**Enhancing Source Water Protection in Rural Regions: Exploring the Role of Governance and Capacity** Building

Sarah Minnes, PhD Candidate, Memorial University of Newfoundland *International Forum on Integrated Water Management* Wednesday, November 2, 2016

# Why Protect Drinking Water at the Source?

• "Crisis with water is in fact a management problem, rather than a scarcity problem" (OECD, 2011)



 A lack of SWP can pose both human and environmental risks

#### **Economic Importance**

- Walkerton was estimated as costing over \$64.5 million (not including the unquantifiable cost of human life)
- Lessens filtration and treatment costs
- Ratio of benefits of avoiding contamination to the costs of source protection programs ranges from 5:1 to 200:1 (USEPA)



### Clean Water Act, 2006

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Testino

Water Treatme

Drinking

#### <u>Related Provincial and Municipal</u> <u>Legislation</u>

- •Municipal Official Plans and By Laws
- •Planning Act
- Provincial Policy Statement
- •Oak Ridges Moraine Conservation Act
- •The Niagara Escarpment Plan
- •Greenbelt Act
- •Places to Grow Act
- •Nutrient Management Act
- Building Code Act

# Other Water Related Ontario

#### Legislation

- Ministry of the Environment and Climate Change
  - Water Opportunities and Water Conservation Act
  - Environmental Protection Act
  - Ontario Water Resources Act
  - Safe Drinking Water Act
  - Environmental Assessment Act
  - Environmental Bill of Rights

- Ministry of Environment & Ministry of Agriculture & Food
  - Nutrient Management Act
- Ministry of Natural Resources
  - Lakes and Rivers Improvement Act
  - Public Lands Act

(North Bay - Mattawa Conservation Authority, n.d)

#### Governance Under the CWA



#### Wellhead Protection Area



(Cataraqui Region Conservation Authority; Cataraqui Source Protection Committee, 2011)

#### **Intake Protection Zones**



(Cataraqui Region Conservation Authority; Cataraqui Source Protection Committee, 2011)

#### **Research Questions**

- What have been the successes and challenges with source water protection planning and implementation of source protection plans in ON?
- Did the source water protection planning process in ON build capacity for water and watershed governance, particularly in rural areas?
- What would be the potential benefits and challenges for rural regions in other provinces in Canada if they were to adopt a similar planning and implementation process?

#### Methodology

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#### The Clean Water Act

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## **Theoretical Underpinnings**

Governance	<ul> <li>Legislated process/</li> </ul>	<ul> <li>Trust building and</li> </ul>
	organized structure	transparency
	<ul> <li>Integration</li> </ul>	• Fairness
	• Right actors at the table	<ul> <li>Adequate resources and</li> </ul>
	Shared ownership and	capacity
	accountability	<ul> <li>Common benefit evident</li> </ul>
	Knowledge sharing and	• Evaluation, adaptability, and
	learning	flexibility
	Public participation	
Capacity	<ul> <li>Institutional</li> </ul>	• Social
	• Financial	<ul> <li>Technical/human</li> </ul>
SWP Best	• Scope	Decreased contamination
Practices	<ul> <li>Integration</li> </ul>	risks
Tuctices	<ul> <li>Improvement of water</li> </ul>	<ul> <li>Water quantity safeguarded</li> </ul>
	quality	
Policy	Policy context	<ul> <li>Policy being transferred</li> </ul>
Transfer	Policy problem	



### **Preliminary Findings**

- Great for baseline information gathering and data sharing
- Great for communication



- Legislation provides needed teeth
- Conservation Authorities the "honest brokers"

## **Planning for the Future**

- Annual reporting important function
- Keeping science updated is imperative
- Emerging issues not under prescribed *drinking water threats* list (e.g. pharmaceuticals)
- Source water protection versus watershed management
- Uncertainty of implementation funding has municipalities "hand cuffed"

#### **Rural**?

- Current process excludes <u>mandatory</u> (can opt in) protection for:
  - Private wells
  - First Nation communities
- No mandatory protection but it will "rub off"



#### Trout Creek Groundwater Study Pilot

- Unserviced village part of the Municipality of Powassan with clusters of individual wells
- Hydrogeological studies (travel assessments) undertaken to identify WHPA's
- Any septic system within 100m of any well in Trout Creek was automatically identified as a *significant risk* based on MOECC technical criteria
- Serious concern regarding impacts on house re-sale, withdrew from the plan

(North Bay - Mattawa Conservation Authority, 2013)



#### Policy Transfer for Rural Ontario

- Should the CWA expand into unserviced rural areas?
- How could drinking water source protection plans be prepared for unserviced rural areas in Ontario?
  - Just settlements areas (i.e., villages, hamlets, towns)?
- Considerations:
  - Extent and reliability of private water treatment is variable
  - Impact on housing prices
  - Continued funding for implementation measures
  - Etc.....

## Next Steps

- Completion of field interviews
  - Analysis
- Paper 1- ON findings
- Phase 2 of research- TBA
- Paper 2- Transferability of CWA for rural areas
- Paper 3- Final findings on ON SWP for rural regions in Canada
- Final dissertation/defense





## Questions??



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