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Canada's Approach to Supporting Clean Drinking Water for First Nations

-Public Health Perspective-

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Purpose

- To present successes, challenges and path forward of the Canada's Approach to Supporting Clean Drinking Water for First Nations from a public health perspective.



*Illustration courtesy of Jeremy Francis,
Eel Ground First Nation, 2010*

Environmental Public Health Program

- Assist First Nations in the identification and prevention of environmental hazards in the natural and built environments that could adversely affect their health;
- Core areas are drinking water, wastewater, solid waste disposal, food safety, housing, facilities inspections, environmental communicable disease control and community- based research and emergency preparedness and response;
- Most services are delivered by Environmental Public Health Officers, who are certified public health inspectors employed by the government or directly by First Nations
 - Currently, 40% are employed by First Nations organization.

Public Health Components

- Assist communities to build capacity to verify the overall quality of drinking water at the tap, and reviewing, interpreting and disseminating results to First Nations;
- Support the monitoring of all drinking water systems (public and private);
- Provide advice, guidance and recommendations to First Nations communities about drinking water safety and safe disposal of onsite domestic sewage;
- Review water and wastewater infrastructure project proposals from a public health perspective; and,
- Provide training programs and develop various public awareness materials and resource tools.

Drinking Water

An Overview of the Quebec Region

28 First Nations Communities:

- 30 Public Water Systems (PWS)
- 25 Semi-Public Water Systems (SPWS)
- ~ 1500 individual wells - mostly located in 4 communities
- In 2013 the last Long-Term Drinking Water Advisory (LTDWA) lifted PWS and in 2017 for SPWS
- Do Not Consume drinking water advisory of individual private wells is still in effect for one community and is currently under review



Drinking Water

Monitoring activities over the years

- ~1970 : **Sampling and analysis by EHO** during on-site visits
Bacteriological Analysis 3 to 4 times / year – Millipore Portable Laboratory
- ~1980 : **Sampling and analysis by Community Health Representative (CHR)**
Limited Success – Complex Method – Millipore Portable Laboratory
- 1985 : **Sampling by CHR** – Mailing to a certified laboratory
Bacteriological Analysis once / month (Success~ 70%)
Delivery Time and Temperature Problems / Late Reporting of the Results
- 1989 : Availability of a database for the region's analysis results
- ~1998 : Start of H2O results database with **Web access to all users at any time**
- 2003 : Start of the **Community Based Water Monitor (CBWM)** program
Bacteriological Analysis once / week – Colilert Presence-Absence Method
- 2011 : **Use of reference materials** from the *Centre d'expertise en analyses environnementales du Québec* for the
monthly bacteriological quality control tests
- 2014 : **Began implementation of a semi-automated method;**
Automated Interpretation and internet transmission of the Sample Results

Drinking Water

Our success

Higher surveillance of drinking water quality through increased bacteriological sampling frequency

- Bacteriological Analysis once / week
- From 76 to 93% over the last 5 years

First Nations capacity building and skill recognition in drinking water quality monitoring activities

- Training offered to CBWMs to become certified under the provincial drinking water regulation (Q-2, r.40)
- Joint symposium for Water Operators and CBWMs



Environmental Public Health Program

Drinking Water

Outcomes of the Environmental Public Health Program's delivery in order to meet or exceed the Quebec drinking water regulation (Q-2, r.40) requirements.

Sampling:

- 8/month in First Nations communities vs. 2/month in non-First Nations communities (population <1000)
- Lead and Copper in children's facilities (Autumn 2017)
- Uranium and radioactivity measurement in private wells (Collaboration between First Nations, Province, Federal)

Use of the provincial drinking water quality guideline for parameters with more stringent limits than that of the Guidelines for Canadian Drinking Water Quality (i.e. Disinfectant by-products : HAA (60 versus 80µg/L) and THM (80 vs 100µg/L)

- Representative data for quarterly monitoring of disinfection by-products
- Vulnerability analysis of drinking water sources (project to come)
- Private wells inventory (project to come)

Through joint efforts with communities, progress is being made:

- All First Nations communities have access to trained personnel to sample and test drinking water quality at the tap since 2009.
- In all areas of monitoring - chemical, bacteriological and their analysis - there were measurable improvements.
- Raised public awareness, enhanced program activities and strengthened its procedures.
- Increased the G&C available to support Community-based Water Monitors to help recruitment and retention
- Implemented a plan for the new guideline for lead in drinking water so that schools and children's facilities will be prioritized
- Enhanced coordination and integration of health and infrastructure.

More work remains to be done

Additional Work Underway

- Number of individual wells on long-term Drinking Water Advisories is unknown, although work has begun to gather information on the number and location of individual wells.
- Working with partners to improve how vulnerable systems are defined, identified, and supported.
- Improving public awareness activities targeting First Nation leaders, administrators, and community members.

What we have been hearing:

- Support the design and implementation of water safety plans, including source water protection.
- Build in the FNHA approach of recognizing community strengths (e.g. whole water picture, not just a specific water system, cultural use) and community solutions.
- Recognize women as water caretakers.