

Department of Health Nunavut

Michele LeBlanc-Havard EHS to the CMOH Territory of Nunavut

Demographics

- Population of 36,919
 - Spread over 3 time zones in Northern Canada
 - 25 remote communities ranging in size from 192 – 7,543

Nunavut



Territory of Nunavut



Unique

- Nunavut's land mass is 20% of Canada with only 0.1% of Canada's population
 - Mass watersheds
 - Many considerations for treatment and protection

Canada's Drinking Water Regulatory landscape

Decentralized Regulations

- Canadian Drinking Water Quality Guidelines (CDWQG)
- Jurisdiction's responsibility

GCDWQ

1. Microbial
2. Chemical and Physical
3. Radiological
 1. 77 MACs
 2. 18 AOs/OGs

Nunavut's Water Regulations

Nunavut Water Board and AANDC

- Municipal use of water
 - Withdrawal of water
 - Storage of water



Public Water Supply Regulations DH

- Turbidity 5 NTU
- Color 15 Units
- Odor 3
- Chlorination
- List of 22 chemical parameters
- Radiological

Nunavut Water Board

- Each municipality/Hamlet operates via a “withdrawal and discharge” permit - Nunavut Water Board
- Fresh water
 - The terms and conditions of the permit are based on volume withdrawn from a surface water source and effluent deposited to a receiving water body
 - Specific to each municipality
 - Enforced by the federal government INAC

Public Drinking Water and Sewage Community Reality

- Distribution is via trucked delivery except for above ground utilidor
 - 3 utilidor communities – they also have a mix of above ground service and trucked

Community Drinking Water - Treatment

Treatment	Communities
Chlorination	All
UV disinfection	4
Cartridge Filtration	5 Another 4 under construction
Pressure media filtration	3
Slow Sand	2



Canada Wastewater Regulations

Harmonized Approach

- Pre 2012 was decentralized
- CCME Canada-wide Strategy for Municipal Wastewater (2009)
- Wastewater Systems Effluent Regulations (WSER)

WSER

- Came into effect in 2012
- Does not apply north of 54th parallel
- The northern jurisdictions and the federal government are engaged in development of performance standards for the Far North



NU Wastewater license requirements

Nunavut Water Board and INAC - WRTA, AWPPA

- Deposit of waste



Water Licence Requirements

- Site specific
 - TSS: 100 – 180 mg/L
 - BOD: 80 – 120 mg/L
- Becoming more stringent
 - Reflective of WSER

DH Sewage Regulations

- Less robust than the regs for drinking water
- Concerned primarily with situations posing a “health hazard”

Public Drinking Water

- Source water
 - Water quality is very good
 - Low turbidity
 - Low organics
 - Low metals
 - Low bacteria both TC and EC
 - May see between 3 -5 BWAs per year
 - No permanent BWAs in place

NU Wastewater Management

Predominant Treatment	Communities
Mechanical System	4
Lined Lagoon	6
Granular Lagoon	6
Natural Pond	4
Tundra Wetland	5



Impacts

	Southern Jurisdictions	Nunavut
TSS	25 mg/L	100 – 180 mg/L
BOD	25 mg/L	80 – 120 mg/L
Special Impact of effluent	kilometers	meters
Temporal impact	Annual millions liters per day	Weeks thousands liters per day

Water and Sewage Costs

- Water and sewage services
 - Responsibility of the resident/homeowner
 - Water rates are based on the sewage pump out service
 - You pay for pump out and then water use is calculated
 - Fees are set by the municipality/Hamlet
 - Typical water rates are \$150.00 dollars every 3 months for a family of 4 (heavily subsidized)

Infrastructure and Governance

- GN CGS provides financial and technical support to the municipalities (for the most part)
 - Operations and community infrastructure and development
- DH ensures the Public Health Act and Public Drinking Water Regulations are adhered to

Challenges

- Technically advanced system
 - Harsh climate
 - Remote locations
 - Cost
- Regulations
 - Application in the north
 - Public perception



Opportunities

- Appropriate Systems
 - Small communities
 - No industrial inputs
 - Unique climate
- Research
 - Science-based decision making
 - Inform policy development



Drinking Water Plan for Nunavut

- In preparation for new public drinking water regulations
 - A review of the water regulatory approaches in circumpolar regions, northern jurisdictions in Canada and the WHO with particular attention to guidelines and standards for safe drinking water and use of water safety plans

Study on Drinking Water

- Joint venture through CGS and DH with Centre for Water Resources at Dalhousie University, Halifax Nova Scotia
 - The study has recommended the DH adopt WSP into their regulatory framework
 - Making reference to the GCDWQ
 - A risk assessment tool has been provided that could be used to classify and guide each municipal operator in determining and providing specific water safety plan for their source water

Sewage

- The proposed approach for water is similar to what is currently done with sewage
- The NWB sets the criteria to be met for deposition of sewage
 - INAC enforces the water license
 - Ensures that the effluent deposition criteria is met

Community Based Service with Territorial Program Development



Water truck fill station



Sewage



Glimpse of Community Life

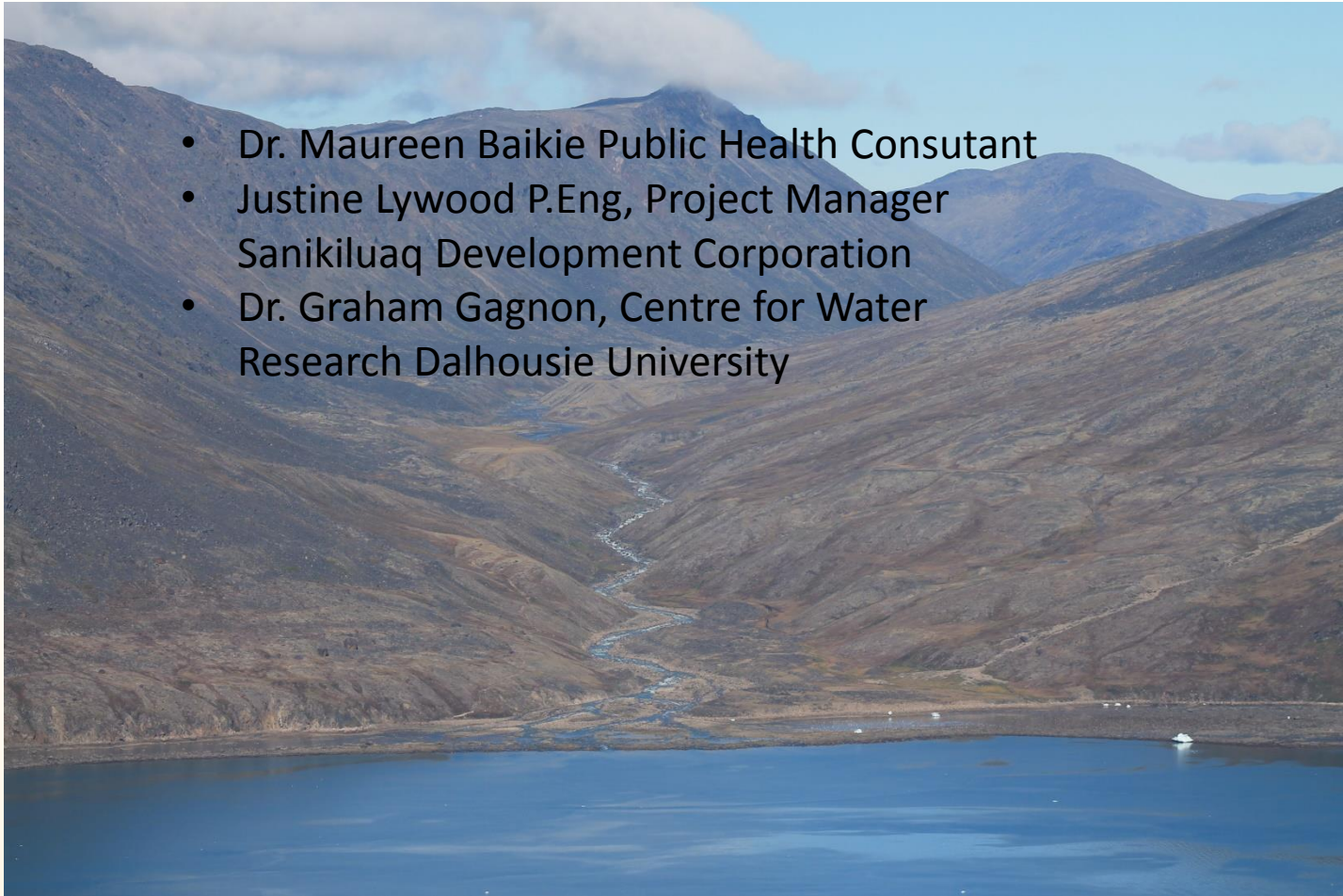


Pangnirtung Harbour



Thank You!

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Questions??

