



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

**Ontario's Water Policy Through a Groundwater Lens  
Insights from Media Coverage of Groundwater Issues 2000-2020**

A policy brief by

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## **INTRODUCTION**

In Ontario, when the city of Walkerton succumbed to *Escherichia coli* and *Campylobacter jejuni* bacteria contamination in the town's drinking water supply on May 2000, it served as a wake-up call in the province to bring focus towards water resources governance. This tragedy highlighted the significance of groundwater wells supplying drinking water to residents in Walkerton following heavy rainfall that caused surface water run-off from a nearby farm to enter Well 5 and contaminate this drinking water source. Seven people died and over 2300 people became ill due to this poisoning event (O'Connor 2000; Michaels et al. 2006). The years following the Walkerton tragedy have seen significant water policy reform and public engagement on water issues in the province of Ontario to ensure that this tragedy is not repeated again.

Although there has been a heightened awareness related to safe drinking water in Ontario, groundwater in particular receives far less focus from the public and decisionmakers due to its 'out of sight' nature (Varady et al. 2013). In Canada, nearly 10 million people rely on groundwater for their daily needs (Bruce 2011), and Ontario groundwater supports 28.5% of the population's drinking water supply (Government of Canada 2013). Historically, a resource traditionally linked with rural communities, industry and agriculture, it is now projected that groundwater will increasingly play a role in accommodating population growth worldwide (Howard 2015) and in Canada and cannot afford to be neglected.

In their attempts to remediate the lack of attention to groundwater, global organizations like the Global Environment Facility, Food and Agriculture Organization of the UN, UNESCO's International Hydrological Program, International Association of Hydrologists and the World Bank, developed *Groundwater Governance – A Global Framework for Action Plan*. This plan identified two main areas of focus to target regarding groundwater: to increase awareness on groundwater issues, as well as to develop and promulgate universally adaptable groundwater governance benchmark criteria and solutions (Groundwater Governance Synthesis Report 2012).

Using these international standards, this policy brief presents findings on groundwater governance measures and public awareness around groundwater in Ontario over the past 20 years since the Walkerton water pollution tragedy. Provincial policies and newspaper media reporting in Ontario around groundwater are examined to derive on recommendations and findings.

## **GROUNDWATER IN ONTARIO**

Ontario has been shown to be the province most reliant on groundwater according to Environment Canada's Municipal Water-Use Database (MUD). This database only captures the groundwater supplied through municipality water systems hence true numbers of groundwater total use are anticipated to be larger as well as proportionately different given that the smaller public water systems, industrial and agricultural consumption, as well as private wells are unaccounted for in this data. Municipal drinking water reliance on groundwater in Ontario also shows a declining trend since peaking in the late 80s. West Coast Environmental Law has derived estimates for provincial and territorial dependence on groundwater in Canada, where

Ontario shows 35.1% industrial use, 27.3% agricultural, 23.9% municipal, 5.6% commercial and institutional, and 8.2% in other categories (Rutherford 2004).

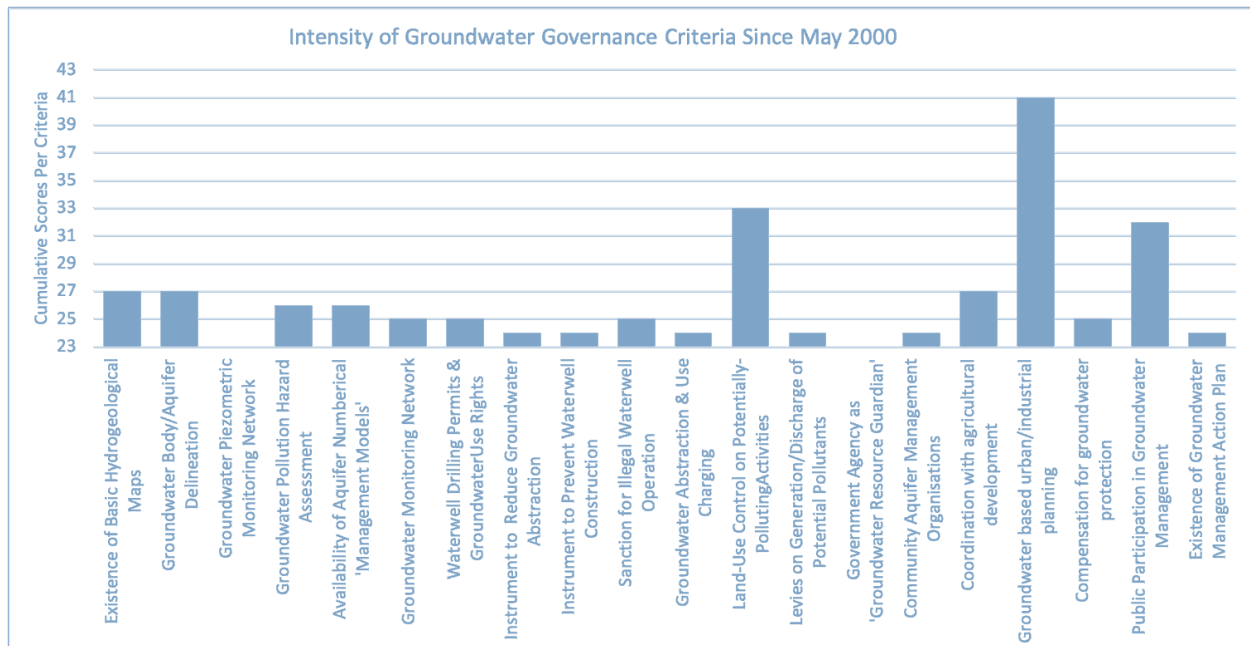
Since the Walkerton tragedy, new laws such as the *Safe Drinking Water Act* (2002), *Nutrient Management Act* (2002), *Clean Water Act* (2006), and *Water Opportunities and Conservation Act* (2010) and *Great Lakes Protection Act* (2015) have been adopted by Ontario incorporating many aspects of water and groundwater governance have positioned it as a leader and exemplar to follow in many parts of the world for water governance (Ogunba 2012). Initiatives towards groundwater also come from several other statutes and policies. Regulations under the *Building Code Act*, *Endangered Species Act*, *Environmental Assessment Act* and *Fire Protection and Prevention Act*, indirectly target and give considerations for groundwater in the province. In these policies, priority is often given to infrastructure integrity, citizens health, and species recovery with groundwater being a secondary focus. Some of these policies are not water-centric but nonetheless have important implications for groundwater governance in the province.

## **GROUNDWATER GOVERNANCE**

The concept of governance is more expansive than ‘government’ and includes the institutions, stakeholders and people who share a common goal with responsibilities, and the official and unofficial decisions and processes that move towards their goal (Saunier and Meganck 2007). While researching governance structures of institutions around groundwater management in California, leading Nobel laureate scholar, Elinor Ostrom generated eight governing principles to be applied towards the management of common pool resources such as groundwater. These eight governing principles are: 1) Commons need to have clearly defined boundaries; 2) Rules should fit local circumstances; 3) Participatory decision-making is vital; 4) Commons must be monitored; 5) Sanctions for those who abuse the commons should be graduated; 6) Conflict resolution should be easily accessible; 7) Commons need the right to organize; and 8) Commons work best when nested within larger networks. Adopting these governing principles, the World Bank’s Groundwater Management Advisory team (GW-MATE) have developed 20 benchmark criteria to be established for sound groundwater governance.



**Figure 2: Groundwater Governance 20 Benchmark Criteria in Ontario**



The analysis of the groundwater governance benchmark indicators for provincial initiatives of Ontario in the past twenty years since the Walkerton Tragedy are shown in Figure 2. It is clear from this analysis that provincial groundwater initiatives are predominantly focused on land-use control on potentially polluting activities; urban and industrial planning that takes into consideration the needs of groundwater; as well as measures to engage the public in groundwater management in the province. Areas that are given little or no attention in policy include measures of prevention such as instruments to reduce groundwater extraction and water well construction; as well as the institutional priority of groundwater within the provincial Ministry of Environment, Conservation and Parks or the provincial government generally. Similar to water policy more broadly in the province, policies and initiatives related to groundwater focus more on groundwater quality than they do on water quantity.

### **MEDIA, POLICY, AND ENVIRONMENT**

The low priority of groundwater in Ontario is also reflected in the media coverage of groundwater issues. Traditional media play an important role in reflecting public opinion and public policy. The traditional media outlets function in a symbiotic relationship with political institutions and the policy making process (Holt et al. 2012). Local newspapers in particular are a significant source of environmental information for the public (McCallum et al. 1991) and it has been shown that local newspapers can adopt frames and narratives significantly different than the ones at play in the national and international sphere (Lawhon & Makina 2017) shaping policy discourses and influencing public opinion.

Positive framing in news reporting is generally associated with positive public opinion towards the issues presented, and it has been shown that positive framing aids in the adoption



of both new policies and innovative technologies by the public (Ormerod & Silvia 2017, Whiting et al. 2019). Thematic and episodic frame elements correspond with causal stories and responsibility related to an issue. Thematic frame elements attribute responsibility towards society, government and institutions and hence support public policy measures, while episodic frame elements attribute responsibility to individuals taking away from societal responsibility (Iyengar 1990).

**Table 1: Newspapers Examined in the Study**

<i>Newspaper</i>	<b>Total articles addressing groundwater *</b>	<b>Articles meeting a threshold of 8 mentions</b>	<b>Weekly Circulation (Print + Digital) 2015**</b>	<b>City/Town</b>
<i>Toronto Star</i>	1154	16	2,397,691	Toronto & Ontario
<i>Ottawa Citizen</i>	1071	18	626,272	Ottawa
<i>Waterloo Region Record</i>	1541	56	338,441	Kitchener-Waterloo
<i>The Windsor Star</i>	678	16	325,360	Windsor
<i>Chatham Daily News</i>	441	62	32,372	Chatham
<i>Expositor</i>	849	18	108,676	Brantford
<i>Sault Star</i>	530	14	59,680	Sault Ste-Marie
<i>The Spectator</i>	831	15	686,450	Hamilton
<i>Sun Times</i>	670	12	84,457	Owen Sound
<i>Total</i>	7765	227		

Examining the nine newspapers listed in Table 1, it was found that groundwater is an issue of low salience in Ontario and where groundwater is covered in news outlets, it received predominantly neutral framing and a mix of episodic and thematic elements in its reporting over the past 20 years since the Walkerton tragedy and inquiry. There is no consistent positive or thematic framing since the Walkerton tragedy to signify that there is positive public opinion and mobilization around groundwater issues in the province of Ontario.

Mirroring the general public attention to water issues in the province, groundwater newspaper media data reflects a decline in quantity of reporting on groundwater issues. There are some exceptions with local coverage such as the *Chatham Daily News* due to the conflict and coverage related to wind farms in the region. The *Toronto Star* and the *Ottawa Citizen* which have wider readerships across the province have shown consistent thematic framing over time. The most significant emergent frame across all newspapers was that the province has been neglectful towards groundwater resources. Other emergent frames include: the province needs to invest much needed funds to assist municipalities with groundwater issues and management; the province must take a leadership role on groundwater policy; the province is unable to enforce legislation to protect groundwater; and the province at some times has been seen as misleading the public on groundwater issues. The prevalence of these frames suggests that many leaders of groundwater governance activism in Ontario believe that



the provincial government needs to make more efforts towards groundwater so that the long-term sustainability of groundwater resources can be protected and well managed.

## **RECOMMENDATIONS**

Over the past 20 years there has been sustained policy, media and community attention to groundwater resources in Ontario. Despite significant policy momentum and public engagement on water resource management in Ontario following the Walkerton tragedy, the policy and media analysis in this research indicates that groundwater resource management needs further attention in the province. The following are some recommendations which flow from this research:

- 1) Ontario needs to incorporate the 20 international groundwater governance benchmark criteria identified by the World Bank's Groundwater Management Advisory Team (GW-MATE) into its groundwater policies
- 2) Ontario needs to develop a Groundwater Management Action Plan for the province with goals and targets to preserve and enhance the sustainability of groundwater resources over the short, medium and long-term.
- 3) Ontario should establish/assign a provincial government agency/unit with a clear groundwater policy mandate leading resource knowledge acquisition, capacity building, legal frameworks, monitoring networks, cross-policy sector communications and governance strategies.
- 4) Ontario needs to bridge the groundwater quantity and quality policies, knowledge and management through measures such as; Groundwater Piezometric Monitoring Network, explore instruments to reduce groundwater abstraction, and instruments to monitor water well permitting, construction and maintenance.
- 5) Ontario needs to invest and allocate funding for groundwater science and policy initiatives in Ontario under existing statutes such as the *Great Lakes Protection Act* (2015); *Safe Drinking Water Act* (2002), *Clean Water Act* (2006), and under the existing 22 Source Protection Plans and work with Conservation Authorities on groundwater policies and action plans at the watershed scale.
- 6) Ontario should have groundwater representatives and experts on the Great Lakes Guardians Council and Annex 8 committee of the Great Lakes Water Quality Agreement.
- 7) Ontario should generate government communication and media focus on groundwater away from negative, crisis, contamination and uncertainty towards positive, socio-economic significance of groundwater and climate change adaptation capacity related to groundwater.
- 8) Ontario should invest in groundwater science and policy research, including Indigenous ecological knowledge related to groundwater.
- 9) Ontario should work with municipalities, Conservation Authorities and communities at the watershed scale to develop partnerships related to groundwater science and management.
- 10) Ontario should work with First Nations communities that are reliant on groundwater.

## CONCLUSION

Groundwater policy analysis and media analysis of the coverage of groundwater issues in Ontario indicates that groundwater is critically important in Ontario, particularly in some communities that are highly reliant on groundwater for drinking water and other uses. However, despite some increased attention to groundwater issues in the 20 years following the Walkerton Inquiry, the attention to groundwater has waned in keeping with classical theory by Anthony Downs (1972) that predicts the issue-attention cycle of ecological issues come and go from the policy agenda. The attention to groundwater will only become more pressing given the context of climate change, urbanization and increasing reliance of agriculture for local food production.

The policy analysis in this research indicates that the provincial government does have the legal and policy foundations to improve groundwater resource management in the coming years. However, groundwater science, data and policy frameworks are lacking and sustainable development is not a core principle of groundwater policy in Ontario. The international community has developed important criteria that could be valuable for Ontario. This policy brief contains some insights and recommendations that may provide some guidance for Ontario and a call for making groundwater policy more central to water policy in the province.

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