water quality, the more restricted its use and storage is under the regulations. This attention to protecting sources against contamination is crucial to the long-term viability of drinking water supplies.

There are no provisions for setting new standards or reviewing current standards.

It is important that the public have clearly identifiable standards that characterize the quality of their drinking water. It makes it possible to know and understand when drinking water poses a health threat.

The new Ontario regulation includes parameter limits that are intended to protect public health. Failure to meet these standards is a violation of the regulation. However, the Ontario drinking water standards were promulgated without proper public review or any justification of their reasonableness. In some cases, these standards are more permissive than standards adopted by other jurisdictions. They should be first and foremost designed to protect public health and based on acceptable levels of risk.

American legislation allows for periodic review of all standards. There is also a dynamic and public process for standard setting. Ongoing monitoring of unregulated contaminants in drinking water is underway. From this monitoring, it will become evident which contaminants are widespread in the environment and need to be controlled. It is not left up to the discretion of the agency when to adopt or revise drinking water standards. There are mandated timetables for review and adoption of new standards. The European Union also has a five-year review period for all standards. They periodically update and present new standards through the issuance of Directives. These standards apply to all members of the Union.

There are few regulatory requirements in relation to small water systems and individuals on wells.

The new regulation does not apply to small water systems serving five or fewer homes. From the review of jurisdictions where large numbers of people rely on small systems, it is evident that there is a need to expand drinking water protection to everyone. Small systems are vulnerable to pollution and there are few safeguards in place to protect unsuspecting owners of private wells.

New Brunswick already requires that testing be done when a new well is drilled or dug in order to ensure that the water is safe for drinking. Québec has proposed a regulation that would require all homes with wells to test for bacteria twice a year and nitrates once a year. New Jersey has introduced a bill requiring anyone selling or renting a property using well water to have it tested and to divulge the test results to the new owner or renter.

The public right to know is limited.

The new Regulation entrenches some aspects of the public right to know about the quality of their drinking water. The right to know is extremely important, and the provisions in the regulation ensure that some information is more readily available than it has been in the past. However, the Regulation's right to know still puts the onus on members of the public to search out information about their drinking water, particularly when there are violations that are not immediately threatening.

The United States has had a long history of informing the public about drinking water. The *Safe Drinking Water Act* initially required water suppliers to notify the public when there were violations. The recent amendments, however, confer a new importance on right to know provisions and require water suppliers to send detailed annual reports to their customers. These reports highlight water quality violations so that any violations are drawn to the attention of the public. They include warnings to vulnerable populations, and they will soon include source water assessments. The Ontario regulation leaves this important information to be presented as the water supplier sees fit.

When there are drinking water violations, a lack of monitoring, or violations of standards and no action is taken to correct it, water suppliers are only required to post notices in a prominent location under the Ontario regulation.

There are few avenues for public participation in drinking water decision-making.

Ontario's regulation does not adequately include the public in the protection of drinking water. The public does not have the opportunity within the regulation to review or revise standards. They are not invited to advise as they are in other jurisdictions. They do not participate in the protection of drinking water sources.

Since the inception of the U.S. *Safe Drinking Water Act*, the public has been an essential participant in furthering the goal of drinking water protection. The National Advisory Council has smaller task groups that work on the details of the regulations under the Act. They have made critical contributions to setting standards, defining the public right to know provisions, and the protection of groundwater. All source assessments must have citizen advisory groups. New Jersey has its own volunteer advisory council that identifies areas of research specific to their local problems.

There are limited investigation and enforcement mechanisms aimed at the protection of drinking water.

The Ontario regulation relies on the enforcement mechanisms of the *Ontario Water Resources Act*, but does not deliver any new remedies that would target the protection of drinking water. The *Ontario Water Resources Act* contains no cause of action for harm or loss from violations of the drinking water regulation, and otherwise fails to include adequate provisions for the public to hold the provincial government or drinking water suppliers legally accountable for their acts and omissions.

The United States has administrative penalties for violations of its *Safe Drinking Water Act*. There are also citizen suit provisions which allow citizens to sue the water supplier or the government for violations of the Act. England has had a number of high-profile cases where water companies have been prosecuted for providing unfit water. In Australia, Sydney's legislation provides for enforcement in the courts of the implied customer contract. In British Columbia, the proposed Drinking Water Protection Act allows individuals who believe there is a threat to their drinking water to request an investigation.

Part Six: The Essential Components of a *Safe Drinking Water Act*

Walkerton has taught us that we can no longer depend on the system that is in place to protect drinking water. The legacy of Walkerton must be a concerted effort to reform the system that allowed this tragedy to happen. These are the essential components of a legal regime that would create a visionary and far-reaching formula for safe drinking water for Ontario.

First and foremost, Ontario should give drinking water protection the highest legal priority. The government should enact a *Safe Drinking Water Act*, and entrench drinking water provisions into a single, integrated statute, rather than in regulation or policy. By codifying fundamental drinking water principles, rights, obligations and remedies into law, a clear framework is provided for any regulations that are needed to implement the statutory regime. If there is a need for flexibility, fine tuning, and technical updating, then regulations can be limited to matters that will likely change frequently, and should be drafted and evaluated on that basis. Only legislation can provide the stability and guarantee of continuing commitment to drinking water safety that is needed in Ontario. This Act should contain a paramountcy clause so that in cases of conflict between drinking water provisions and any other general or special Act, drinking water will be awarded priority. **[Recommendation 1]**

The government should also review and revise provincial laws, regulations and policies that do not support or are not consistent with the protection of drinking water. **[Recommendation 2]**

Secondly, in order to avoid fragmentation and confusion of responsibility, Ontario needs a single-purpose agency whose only priority and mandate is drinking water safety. While the Minister of the Environment should continue to have ultimate responsibility for Ontario's drinking water program, a *Safe Drinking Water Act* should create a specialized Drinking Water Commission to develop and oversee the implementation of drinking water standards and requirements. The drinking water statute should also clearly articulate lines of authority,

responsibility, and communication between the various public officials who are involved in protecting drinking water and public health in Ontario. **[Recommendation 3]**

Ontario's *Safe Drinking Water Act* should apply to all public and private water treatment and distribution systems in the province. Currently only large drinking water systems are covered under the drinking water regulation. The province should aim not only to protect large public and private drinking water supplies but to extend this protection to small systems and private wells by mandating testing and sampling requirements for private wells and small systems. This testing would detect contaminants before they became a health hazard and protect small rural systems that are especially vulnerable to such problems as pesticides and fertilizers. **[Recommendation 4]**

It is widely assumed that the public has a right to safe drinking water. However, there is no legal entitlement of the public to that right in any of the existing environmental laws in Ontario. This limits the public's ability to take any legal action to protect its drinking water. A *Safe Drinking Water Act* should entrench the right of citizens to clean and safe drinking water. Furthermore, a *Safe Drinking Water Act* should have a clear and unmistakable purpose that expresses the intention of the legislation. In any legal action, then, the courts will be clear as to the intent of the legislation. A *Safe Drinking Water Act* should state as its purpose "to recognize, protect and enhance the public right to clean and safe drinking water". **[Recommendation 5]**

Standards are the foundation of all safe drinking water statutes, and provide a measure for the public of the quality of its drinking water. Although Ontario now has legislated standards, it has no formal standard setting process that allows for flexibility and keeping abreast of new scientific and health information. There is no obligation on the Minister to introduce new standards or to ensure that existing standards reflect the highest degree of public health protection. Ontario should include within a *Safe Drinking Water Act* a mandatory duty on the Minister of Environment or the Drinking Water Commission to set and maintain drinking water standards. The Minister should also have a duty to review the standards and revise them in accordance with the most current health information.

The precautionary principle should be mandated as a consideration when drinking water standards are being created, reviewed or revised. Where there is scientific uncertainty, standards should be drafted to err on the side of caution. The Minister or Commission in designing standards should also take into account the vulnerable population -- children, elderly people and people with immune system problems. As well, legally binding mechanisms for meaningful public participation in the establishment of new or revised standards should be part of the legislation.

With respect to new and emerging threats, the Minister or the Drinking Water Commission should be obliged to identify substances for which new standards should be set. **[Recommendation 6]**

Although Ontario's new drinking water regulation sets out requirements for approvals of waterworks, licencing and accreditation of laboratories that are consistent with other jurisdictions, improvements can still be made to these requirements. There is no opportunity for public comment on municipal applications for permits for waterworks and water-taking permits.

Under a safe drinking water statute, the Drinking Water Commission should approve or reject applications for waterworks and ensure full public participation in this process. Existing requirements for operator licencing and training should be clarified and strengthened. The mandatory use of accredited laboratories for drinking water sampling and analysis should be retained. **[Recommendation 7]**

Ontario's new drinking water regulation makes testing of drinking water, treatment, notification of problems and the responsibility for taking corrective action mandatory. However, these requirements should be entrenched in a legally binding statute rather than regulations. A significant omission from the regulation itself is any requirement for the treatment of ground water that is under the influence of surface water. Therefore, ground water that is infiltrated by contaminated surface water does not have to be treated. Groundwater under the influence of surface water should be defined and should require the same treatment as surface water itself. **[Recommendation 8]**

Protecting the sources is now recognized as a critical first step in safeguarding drinking water supplies. Although Ontario has strict criteria for siting landfill operations, there are no similar criteria for establishing water supplies. Ontario should direct water suppliers and distribution system owners and operators to avoid drinking water sources that will result in hazards to public health and safety from polluting activities within the watershed.

Ontario is lagging far behind jurisdictions which have implemented assessment and protection of drinking water sources. Ontario should follow the lead of other jurisdictions in requiring all owners of water treatment systems to evaluate the sources of drinking water, both surface and ground water, to assess their vulnerability to contamination. Once a source is evaluated, plans should be put in place to protect the watershed or underground drinking water source. All drinking water sources should be periodically reviewed and assessed, and the results of these reviews made public.

It is essential that the public be involved in all aspects of this process. Only through public involvement will these assessments of drinking water sources and the planning for their protection be successful. Furthermore, existing legislation such as the *Planning Act*, *Municipal Act*, and *Conservation Authorities Act* should be amended through a new Ontario drinking water statute to ensure that municipal officials have the necessary legal tools to protect drinking water sources. **[Recommendations 9 and 10]**

A community that is well-informed about the quality of their drinking water is another important safeguard in the protection of drinking water. The community right to know principles in the current regulation should be strengthened and entrenched in an Act. First, there should be better public notice when public health is threatened. The public should have the right to immediate notice through newspapers, signs and the Internet whenever standards are violated or adverse water quality is detected, whenever treatment or testing equipment is not working properly and whenever sampling and analysis is not being carried out.

The right to know reports that water suppliers must make available to consumers should have more explicit provisions for the information they contain. Consumer confidence reports should

be sent out to all consumers on an annual basis, containing information on violations of drinking water standards and how these affect public health, particularly the vulnerable population. They should include information on what the water supplier is doing to mitigate or prevent violations of the standards, and what other contaminants, regulated or unregulated, have been detected in the raw or treated water. The reports should also contain information on the source of the drinking water and what planning for protection of these sources may be underway.

Finally the Minister or Drinking Water Commission should be required to establish an electronic drinking water registry that summarizes all consumer confidence reports, and the issues and trends arising from such reports. The registry should contain other significant information on drinking water as well, including approvals, prosecutions, orders and annual reports on the province's drinking water. **[Recommendation 11]**

There are presently no requirements that the Minister of Environment publicly report on the state of Ontario's drinking water. The Minister of Environment should be held accountable by being legally required to prepare and table an annual report on the state of Ontario's drinking water.

The Minister should also be required to establish provincial monitoring programs to assess the quality and quantity of surface and groundwater sources of drinking water, to identify sources of contamination, to assess new or emerging pathogens or substances in drinking water and to ensure compliance by water suppliers with standards. **[Recommendation 12]**

The substantive requirements of any legal regime are only effective if there are strong provisions for investigation and enforcement. Without adequate tools for investigation and enforcement, there is no meaningful threat to ensure compliance. Ontario's drinking water statute should then impose a duty on the Minister or Drinking Water Commission to enforce the drinking water law on a "zero tolerance" basis.

It should also mandate the development of a compliance manual to provide detailed direction for the investigation and enforcement of drinking water requirements under the law. A broad range of abatement tools should be created including administrative penalties, stop orders and emergency orders that would enable Ministry staff to quickly and effectively enforce the act.

The public should be given a streamlined right to require investigations of suspected violations of drinking water requirements, and the public should be given the opportunity to enforce the legislation themselves in civil court, if necessary, through the mechanism of "citizens' suits". Finally with respect to enforcement, a new cause of action should be created for people who suffer loss, injury or damage as a result of contraventions of the drinking water act or its regulations. **[Recommendation 13]**

Ontario's current legal regime contains very few prohibitions that are aimed specifically at protecting drinking water and its sources. A new Ontario drinking water statute should create broad "strict liability" offences and impose severe penalties for contraventions of such offences, including jail terms for the most serious offences.

These offences would include prohibitions against supplying drinking water that exceeded provincial standards or against submitting false reports. The water supplier would be liable if they violated the terms and conditions of their approval to operate a water treatment plant. They would be liable if they failed to report contamination of drinking water supplies to the Minister or to public health officials. In addition, anyone contaminating a drinking water source, a lake, a river, a well, or a recharge area, could be held liable under a *Safe Drinking Water Act*. Anyone tampering with a drinking water system would be similarly liable.

To enhance the deterrent value of fines, the Act should impose minimum fines for a first conviction so that potential defendants know that, at the very least, they will face mandatory minimum fines if caught and convicted. A maximum fine of \$6 million for a first conviction should be incorporated into the Act.

If there are subsequent offences and convictions, the fines should be significantly higher, particularly where a person or a community's health is affected. For violations that impair public health, a jail sentence should be a possible, and in some cases, appropriate penalty. A judge should also be able to order a water supplier to restore the water supply to meet water quality standards or to provide an alternative supply. **[Recommendation 14]**

Drinking water research has, in Canada, been neglected for many years. The Minister of the Environment or the Drinking Water Commission should be required, by law, to initiate and fund drinking water research. Such research could cover important issues such as the identification and protection of public health from waterborne disease, the quality and quantity of water supplies, the prevalence of unregulated contaminants in the province, ways to control or avoid the effects of intensive farming, the study of people at risk, and the initiation of watershed management, source protection and water conservation programs.

There is also a need for the Drinking Water Commission or Minister to establish a fund that would provide technical and financial assistance to water suppliers. This would enhance the ability of water suppliers to provide clean safe water by helping to fund infrastructure programs, training programs, watershed management and source protection measures, and water conservation plans. **[Recommendation 15]**

Drinking water is an issue that demands public involvement. To guarantee this involvement, a public advisory committee to the Minister or the Drinking Water Commission representing the public and important stakeholders should be established. This committee would provide invaluable advice on new standards and emerging problems in the field of drinking water. It could also be used, as has been the practice in other jurisdictions, to set up working groups to help develop new standards and new rules for drinking water protection. **[Recommendation 16]**

Unless and until safe drinking water legislation is enacted in Ontario, the province's legal regime must be regarded as essentially incomplete and inadequate. More importantly, without a strong statutory framework in place, drinking water quality and public health will continue to be at risk across the province. The legacy of the Walkerton tragedy must be the timely passage of the *Safe Drinking Water Act*.

Appendix I: Consolidated List of Recommendations:

RECOMMENDATION #1: Ontario should, to the greatest possible extent, entrench drinking water provisions into a single, integrated statute, rather than in regulation or policy. This statute should contain a paramountcy clause that provides that in cases of conflict between drinking water provisions and any other general or special Act, the drinking water provisions shall prevail to the extent of the conflict.

RECOMMENDATION #2: Ontario should systematically review and, where necessary, revise provincial laws, regulations and policies to ensure that they are consistent with the overall provincial priority of protecting drinking water and its sources.

RECOMMENDATION #3: Ontario's drinking water statute should include provisions that:

- (a) establish appropriate judicial and political accountability mechanisms, such as provincial monitoring/reporting and judicial review opportunities;
- (b) specify that the statute binds the Crown;
- (c) establish a new "Drinking Water Commission" that reports to the Minister of Environment, and that has the statutory mandate to develop and oversee the delivery of Ontario's drinking water program by (among other things) setting and enforcing provincial standards which implement the multi-barrier approach; and
- (d) clearly delineate lines of authority, responsibility and communication requirements between Ministry staff, the Drinking Water Commission, municipal officials, public utilities, and medical officers of health.

RECOMMENDATION #4: Ontario's drinking water statute should apply to all public and private water treatment and distribution systems in the province. In addition, the statute should impose appropriate testing and sampling requirements in relation to private individual wells in order to detect and remedy unsafe drinking water.

RECOMMENDATION #5: Ontario's drinking water statute should entrench a substantive public right to clean and safe drinking water. The statute should further state that its purpose is to recognize, protect and enhance the public right to clean and safe drinking water.

RECOMMENDATION #6: Ontario's drinking water statute should include provisions that:

- (a) impose a mandatory duty upon the Drinking Water Commission (or Minister) to set and maintain drinking water standards;

- (b) impose a mandatory duty upon the Drinking Water Commission (or Minister) to periodically review the adequacy of existing standards, and to make such revisions to the standards as may be necessary to protect human health and safety;
- (c) specify that the primary objective of drinking water standards is to protect public health and safety of all Ontarians, including those who may be particularly vulnerable to waterborne illness or disease;
- (d) entrench the precautionary principle as a mandatory consideration when drinking water standards are being drafted, reviewed or revised;
- (e) establish legally binding mechanisms for meaningful public participation in drafting, reviewing or revising drinking water standards; and
- (f) impose a mandatory duty upon the Drinking Water Commission (or Minister) to identify and evaluate new and emerging contaminants for which no standards exist in Ontario.

RECOMMENDATION #7: Ontario's drinking water statute should contain provisions that:

- (a) establish a self-contained process for the Drinking Water Commission to approve (or reject) applications for waterworks that supply drinking water, and to ensure full public participation in the approvals process;
- (b) clarify and strengthen existing requirements regarding operator licencing and training; and
- (c) retain existing requirements regarding the mandatory use of accredited laboratories for drinking water sampling and analysis.

RECOMMENDATION #8: Ontario's drinking water statute should include provisions that:

- (a) entrench current testing, treatment, notification and corrective action requirements into law rather than regulation; and
- (b) define "groundwater under the influence of surface water", and specify that surface water treatment requirements apply in such situations.

RECOMMENDATION #9: Ontario's drinking water statute should expressly require public and private water treatment and distribution system owners and operators to:

- (a) avoid drinking water sources that will, or are likely to, result in hazards to public health and safety due to pollution from activities within the watershed or sub-watershed;
- (b) assess and periodically review the vulnerability of their sources of drinking water to current or future contamination or degradation, and publicly report upon the results of such assessments;
- (c) develop and implement appropriate source protection measures where necessary to safeguard public health and safety;
- (d) involve the public in developing source assessment programs and source protection measures that will be implemented to safeguard public health and safety; and

RECOMMENDATION #10: Ontario's drinking water statute should amend existing laws (such as the *Planning Act*, *Municipal Act*, and/or *Conservation Authorities Act*) to ensure that municipal officials have sufficient legal tools to implement the measures specified in source protection programs.

RECOMMENDATION #11: Ontario's drinking water statute should fully entrench "community right to know" principles, and in particular, should include provisions that require:

- (a) immediate public notice through appropriate means (e.g. news media, signs, internet, etc.) whenever:
 - (i) exceedances of prescribed standards or indicators of adverse water quality are detected including "presumptive" results;
 - (ii) treatment or testing equipment is inoperative or malfunctioning; or
 - (iii) required sampling and analysis is not being carried out;
- (b) preparation of comprehensive consumer confidence reports which are to be mailed to all consumers on an annual basis, and which address the following matters:
 - (i) source assessment/protection;
 - (ii) discussion of any regulated contaminants or unregulated substances detected in the raw or treated water;
 - (iii) discussion of any violations of contaminant limits or prescribed standards, and related public health concerns, particularly for vulnerable persons; and
 - (iv) discussion of the steps taken to address such violations, and measures proposed to prevent any future violations; and
- (c) require the Drinking Water Commission (or Minister) to establish and maintain an electronic drinking water registry that summarizes consumer

confidence reports, discusses issues and trends arising from such reports, and otherwise serves as a public repository for significant drinking water information (e.g. approvals, prosecutions and orders, State of Drinking Water Reports, etc.).

RECOMMENDATION #12: Ontario’s drinking water statute should contain provisions that require the Drinking Water Commission (or Minister) to:

- (a) prepare and file annual “State of Ontario’s Drinking Water Reports” in the Legislative Assembly; and
- (b) establish and maintain provincial monitoring programs on drinking water matters, such as:
 - (i) quality and quantity of surface water and groundwater sources of drinking water;
 - (ii) sources of contamination of drinking water;
 - (iii) new or emerging pathogens and substances that may be present in drinking water and that may pose a threat to public health and safety in Ontario; and
 - (iv) compliance by water suppliers with parameter limits and other prescribed standards.

RECOMMENDATION #13: Ontario’s drinking water statute should contain provisions that:

- (a) impose a positive duty on the Drinking Water Commission (or Minister) to enforce the provisions of the statute on a “zero tolerance” basis;
- (b) impose a positive duty on the Drinking Water Commission (or Minister) to develop (with full public input) a compliance manual to provide detailed direction regarding the investigation and enforcement of drinking water provisions under the statute;
- (c) establish a broad range of mandatory abatement tools, including administrative penalties, stop orders and emergency orders;
- (d) create a streamlined right for Ontarians to require (not just request) investigations of suspected contraventions of drinking water requirements;
- (e) create a “citizens’ suit” mechanism that allows Ontarians to enforce drinking water requirements in civil court; and
- (f) create a new cause of action for persons who suffer loss, injury or damage as a result of a contravention of the statute or the regulations thereunder.

RECOMMENDATION #14: Ontario's drinking water statute should include:**(a) broad, "strict liability" offences that prohibit:**

- (i) owners/operators of public and private water treatment and distribution systems from providing users with drinking water that exceeds permitted contaminant levels or contravenes prescribed standards;**
- (ii) owners/operators of public and private water treatment and distribution systems from contravening the terms or conditions imposed under statutory approvals for such systems;**
- (iii) owners/operators of public and private water treatment and distribution systems from submitting false information or reports required by law;**
- (iv) owners/operators of public and private water treatment and distribution systems from failing to report threats to drinking water quality to the Minister and/or public health officials;**
- (v) any person from causing or permitting the release of contaminants into or near waterworks, drinking water sources, wells or well recharge areas, or attempting or threatening to do so;² or**
- (vi) any person from damaging, destroying, altering, or otherwise tampering with waterworks or wells, or attempting or threatening to do so; and**

(b) severe penalties for contraventions, including:

- (i) minimum fines for a first conviction;**
- (ii) maximum fines of not more than \$6 million for a first conviction;**
- (iii) significant higher fines for subsequent offences, or for offences where the health of any person has been impaired as a result of the contravention;**
- (iv) jail terms for serious offences, such as where the health of any person has been impaired as a result of the contravention;**
- (v) stripping of any profits or monetary benefits acquired or gained by the defendant through the contravention;**

² For such an offence, it may be necessary to recognize a limited "statutory authority" defence for situations where, for example, a company is lawfully discharging contaminants into the environment in accordance with its certificate of approval.

- (vi) **orders of prohibition, restitution, or restoration, including orders to provide an alternate drinking water supply; and**
- (vii) **such further orders or conditions that are necessary to prevent further offences or to contribute to the rehabilitation of the defendant.**

RECOMMENDATION #15: Ontario's drinking water statute should establish a mandatory duty upon the Drinking Water Commission (or Minister) to:

(a) undertake and fund research programs such as:

- (i) **identification, treatment and prevention of adverse public health effects from drinking water contaminants;**
- (ii) **quality and quantity of water available to public and private water suppliers in Ontario;**
- (iii) **current and future sources of drinking water contaminants, including unregulated substances;**
- (iv) **controlling or avoiding the effects of intensive farming on sources of drinking water;**
- (v) **identifying and protecting Ontarians who may be at special risk of waterborne disease;**
- (vi) **watershed management and source protection measures; and**
- (vii) **water conservation; and**

(b) establish and fund programs that provide technical and financial assistance to owners/operators of public or private water treatment and distribution systems in order to:

- (i) **install, construct or upgrade equipment in the waterworks (or related infrastructure) in order to meet drinking water standards;**
- (ii) **implement water conservation plans or programs;**
- (iii) **undertake source assessment/protection programs; and**
- (iv) **employee training;**

RECOMMENDATION #16: Ontario's drinking water statute should require the establishment of a public advisory committee to research and report upon drinking water matters to the Drinking Water Commission (or Minister).