

Bottled Water Use On the Land: Economic, Social and Policy Implications of Water Consumption Choices While Pursuing Livelihoods and Undertaking Recreational Activities

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Challenge

Defensive expenditures on bottled water for home use are related to: incomes, aesthetics (taste, convenience) and health risk perceptions (Dupont and Jahan, 2010; Lloyd-Smith et al., 2014). The previous literature is silent on two issues of relevance to WEPGN's mandate of improving understanding of water's role in Canadian society and economy. The first issue is identifying what are the determinants of water consumption choices on the land (particularly, water used in pursuit of livelihoods and/or recreational activities that require travel from home, including trapping, hunting and fishing practices). The second is an investigation of water choices and health risk perceptions of individuals in Canada's Northern communities. Nickels et al., (2006) notes the use of bottled water by Aboriginal peoples as a substitute for streams/ivers due to perceptions of poor water quality. Project partners are interested in learning whether this is an increasing phenomenon in the Northwest Territories (NWT). This is of concern for two reasons: such expenditures may be wasteful for individuals and also result in potential pollution. The research team will design and implement a survey to elicit perceptions and relate them to defensive expenditures. Researchers will also examine methods for communicating and eliciting risk perceptions to provide the project partners with knowledge to improve communications about water quality. This research will inform decisions around programming, specifically, source water protection planning.

Project

The proposed research (development/administration of a survey in the NWT) builds upon existing knowledge in two important ways. First, it investigates use of water substitutes by peoples of the North (both Aboriginal and non-Aboriginal people) and individuals who pursue traditional trapping, hunting, or fishing livelihoods on the land. Nickels et al., 2006 note that Aboriginal peoples have chosen to purchase bottled water as a substitute for river/stream water, due to fears of poor water quality. There is an absence of research on Aboriginal peoples that combines a focus on risk communication and elicitation with survey tools designed to reveal water consumption choices.

Second, the survey will evaluate the efficacy of alternative graphical/visual representations of risk (Corso et al., 2001; Ancker et al., 2006) at reducing biases in perceptions that can arise through the use of heuristics to process complex information (Lloyd, 2001). The approach is novel since we will combine the diverse expertise of the team (economics, psychology, sociology, geography, and natural resource studies). This is important since risk assessment is context driven and transdisciplinary in nature. Furthermore, by working with two different groups (livelihoods and recreationists) the project will examine the extent to which they respond to and/or require different risk information tools and/or risk

elicitation methods. Partners will be able to apply what is learned to improve their communications about water quality to residents of NWT.

Outputs

Anticipated Outputs include:

- Obtain historical water quality data collected by communities.
- Develop a survey instrument and collect/analyze the data.
- Using GIS map water quality measures over time and correlate them with locational information collected from surveys.
- Compare objective water quality data with elicited risk perceptions to inform the design of messages about water quality and where/how to target programming decisions pertaining to source water protection planning.
- Examine data on bottled water expenditures and disposal choices. This can be used to support their source water protection mandate and to assist decision-making around resilience and sustainability of traditional livelihoods.

Outcomes

The project aims to achieve the following outcomes:

- Strengthen relationships with partners. Inclusion of community members will provide a set of residents with on-the-ground experience in the challenges of survey design and implementation and data collection and, more importantly, how to take academic research knowledge and create value added knowledge that can be directly used by partners and local communities.
- Increased knowledge. The project will provide key baseline data on current water choices, subjective risk perceptions and how these differ from objective measures of water quality for the communities studied.
- The project will also provide insight into the type of elicitation / communication tools that may be best in this context. These data can be used for comparison purposes over time in order to track how better communication of risks can alter behaviours.
- The survey tool and risk communication and elicitation tools will assist future researchers in their endeavours to better understand behaviour in the face of uncertainty, particularly, with respect to water and health risks.
- Changes in practice/adoption into practice. For the partner, understanding the perceptions of risk and behavioural choices related to consumption will: 1) contribute to targeted outreach and public education on water quality and ecosystem health in the NWT, as part of WRD's Watershed Programs and Partnerships unit; 2) support adaptation of existing programs (e.g., community-based aquatic ecosystem health monitoring and source water protection planning), by providing additional important information about community values, behaviours and attitudes that can be paired with information gathered through ongoing program development and delivery (e.g., existing community workshops, focus groups, meetings, interviews, etc.); 3) potentially contribute information to technical reviews of water license applications carried out by WRD's Regulatory

- unit; and, 4) point to areas where new programs may be needed and would benefit communities, in response to changing consumption practices and risk perceptions.
- Results of this study will support the partner to continue to develop programs that are responsive to community needs and in addressing community concerns about aquatic ecosystem health. It is also anticipated that work of the nature could be potentially repeated at periodic intervals to assess trends in people's risk perceptions and behaviours over time.

Research Team and Partners:

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Highly Qualified Personnel (HQP):

TBD