

Local Water Management in Canada

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Introduction

Recent events in Canada, particularly the bacteriological contamination of drinking water supplies in Walkerton Ontario in May 2000, resulting in 7 deaths and 2,300 illnesses,¹ and in North Battleford, Saskatchewan in May 2001, causing over 100 illnesses,² have focussed public attention on the management and quality of local drinking water supplies. This paper provides an overview of evolution and structure for management of water resources at local level in Canada, including source water protection and the operation and regulation of communal water systems. It examines the role of the federal government, and provincial and local government agencies in local water management. The arrangements in the province of Ontario are used as an illustrative case study, as they are typical of the systems in place across Canada.³

Canada was generally regarded as having developed relatively complete and sophisticated systems for local water management. However, the Walkerton and North Battleford incidents have highlighted a number of significant gaps in the current structures, particularly with respect to the protection of source waters, and the role of senior governments in the oversight and support of the delivery of water supplies by local agencies. Indeed, the judicial inquiry into the Walkerton case concluded that the disaster could have been prevented or significantly reduced in scope had provincial agencies carried out their roles as overseers of local water system operators and facilities more effectively.⁴

Local Water Supplies and Services in Canada

Local water supplies in Canada come from both surface and groundwater sources. Service in towns and cities is provided through local utilities, which may rely on both types of sources. In rural areas, reliance on individual wells, or small communal systems where a number of homes, businesses or institutions are connected to a well, are the norm.

Arrangements for the operation of local water systems in Canada vary. In most cases systems are operated by local public utilities commissions, or as departments of municipal governments. However, some public utilities commissions and municipalities have contracted with private firms to operate their systems. In addition, in Ontario, many

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small municipalities have contracted their water operations to a provincial agency, the Ontario Clean Water Agency (OCWA).⁵

Source Water Protection

The Role of the Federal Government

The Canadian federal government's role in protection and management of sources of local water supplies is very limited. The federal government has no direct role in regulating water takings off federal or aboriginal lands, largely as a result of the primacy of provincial jurisdiction over natural resources. Its most significant activities related to water resource management are focussed on research. The Geological Survey of Canada for example, has undertaken a number of modest research projects on groundwater sources, and Environment Canada monitors water levels, flows and the presence of certain contaminants in major surface water bodies, such as the Great Lakes and St. Lawrence River.⁶

The federal government could, under certain circumstances, employ its jurisdiction over navigable waters,⁷ fish habitat,⁸ or international waters⁹ to regulate water takings that might interfere with navigation, damage fish habitat, or remove waters from an international water body. However, in practice the federal government has been reluctant to exercise these authorities, principally due to concerns over interfering with provincial jurisdiction over natural resources management. The *Fisheries Act* also prohibits the deposit of "deleterious substances" into waters frequented by fish. These provisions may also have the effect of providing some protection for the quality of surface water. However, in practice the administration and enforcement of these provisions has been largely left to provincial and territorial governments.¹⁰

Role of the Provincial Government

In most provinces responsibility for the protection of surface and ground waters from inappropriate or unsustainable uses and contamination is fragmented among numerous provincial and local agencies, with no agency provided with clear lead responsibility. In Ontario the following provincial Ministries have major potential roles in regulation or conduct of activities that may affect water sources.

Ministry	Areas of Responsibility
Environment	Water takings and industrial and municipal discharges to surface waters
Natural Resources	Dams and other "improvements" to lakes and rivers (e.g. canals); forestry, approval of gravel pits and quarries, construction of oil, gas and brine wells
Agriculture, Food and Rural Affairs	Farms and intensive livestock operations
Northern Development and Mines	Mineral exploration, mine operation, closure and remediation.
Transportation	Road and highway construction and maintenance
Municipal Affairs	Land-use planning and financing of municipal infrastructure.

Consumer and Business Services/Technical Standards and Safety Authority	Underground storage tanks for fuels and other materials.
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However, only the Ministry of the Environment has a clear mandate to protect water sources and, in many cases, the primary mandates of the other agencies are to promote and facilitate economic development. The extent of the fragmentation of responsibility for source water protection has been a major focus of recent reports by the province's Environmental Commissioner,¹¹ Provincial Auditor¹² as well as the Walkerton Inquiry.¹³ Similar problems have been highlighted in British Columbia by that province's Auditor-General.¹⁴

In Ontario, surface and groundwater takings were unregulated by the provincial government until the 1950s. Until then, the common law rules of riparian rights applied, requiring that upstream landowners not interfere with quality or level of water flowing past their land to the detriment of people living downstream.¹⁵ In response to increasing pressures on water supplies and quality in the immediate post-war period, the province began to exercise regulatory control over the use of water resources. The *Ontario Water Resources Act*, first enacted 1956, requires provincially issued permits for surface or groundwater takings greater than 50,000 litres per day. The province's Ministry of the Environment administers the Act. No provincial permits are required for takings under the 50,000 litre threshold, such as private wells for individual homes.

The Province of Ontario's system for the management of water resources has also been the subject of significant criticism over the past few years by both the Provincial Auditor and Environmental Commissioner. These reviews have highlighted the lack of a central record keeping system regarding permits to take water and the failure to establish mechanisms to assess the cumulative effects of takings on the sustainability of water resources. The lack of monitoring and reporting requirements for takings, and absence of an overall strategy to protect groundwater sources from such things as inappropriate developments in key recharge areas, has also been emphasized.¹⁶

The role of municipal governments in water resource management is limited. Although local land-use planning decisions can have significant impacts on water resources, the province has provided very limited policy direction to municipalities on the protection of surface and groundwater sources.¹⁷ Among the most important actors at the local level with respect to water resources are the Conservation Authorities, first established in the 1940's and of which 38 currently exist across the province.

The Authorities are set up on a watershed basis, and are operated on a cooperative basis by local municipalities within the watershed. Their initial role focused on flood control, although their activities have widened to include broader watershed and ecosystem management functions. This has included the protection of sensitive ground water recharge/discharge areas, aquifers and headwaters through land purchases, restoration activities, efforts to reduce non-point source pollution, particularly from agricultural sources.¹⁸ The Authorities have been under significant financial stress over the past few years, due to severe reductions in provincial support since 1995.¹⁹

The Operation of Local Water Systems

Role of the Federal Government

As is the case with the management source waters, the federal government's role in the operation and supervision of local water systems is very limited. The federal government's primary role is to provide the secretariat and research support, though Health Canada, for the Federal-Provincial Subcommittee on Drinking Water, consisting of representatives of Health Canada, Environment Canada, and all of the provinces and territories.²⁰ The Sub-Committee develops and publishes the Guidelines for Canadian Drinking Water Quality. These guidelines contain (interim) maximum acceptable concentrations and/or aesthetic objectives for microbiological, chemical/physical and radiological parameters of potable water obtained from all private or municipal water sources (e.g. groundwater, spring water, surface water and rain water). The current, sixth edition of the Guidelines were published in September 1996.

However, outside of areas under federal jurisdiction, such as aboriginal communities and federal workplaces, implementation of the Guidelines is entirely at the discretion of the provincial and territorial governments. Health Canada plays no role in monitoring their adoption by provincial governments, or in monitoring or gathering information on the quality of drinking water actually provided by provincially or territorially regulated municipal water systems.²¹ The situation in Canada is in marked contrast to that in the United States, where the federal *Safe Drinking Water Act* which establishes legally enforceable drinking water quality standards, and mandates State source water protection programs, operator certification, and the provision of annual reports by system operators to consumers about the system's source water and the level of contaminants in drinking water.²²

The federal government committed to the promoting and applying realistic pricing and user pay principles as a way of ensuring the sustainability of water resources, through its water policy adopted in 1987.²³ In August 2000, the Organization for Economic Cooperation severely criticized Canada for its continuing failure to adopt a full cost-pricing approach to water.²⁴ However, given its very modest role in water resources management, the federal government's capacity to implement these measures is limited, although it has failed to attach conditions regarding water conservation or pricing to federal grants to local governments for water infrastructure.²⁵ At the same time, efforts by provincial governments to introduce even modest charges for water use have met with strong resistance in rural areas, particularly from agricultural users, while concerns over political acceptability and social impacts have left urban communities reluctant to move to the full-cost pricing of water services.

Role of the Provincial Government

In Ontario, the provincial government moved to establish a provincial regulatory framework for water quality and the operation of local water and sewage systems at the same time that it began to control water use through the adoption of the OWRA in 1956. Until that time, the operation of water systems had been regulated by municipalities and local boards of health through the *Public Health Act*.

As in most other provinces, approval is required by the provincial Ministry of the Environment to construct and operate private communal or municipal water systems.²⁶ Terms and conditions may be imposed by the Ministry of the Environment on these approvals. The Ministry is also responsible for certifying the qualifications of system staff and ensuring their ongoing training, and establishing operating practices. As the regulating agency, the provincial Ministry of the Environment conducts inspections of water systems, investigates potential violations provincial conditions of approval or operating standards, imposes orders requiring remedial action, and on rare occasions undertakes prosecutions of system operators.²⁷ The Ministry of the Environment provided routine testing of drinking water quality for municipalities and other system operators until 1996, when this function was abandoned by the province as a result of budgetary reductions.²⁸ System operators now rely on private sector laboratories to conduct drinking water testing.

The Ministry of the Environment established standards for drinking water quality. Until August 2000 these standards were expressed through the Ontario Drinking Water Objectives. The Objectives were based on the Guidelines for Canadian Drinking Water Quality, with some additional standards developed and adopted by the Ministry of the Environment. The Objectives also included procedures for the testing of drinking water for contaminants and the reporting of adverse test results to system operators, the Ministry of the Environment and local Medical Officers of Health. However, the objectives were in the form of a provincial guideline rather than a legally enforceable regulation or statute.

Local boards of health and health units, established under the provincial *Health Promotion and Protection Act* also play an important role in ensuring the quality of local water supplies. In the event of violations of provincial standards for drinking water quality, determinations of the acceptability of drinking water supplies rest with the local Medical Officers of Health, the medical doctors who direct local health units, rather than the Ministry of the Environment. The Medical Officers of Health are appointed by the local health boards, which usually consist of municipal councilors and in some cases citizen representatives, but can only be removed with the approval of the provincial Minister of Health. These arrangements are intended to provide Medical Officers of Health with security of tenure, so that they can take decisions necessary to protect public health even when such decisions may adversely affect local economic or political interests.

A number of major changes were made to the provincial system for overseeing local water systems following the May 2000 Walkerton water tragedy. The provincial guidelines for drinking water quality, including requirements regarding the frequency of

testing, and the reporting of adverse test results, were converted into legally enforceable regulations in August 2000.²⁹ These regulations also added requirements for public reporting of adverse water test results.³⁰ Subsequently, additional regulations have been adopted regarding drinking water quality at schools, day nurseries, nursing and retirement homes and social and health care facilities in the broader public sector and private sector that have their own water supply systems.³¹ A number of other provinces have adopted similar regulations regarding drinking water quality and operation of local water systems over the past year.³²

Conclusions and Implications for other Jurisdictions.

Conclusions

In Canada, local government agencies, such as public utilities commissions and municipal works departments, retain primary responsibility for the operation of water works and delivery of safe and reliable supplies of drinking water to their residents, drawing from surface and groundwater sources. In some cases, the operation of water systems has been contracted-out to private firms or provincial government agencies. In rural areas reliance on private wells is common for residential, agricultural, and institutional water supplies. Ontario's Conservation Authorities provide an important model for the cooperative management and protection of water resources by local governments, although their limited mandates and recent severe budgetary reductions have prevented the Authorities from living up to their full potential as watershed-based ecosystem management agencies.

Provincial governments have primary responsibility for regulating the use of water resources and their quality, as well as the operation of municipal and private communal water systems. Recent events, particularly the Walkerton and North Battleford contamination incidents have led a number of provincial governments to significantly strengthen the regulatory requirements applicable to local water systems, and the level of oversight of these systems which they provide.

However, fragmentation of responsibility for the protection of source waters remains a serious problem, particularly with respect to non-point source pollution such as agricultural and urban run-off. Systems to address the cumulative effects of surface and particularly groundwater takings are also lacking. Efforts to introduce even modest charges for water use have met with strong resistance in rural areas, particularly from agricultural users, while concerns over political acceptability and social impacts have left urban communities reluctant to move to the full-cost pricing of water services. Responsibility for ensuring the safety of drinking water remains divided between provincial environment ministries and local health authorities.

Federal government's role in the management of local water resources is extremely limited. The federal government plays no role in monitoring and reporting on drinking water quality, and has been reluctant to exercise the constitutional and regulatory authority available to it to protect source waters. Its primary activities have been to

provide research and scientific support rather than to act as a direct regulator or information provider.

Implications for Other Jurisdictions.

Canada's experience with local water management demonstrates the need for jurisdictions to adopt multi-barrier approaches to the protection of local water supplies. These need to include strategies to protect source waters from contamination from point and non-point industrial, municipal, and agricultural sources, inappropriate developments in ground water recharge/discharge areas, aquifers and headwaters, and unsustainable use through the cumulative effects of water-takings by multiple users.

In addition, senior levels of government need to provide strong frameworks for the oversight and support of local water system operators. These need to include the establishment of standards for source and drinking quality and the design and operation local water systems, systems for the approval and regular inspection of local water systems by individuals with appropriate qualifications and training, training, certification and continuing education programs for system operators, the provision of technical and financial assistance to local systems, and ongoing research to identify emerging threats to source waters, and to improve water treatment and distribution systems. Finally, senior levels of government need to establish integrated information systems on local water systems, and provide key information on system performance and drinking and source water quality to the public on a regular basis.

Websites of Interest

Health Canada (Drinking Water):

http://www.hc-sc.gc.ca/ehp/ehd/bch/water_quality.htm

Commissioner for Environment and Sustainable Development

<http://www.oag-bvg.gc.ca/domino/oag-bvg.nsf/html/environment.html>

Ontario Ministry of Environment:

www.ene.gov.on.ca

Ontario Office of the Environmental Commissioner:

www.eco.on.ca

The Walkerton Inquiry:

www.walkertoninquiry.com

Auditor-General of British Columbia:

<http://bcauditor.com/AuditorGeneral.htm>

United States Environmental Protection Agency – Office of Water

<http://www.epa.gov/safewater/>

Endnotes

¹ For a detailed description of the Walkerton Tragedy see: The Hon. D.R. O'Connor, Commissioner Report of the Walkerton Inquiry: Part One (Toronto: Queen's Printer for Ontario, January 2002).

² See J. Mahoney, "Judge to probe water deaths," Globe and Mail, May 8, 2001 for a description of the North Battleford outbreak.

³ For a detailed overview of legal and institutional arrangements for drinking water protection across Canada see R.Chistiensen, Waterproof: Canada's Drinking Water Report Card (Vancouver: Sierra Legal Defence Fund, January 2001).

⁴ Report of the Walkerton Inquiry: Part One, Chapter 9.

⁵ OCWA is a vestige of earlier arrangements under which the Ministry of the Environment, or its predecessor, the Ontario Water Resources Commission, constructed and operated sewer and water works for small municipalities who lacked the financial resources to operate their own systems. Ownership of these systems was transferred to municipal governments through legislation adopted in 1997. However, OCWA offered to continue to operate local systems on a contract basis, and has competed successfully for such contracts with private sector service providers. For a detailed discussion of public and private sector operation of local water systems see D. Cameron The Relationship Between Different Ownership and Management Regimes and Drinking Water Safety (Issue Paper prepared for the Walkerton Inquiry, August 2001). <http://www.walkertoninquiry.com/part2info/commissuepapers/11cameron/cameron.pdf>

⁶ For a discussion of these activities see Commissioner for Environment and Sustainable Development, 2001 Report to the House of Commons, Chapter 1 "Great Lakes and St.Lawrence River Basin," para 3.5.1. – 3.5.23 and para 3.4.12 – 3.4.15, October 2001.

⁷ See, the *Navigable Waters Protection Act*.

⁸ See, the *Fisheries Act*.

⁹ See the *International Boundary Waters Treaty Act*

¹⁰ On these delegations see Commissioner for Environment and Sustainable Development, 1999 Report to the House of Commons Chapter 5, "Streamlining Environmental Protection Through Federal-Provincial Agreements: Are They Working?," May 1999.

¹¹ See for example, Environmental Commissioner for Ontario, Changing Perspectives: Annual Report 1999/2000 (Toronto: October 2000), pp.35-42..

¹² Office of the Provincial Auditor, 1996 Annual Report (Toronto: October 1996), pp.121-124.

¹³ See D.d'Ombrain, "Machinery of Government for Safe Drinking Water in Ontario," Discussion Paper prepared for the Walkerton Inquiry, March 2001

¹⁴ British Columbia, see Office of the Auditor General of British Columbia 1998/1999 : Report 5 – Protecting Drinking Water Sources (Victoria: March 1999).

¹⁵ For a detailed discussion of the riparian rights doctrine, see D.Estin and J.Swaigen, Environment on Trail: A Guide to Ontario Environmental Law and Policy (Toronto: Emond-Montgomery Publishers, 1993), pp. 114-116.

¹⁶ See for example, Environmental Commissioner for Ontario, Changing Perspectives: Annual Report 1999/2000 (Toronto: October 2000), pp.35-42; Office of the Provincial Auditor, 1996 Annual Report (Toronto: October 1996), pp.121-124.

¹⁷ Amendments to the Province's land-use planning policies adopted in 1995 placed a strong emphasis on protecting the quality and quantity of groundwater and surface water and the function of sensitive ground water recharge/discharge areas, aquifers and head waters stating that "developments that will negatively affect groundwater recharge areas, head-waters and aquifers which have been identified as sensitive areas will not be permitted." However these policies were repealed in 1996, being replaced with language stating that these areas "will be protected and enhanced." Protections for wetlands, ravine, river and stream corridors, shorelines, and natural corridors were weakened or removed at the same time.

¹⁸ On the role of Conservation Authorities in protecting water sources see Conservation Ontario, The Importance of Watershed Management in Protecting Ontario's Drinking Water Supplies, Submission to Part II of the Walkerton Inquiry, March 2001.

<http://www.walkertoninquiry.com/part2info/partieswithstanding/pdf/ConservationOntarioSubmission.pdf>

¹⁹ See M.Winfield, and G.Jenish, Ontario's Environment and the 'Common Sense Revolution: A Four Year Report (Toronto: Canadian Institute for Environmental Law and Policy, September 1999).

²⁰ For detailed information on the sub-committee and its role http://www.hc-sc.gc.ca/ehp/ehd/bch/water_quality/sub_committe.htm

²¹ On the federal government's role with respect to drinking water quality see Commissioner for Environment and Sustainable Development, 2001 Report to the House of Commons, Chapter 1 "Great Lakes and St.Lawrence River Basin," para 3.4.9., October 2001.

²² See <http://www.epa.gov/safewater/sdwa/theme.html>

²³ See Government of Canada, Federal Water Policy (Ottawa, 1987).

²⁴ OECD Economic Survey of Canada, August 2000.

²⁵ see Commissioner for Environment and Sustainable Development, 2001 Report to the House of Commons, Chapter 1 "Great Lakes and St.Lawrence River Basin," October 2001, para 3.5.27.

²⁶ Certificates of Approval are not required for systems serving the equivalent five or fewer residences.

²⁷ For a detailed description of these functions see D.d'Ombrain, "Machinery of Government for Safe Drinking Water in Ontario," Discussion Paper prepared for the Walkerton Inquiry, March 2001. See also M.Winfield and J.Swaigen, "Water," in Swaigen and Estrin, Environment on Trial. (3rd edition).

²⁸ On the provincial decision to withdraw from drinking water testing see Report of the Walkerton Inquiry: Part I, pp.374-380.

²⁹ See Drinking Water Protection Regulation O.Reg 459/00,

<http://www.ene.gov.on.ca/envision/WaterReg/WaterReg.htm>

³⁰ <http://www.ene.gov.on.ca/envision/adverse/adversewater.htm>

³¹ Drinking Water Protection Regulation for Smaller Waterworks Serving Designated Facilities O. Reg. 505/01. See <http://www.ene.gov.on.ca/envision/WaterReg/smallerwaterworks.htm>

³² See Government of Quebec, *Regulation respecting the quality of drinking water*, June 2000. <http://www.menv.gouv.qc.ca/eau/potable/index.en.htm>