



**Geoffrey F. Bruce Fellowship  
in Canadian Freshwater Policy**

**Environmental Management Systems &  
Policy Convergence in Ontario's Municipal Water Sectors:  
Making the Connections**

**POLICY BRIEF**

**By**  
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## Introduction

Municipalities have critical responsibilities related to freshwater policy in Canada. The management of municipal drinking, wastewater and stormwater sectors in Ontario has historically been governed by traditional state-centered regulatory governance approaches primarily relying on laws and regulations. However, non-state governance approaches are increasingly being used in regulation of municipal water issues. Municipalities are uniquely placed to highlight particular regulatory gaps and limitations. An increasing reliance upon Environmental Management Systems (EMS) by municipalities point to a convergence of policies and best management practices as a partial response to address some of the existing gaps and limitations. These phenomena appear to align particularly well with the concept of sustainable governance (Webb 2005) and involves policy convergence in two dimensions: a horizontal dimension (involving a transfer from non-state to state of a particular type of rule instrument), and a vertical dimension (adoption and use, between and among federal, provincial and municipal governments, of non-state rule instruments as part of their regulatory regimes).

## The Policy Problem

In Ontario, after more than ten years of experience with a provincially required drinking water quality management standard (DWQMS, 2007<sup>2</sup>), municipalities have generated a critical mass of knowledge concerning use of management systems standards (MSS) in the water quality context and are now proactively considering how MSS approaches could be usefully transferred from the drinking water context to the wastewater and stormwater sectors (Tovilla and Webb, 2017). However, this policy innovation transfer to improve the wastewater and stormwater regulatory framework has not yet taken place. The understanding of nuances and conceptual differences on risk-based approaches between the drinking water context -- with a defined input/output to the system (e.g. groundwater-based or lake-based systems) -- and the wastewater and stormwater context -- with undetermined input to its systems (e.g. multiple residential, commercial, industrial drains, inflow and infiltration to wastewater systems and multiple runoff inlets), and undetermined outputs (e.g. overflows, outfalls) -- is a complicating factor affecting policy transfer and convergence.

While there has been an increasing number of municipal water utilities using non-state-based MSS to complement state-based regulatory water policies designed for improvements in environmental performance, there are currently gaps in the legislation and in the understanding of the key elements and criteria associated with MSS, in terms of how drinking water quality management approaches can be effectively transferred to the municipal wastewater and stormwater sectors. The MSS approach in drinking water concentrated on a **quality** management system (QMS). In contrast, the nature of wastewater and stormwater systems have

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<sup>2</sup> DWQMS, Ministry of the Environment, [Online], Available: <https://www.ontario.ca/page/ontarios-drinking-water-quality-management-standard-pocket-guide> [1 Dec 2017]



different risks such as flooding, pollution of rivers and lakes, and property damage, that necessitate use of an ***environmental*** management system (EMS) approach. Research underlying this study suggests the value of implementation of sector-specific wastewater and stormwater MSS that align primarily with EMS and with some elements of QMS.

### **Existing Legislation, Policies & Use of Environmental Management Systems**

In addition to the source water protection and a multi-barrier approach adopted and implemented in Ontario after the Walkerton Inquiry (Johns, 2014a, Johns, 2004b, Abouchar, 2003), Justice O'Connor's recommendations also included new responsibilities for municipalities and the development and implementation of a QMS, which the Ontario government developed in partnership with the non-state Canadian Standards Association (CSA Group) and other stakeholders (Tovilla and Webb, 2017). In its final form, this recommendation evolved into the *Drinking Water Quality Management Standard (DWQMS)*, a regulatory requirement for all Ontario municipal drinking water systems. This new standard draws on the non-state ISO 9001 for Quality Management System (QMS) standard, the non-state food product safety standard referred to as the Hazard Analysis and Critical Control Points (HACCP) approach, and also some elements of the ISO 14001 for *Environmental Management Systems* (O'Connor, 2002a, and 2002b). After Walkerton, and the introduction of the DWQMS, there have been small improvements for wastewater and stormwater systems such as the licensing of wastewater operators (O. Reg. 129/04), but no comprehensive updating of the regulatory framework has taken place. Essentially, these sectors have been left behind, largely operating pursuant to a regulatory governance structure originally established in the 1950's under the *Ontario Water Resources Act (OWRA)*.

There are a range of federal, provincial, and municipal regulatory laws, regulations and policies providing a generalized impetus for regulated entities to adopt EMSs such as ISO 14001 certifications. Table 1 provides a list of laws and their relevance to EMS (Tovilla and Webb, 2017). In addition to specific references to EMSs and ISO 14001, some laws also include discretionary powers that have been used to incorporate EMS (e.g., under the *Fisheries Act*, as part of court sentencing). Furthermore, Canadian courts are increasingly are drawing on legislated powers to direct environmental offenders to adopt EMSs, or elements thereof in ISO 14001, and the due diligence defence represents another impetus for organizations to implement EMS standards to decrease the likelihood of an environmental violation or a conviction (Webb and Morrison, 2004).



**Table 1. Federal & Ontario Legislation Potentially Relevant to Environmental Management Systems**

	<b>Rule Instrument</b>	<b>Significance</b>
Federal	<i>Fisheries Act, 1985</i>	s.79.2 (b) and (i) of the <i>Act</i> gives court authority to engage in creative sentencing powers to order actions to avoid any harm... and secure good conduct. Courts have used this authority to order organizations to secure ISO 14001 certification.  Penalties, s.40: <ul style="list-style-type: none"> <li>✓ 1<sup>st</sup> offence: fine up to \$300,000</li> <li>✓ Subsequent: fine up to \$300,000 and/or 6 months in prison</li> <li>✓ Indictable offense: 1<sup>st</sup> offense – fine up to \$1M, and subsequent offenses up to 3 years in prison</li> </ul>
	<i>CEPA, 1999</i>	s. 209.1.a of the <i>Act</i> has provisions to allow for development of regulations for “the establishment of environmental management systems”
	<i>Environmental Enforcement Act, 2010</i>	Passed in 2010, it introduces enforcement tools that allow for directing the offender “to implement an EMS... [and might impose] requiring periodic environmental audits”
	A protocol guide for an EMS Audit. 2001	An Environment Canada publication based on the ISO 14001
Ontario	Ontario Water Resources Act (OWRA)	Penalties, s. 108 (1): <ul style="list-style-type: none"> <li>✓ First offense for less serious offenses: max \$50,000 per day</li> <li>✓ First offence for serious offenses min \$25,000 and max \$6M.</li> </ul> Penalties on a subsequent convictions, s.109(2)b: <ul style="list-style-type: none"> <li>✓ Up to \$10,000,000. Courts have used this authority to articulate a due diligence defence which aligns well with the ISO 14001 management system approach.</li> </ul>
	DWQMS, O. Reg. 170/03	Requires a quality management standard for drinking water systems. It is primarily based on the ISO 9001 and HACCP for the food industry, and has a strong foundation for an ISO 14001.
	<i>Municipal Act</i>	2006 amendments recognized possibility for municipalities to adopt voluntary measures for accountability and transparency.
	Licensing of operators – O. Reg. 129/04	Requires certification of sewer works operators with minimum requirements of training. Similar to ISO 9001 and ISO 14001 competence requirements
	Environmental Penalties, O. Reg. 222/07	Encourages regulated persons to implement EMSs, and reduces penalties for entities having a valid “ISO 14001 certification”
	<i>Infrastructure for Jobs and Prosperity Act, 2015</i>	Requires the preparation of infrastructure asset management plans, ... planning to maintain ecological & biological biodiversity, and resilient to the impacts of climate change.
	<i>Water Opportunities Act, 2010</i>	Fosters water, wastewater and stormwater innovation in services and practices in the private and public sectors. S.28 identifies the need to identify municipal water utilities’ performance indicators and targets
<i>Development Charges Act, 1997</i>	2015 amendments require municipalities to have an asset management plan prior to passing any development charge by-laws.	
Municipal	EMS for Municipal Infrastructure – Env. Protocols, 2005	Guidance document based on ISO 14001, by the Federation of Canadian Municipalities and the Canadian National Research Council
	Adoption of ISO 14001 standard for wastewater systems	<i>Mandated via court decisions:</i> Calgary, Winnipeg, Alberta Capital Region Wastewater Commission.  <i>Voluntary</i> <ul style="list-style-type: none"> <li>✓ <i>Accredited:</i> Halifax, St. John’s, Burnaby, Vancouver, Durham Region, London, York Region, &amp; Richmond Hill</li> <li>✓ <i>Non-accredited:</i> Collingwood, Ottawa, and Hamilton</li> </ul>
		<i>Under development (Ontario):</i> City of Toronto, Halton Region, City of Barrie, and Peel Region



## Use of Management System Standards in Water Policy

As reported at a 2016 Municipal Water and Wastewater Regulatory Committee seminar,<sup>3</sup> in addition to a handful of municipalities who already have some form of EMS (Table 1) there are currently four Ontario municipalities developing EMS standards pursuant to ISO 14001.

Table 1 also outlines other municipalities outside of Ontario adopting ISO 14001 (EMS) such as Calgary (2002), Edmonton (2004), Winnipeg (2004), Regina (2014) and Halifax Water (2014). It can be seen that adoption of EMS is a phenomenon not limited to Ontario. First Nations' reserves in Ontario account for 180,000<sup>4</sup> population, and management systems of any kind remain as an opportunity noting that these communities are outside the jurisdiction of the Ontario EPA, OWRA, and DWQMS.

## The Research Approach

This research underlying this policy brief involves a multi-method approach using non-experimental methods based on surveys and qualitative research (semi-structured interviews, a focus group, and case studies).

Central concepts underlying this research pertain to **governance** and to **policy convergence** (and related concepts of policy transfer and policy diffusion). With respect to governance, research suggests that scholarly and governmental understanding of is evolving from state/government centric focus (Sinclair, 1997), to more open-ended conceptions that variously recognize roles for private sector and civil society governance approaches, variously referred to as collaborative governance, multi-level governance, participatory governance, global governance and policy networks, among others. The conception of governance that seems to most closely align with a non-government focused approach to environmental regulation of municipal water issues in Ontario is the sustainable governance approach (Webb, 2005), which among other things notes that a combination of state and non-state rule instruments, processes, institutions and actors can be involved in addressing a particular issue (such as addressing municipal water issues), where non-state actors may independently develop regulatory approaches, not part of a pre-determined, state-orchestrated regime, that may in some dimensions involve state/non-state collaboration, and in other dimensions or cases a certain amount of rivalrous check and balance state and non-state activity.

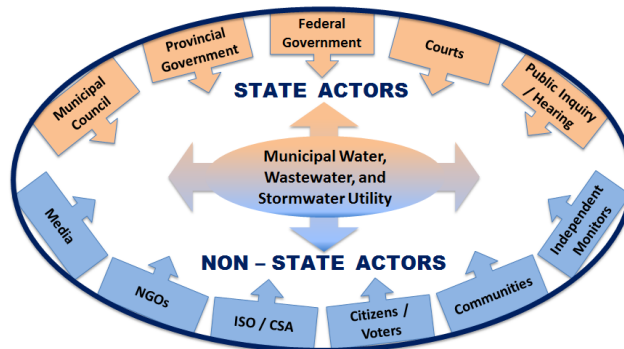
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<sup>3</sup> Municipal Water and Wastewater Regulatory Committee (NWWRC) is an forum formed in 2007 by Ontario municipalities on a voluntary basis with the purpose of having information exchange and mutual support for the implementation of the DWQMS

<sup>4</sup> Indigenous and Northern Affairs Canada: <https://www.aadnc-aandc.gc.ca/eng/1100100020284/1100100020288>



Figure 1. Sustainable Governance Perspective – Ontario Municipal Water Governance and Management



A sustainable governance diagram is illustrated in Figure 1, describing the arrangement of state and non-state actors surrounding municipal water governance issues. As depicted, municipalities are at the centre of a “sustainable governance” model with state and non-state actors, all of which provide some form of regulatory and non-regulatory stimuli for improved water management.

Here the term **non-state** is preferred, because it allows for optimal nuanced recognition that in the “non-state” category there can be some initiatives where the **private sector** plays lead roles, others where **civil society** actors play lead roles, and sometimes there may be combinations with other actors (such as those developed by non-state organizations such as ISO and CSA, that involve stakeholders from government, the private sector and civil society).

This research project also draws on the concept of **policy convergence** to examine the value and use of non-state MSS approaches and how they are now increasingly being used in Canadian state-based environmental regulation contexts. The research for this policy brief draws on previous research by Tovilla and Webb (2017) that indicates ISO QMS and EMS standards appear to be forming a conceptual “bridge” between state and non-state forms of policy and regulation.



## **Findings & Policy Options**

Preliminary analysis suggests three main policy paths available for Ontario municipalities:

- (1) **Status quo.** Involves municipalities continuing a gradual, slow integration to voluntarily develop and adopt elements of EMSs. Under this scenario municipalities and the Canadian legal system continue to provide a backdrop of pressure towards adopting management standards, without explicitly requiring that municipalities adopt EMSs.
- (2) **Mandated ISO 14001.** This involves a provincial requirement for municipalities to adopt an EMS based on the ISO 14001.
- (3) **Multi-variable approach.** This would involve building an umbrella of regulations and policy tools, which could involve an array of voluntary and mandated tools, to mirror the drinking water permit regime. This could involve not only a MSS, but also financial planning, minimum technical design criteria, and other requirements, where some of these requirements may have a phased in period of time and some form of financial and regulatory incentives.

Fundamental for all three options is the central role that municipalities are playing in the governance of water management (see Figure 2), operating within a sustainable governance framework to address current perceived regulatory gaps, system needs of applying consistent approaches, and challenges of uncertainty in provincial regulation, population growth, urbanization, aging infrastructure and workforce.



## Geoffrey F. Bruce Fellowship in Canadian Freshwater Policy

### Bruce Fellowship Support

Funds for the Fellowship were applied in 2018 to advance this research as follows:

- Holding a focus group session, including room fee, note takers (two graduate students)
- Registering and paying for three writing retreats (Feb, Aug and Nov 2018)
- Transportation to attend two conferences and five interview meetings
- Printer, ink, internet service, and miscellaneous expenses
- Tuition fees

In 2018, the following presentations were made at provincial, regional, and national conferences:

- MECP, OMAFRA, OCWA Engineers Professional Development Day, Toronto, ON, May 2018
- Canadian Water & Wastewater Association (CWWA) conference, Montreal, QC, Nov 2018
- Municipal Engineers Association (MEA) annual workshop, Thunder Bay, ON, Nov 2018
- Municipal Stormwater Management Discussion Group, Guelph, ON, Sep, 2018
- Canadian Standards Association (CSA Group) & MECP, Toronto, ON, Dec 2018





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