

Drinking Water Safety Action Plan

Public Consultation Background Information Deck

October 2021

Drinking Water Safety Action Plan

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Overview

Goal of Drinking Water Safety Action Plan

To ensure the safety and sustainability of drinking water systems whether public, private, commercial, or institutional for all members of the public in Newfoundland and Labrador.

Driver- Minister's Mandate Letter

Premier's April 2021 Mandate Letter for the Minister of Environment and Climate Change calls for a provincial Drinking Water Safety Action Plan.

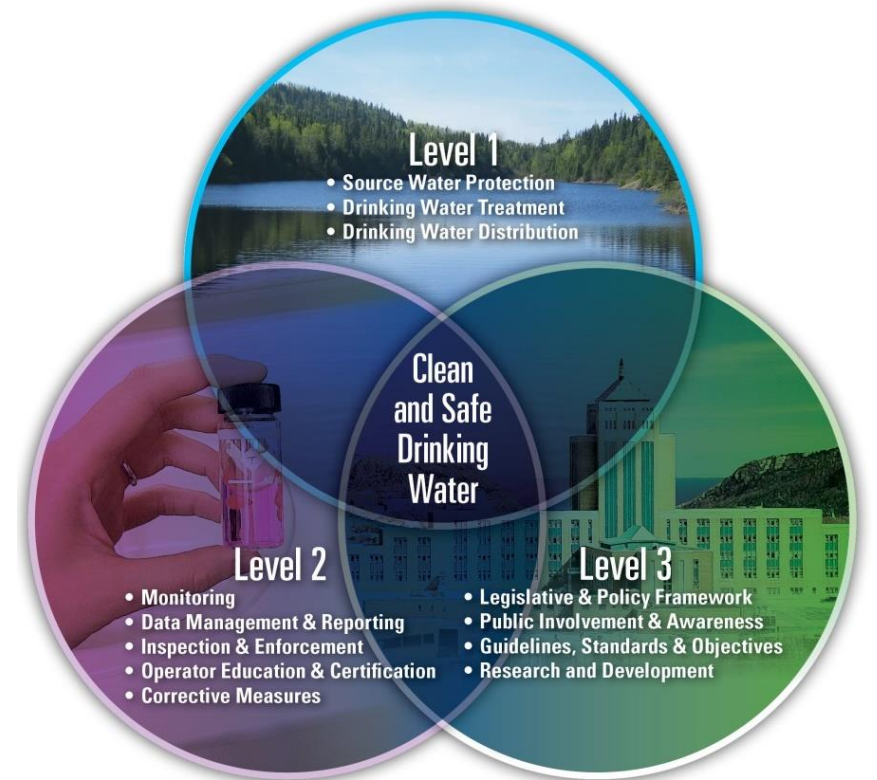
Minster of ECC Mandate Letter

Work with colleagues to develop a water quality action plan to address:

- Infrastructure
- Expertise
- Technology
- Roles of communities and the federal government
- Reduce the number of long-term boil water advisories

Driver- MBSAP

- The Multi-Barrier Strategic Action Plan (MBSAP) for drinking water safety was originally adopted 20 years ago in 2001
- Time to update the framework for drinking water safety in NL

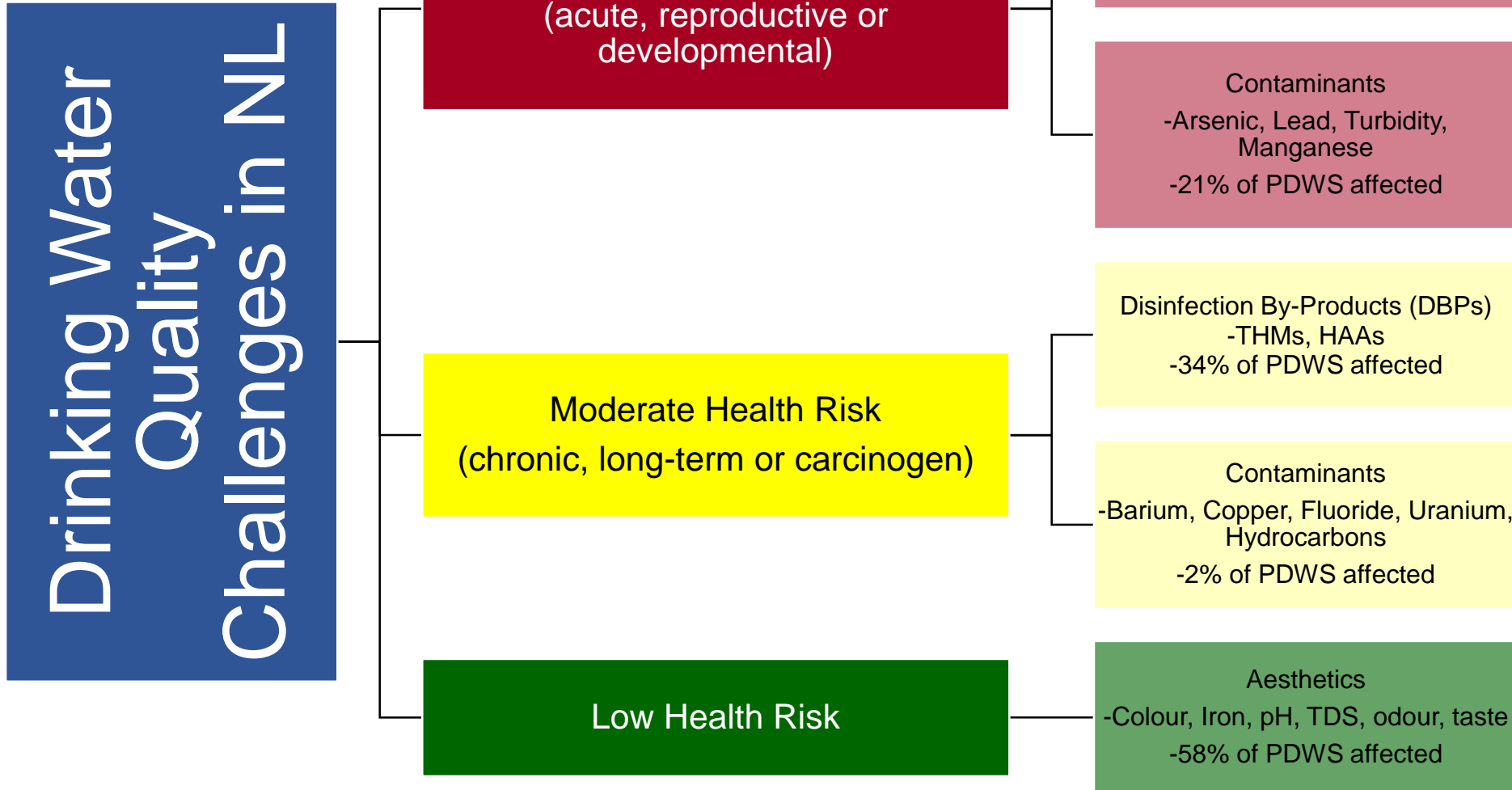


Snapshot of Drinking Water Systems

- 86% of NL population (442,308) serviced by **public** drinking water systems
- 479 public water supplies:
 - 37% (179) of public water supplies are groundwater
 - 63% (300) of public water supplies are surface water
- 67% (319) of public water supplies are protected
- Over 30,000 **private** drilled wells and equivalent number of dug wells servicing individual homes (numbers come from drilled well database and extrapolated on a 1 to 1 bases for dug wells)
 - Servicing a population of approximately 109,140
- Over 1000 **commercial/institutional** (formally **semi-public**) water supplies servicing day care centers, B&Bs, personal care homes, schools, etc.
 - 600 full time
 - 400 seasonal
 - Serviced population transient and uncertain

Mandate and Responsibilities of Stakeholders

| Health and Community Services | DGSNL | Environment and Climate Change | Transportation and Infrastructure | Community | Owner (Semi-public and Private) |
|--|---|---|--|--|--|
| <ul style="list-style-type: none"> ▪Bacteriological analysis (6 public health/hospital labs) ▪Provide advice on health aspects of drinking water ▪Develop policies and guidelines relating to health aspects of drinking water ▪Issue non-consumption advisories (NCA) | <ul style="list-style-type: none"> ▪Collect bacteriological samples ▪Issue BWA and NCA ▪Input data into BWA and bacteriological database (MIMS) •Environmental permits for private and semi-public systems >4546 L/d under WRA ▪Environmental approvals for private and commercial/institutional systems <4500L/d under Sanitation Regulations | <ul style="list-style-type: none"> ▪Source water protection ▪Chemical/physical water quality sampling ▪Environmental permits and inspections of public drinking water systems ▪Operator training ▪Water quality and BWA reporting ▪Guidance to Service NL on private systems > 4500 L/d ▪Guidance on domestic drilled and dug wells | <ul style="list-style-type: none"> ▪Capital works infrastructure funding <div data-bbox="1274 911 1689 1035" style="background-color: #002060; color: white; text-align: center; padding: 5px; font-weight: bold;">Municipal and Provincial Affairs</div> <ul style="list-style-type: none"> ▪Municipal training ▪Other drinking water system funding (gas tax, special assistance) | <ul style="list-style-type: none"> ▪Meet requirements of the Permit to Operate ▪Set water rates ▪Submit capital works funding applications ▪Operation and maintenance of the drinking water system | <ul style="list-style-type: none"> ▪Construction, operation and maintenance of the drinking water system ▪Follow Well Drilling Regulation requirements ▪Follow Sanitation Regulation requirements for private drinking water supplies |



¹ PDWS- Public Drinking Water System

² Percentages are approximate

Guidelines for Canadian Drinking Water Quality (GCDWQ)

- GCDWQ contain maximum acceptable concentrations (MAC) for all drinking water quality parameters with a health concern
- GCDWQ contain aesthetic objective (AO) value for parameters which are of aesthetic concern but not health concern
- Pathogenic contamination has immediate health impacts in terms of waterborne diseases associated with acute and chronic illness, while chemical contamination has long-term health impacts

Waterborne Outbreaks

- 10 confirmed waterborne disease outbreaks in NL from 1983-present
 - 8 giardia
 - 2 unknown
- Last official outbreak occurred in 2002
- Local populations may have developed a tolerance or immunity that can hide local, chronic problems while leaving visitors vulnerable to infection
- More than one mechanism was involved in contributing to each outbreak and often vulnerable conditions had been in place for years

BWAs

- BWAs are issued to protect public from risk of waterborne pathogens and to prevent waterborne disease outbreaks
- BWAs are used as precautionary and preventive tools to protect consumers against any potential microbiological contamination of drinking water
- BWAs are issued as a result of:
 - Confirmed microbiological contamination
 - Possible risk of microbiological contamination
- Each BWA is unique in the reason for its issuance
- As of Oct 15, 2021 there were 216 BWAs issued in 176 communities affecting a population of approximately 59,300

BWA and Long-Term BWA

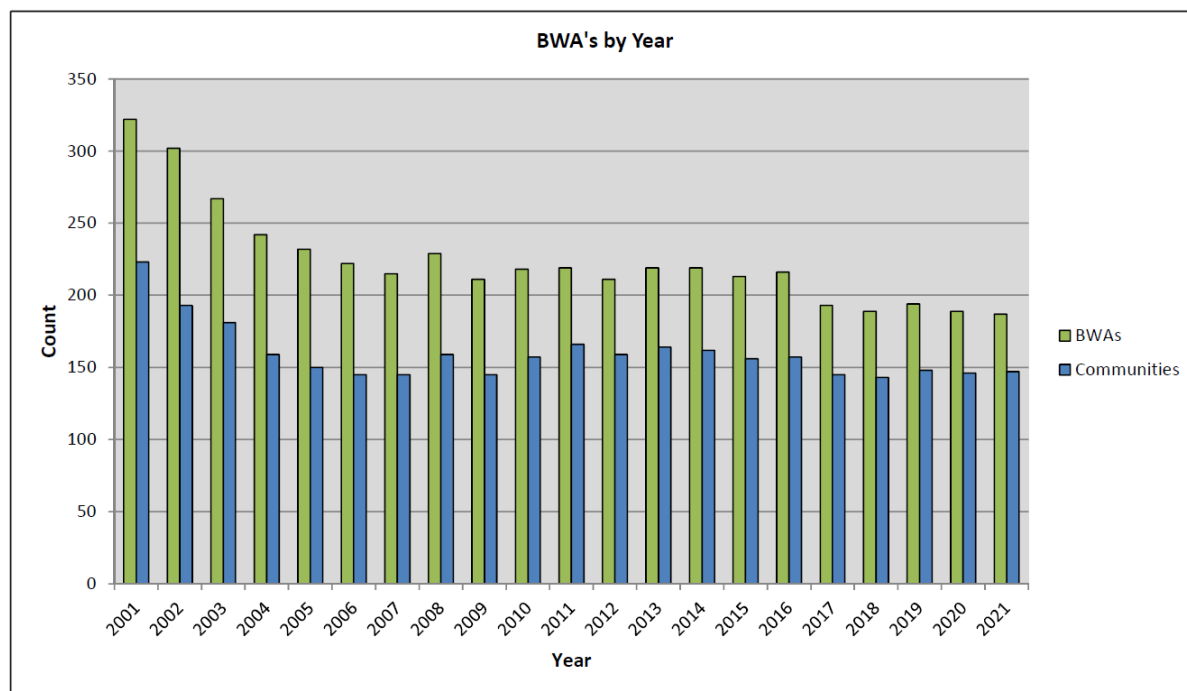
- From 2006-2016 an average of 220 active BWA affecting 160 communities in NL and a population of 50,000

- In 2017, BWAs dropped below 200 due to:

- BWA Reduction Initiative
- Intervention of ECC and DGSNL staff
- Willingness of communities to get off of BWA
- Targeted capital works funding
- BWA procedural improvements by DGSNL
- Intervention of Regional Operators

- Long-term BWAs:

- In place for more than 5 years
- On average 135 long-term BWAs in 91 communities affecting a population of 17, 910



NCA_s

- NL Government also issues non consumption advisories (NCA_s) for contaminants (metals: lead, arsenic, barium, hydrocarbons)
 - On average 8 NCA_s in place at any time
- As of October 15, 2021 there were 11 non-consumption advisories in place. These are in place due to arsenic, lead, and unapproved water supplies in use due to water shortages

Chemical and Physical Drinking Water Quality

- Contaminants are water quality parameters that result in health affects, according to Health Canada, if water over guideline levels is consumed
- Contaminant exceedances that may pose a health risk include:
 - Arsenic, lead, barium, turbidity, THMs, HAAs

Disinfection by-Products (DBPs)

- DBPs form in drinking water when a disinfectant, such as chlorine, reacts with precursor material in the water, such as natural organic matter, to form a disinfection by-product
- THM exceedances affect about 117 communities servicing a population of 85,700
- HAA exceedances affect about 153 communities with a population of 126,500
- As more communities chlorinate their drinking water to get off of BWAs, more communities will have the elements necessary for the formation of DBPs in their drinking water

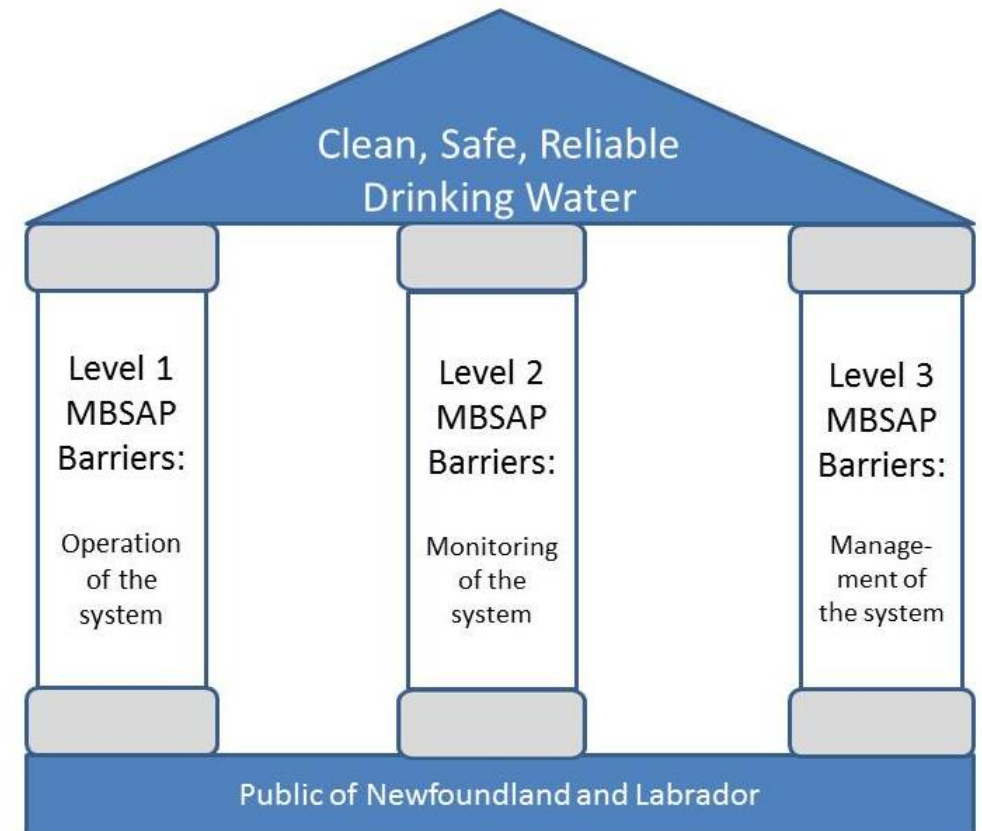
Aesthetic Drinking Water Quality

- Aesthetic exceedances that may affect taste, colour or smell of water include:
 - Colour, pH, sulphate, total dissolved solids, iron, manganese, copper, chloride, sodium
- There has been an increasing number of complaints concerning the taste and odour of drinking water in recent years

Progress Since 2001

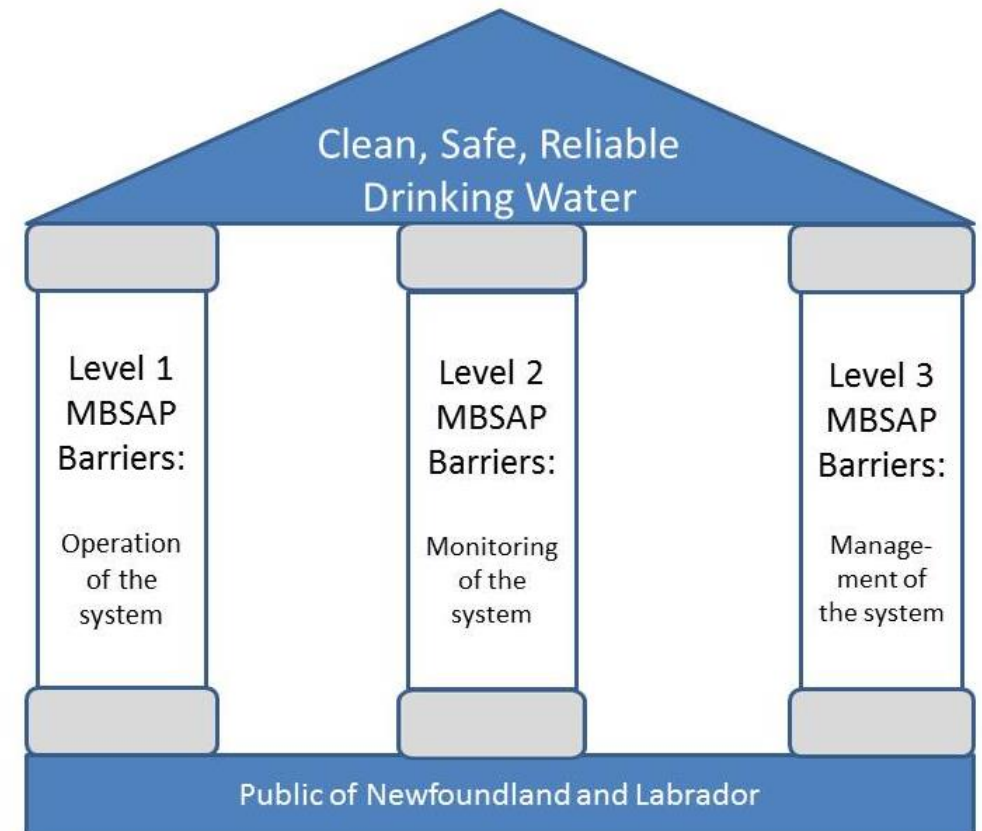
MBSAP- Pillar 1 Progress Since 2001

- Source water protection
 - Increase in percentage of public water supplies protected from 46% to 68%
 - 5 active source protection committees
- Drinking water treatment
 - Increase in percentage of public drinking water systems with disinfection from 77% to 92%
 - Increase in number of water treatment plants from 11 to 21
 - Increase in the number of PWDUs from 0 to 32
- Drinking water distribution
 - Annual capital works funding for drinking water infrastructure ranging from \$10.9-\$78.6 million



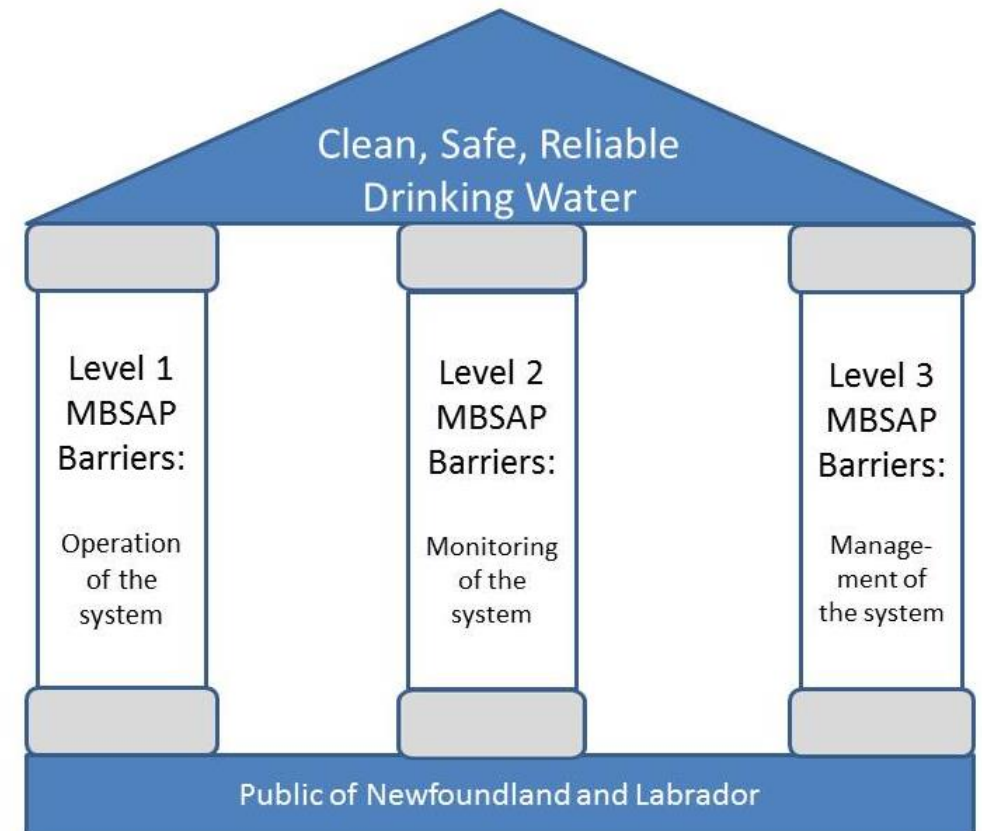
MBSAP- Pillar 2 Progress Since 2001

- Monitoring
 - ~3000 chemical/physical samples collected annually
 - ~19,000 bacteriological samples collected annually
- Data Management & Reporting
 - Drinking water quality data available online through the Water Resources Portal
- Inspection & Enforcement
 - ~50 inspections annually
- Operator Education & Certification
 - Number of certified operators increased from 66 to 562
 - Number of on-site training sessions increased from 0 to ~150 per year
 - Number of training seminars increased from 0 to ~20 per year



MBSAP- Pillar 3 Progress Since 2001

- Public Involvement & Awareness
 - Public access to drinking water data through Water Resources Portal
 - Annual Drinking Water Workshop with ~250 participants
 - Brochures, web videos, fact sheets, SOPs
- Guidelines, Standards & Objectives
 - Drinking Water Treatment Standards
 - 2 drinking water Policy Directives developed
- Research and Development
 - Various technical studies completed
 - Implemented non-conventional water treatment options (e.g., PWDU)

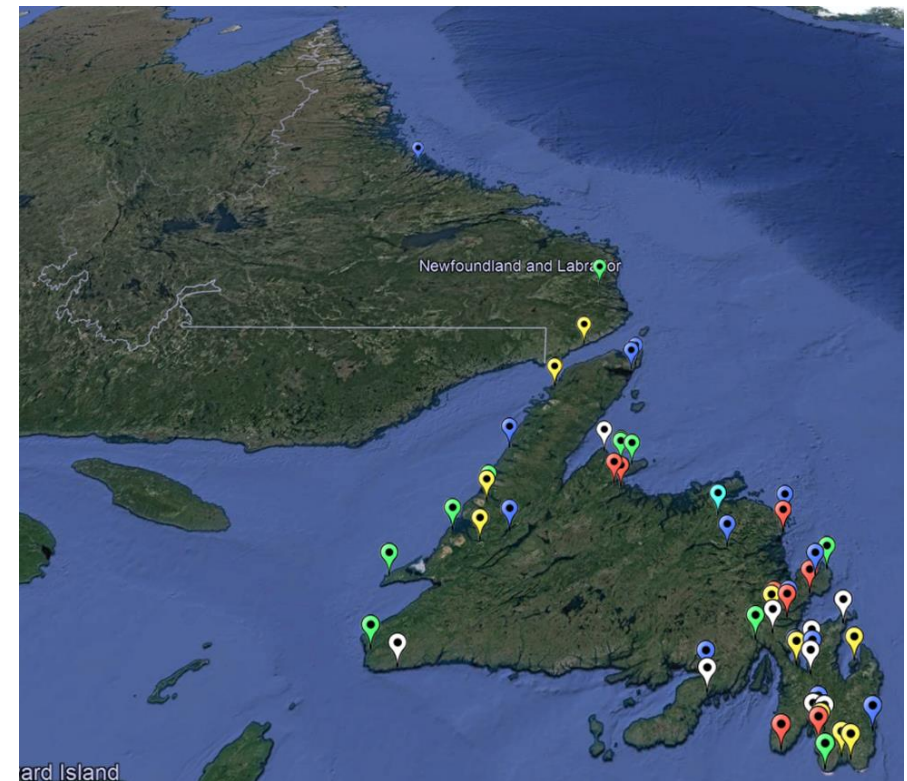


Progress via Special Initiatives

- Rural Drinking Water Safety Initiative
 - Installation of 30 PWDUs in small rural communities with drinking water quality issues
- Regional Drinking Water Systems
 - 20 regional or shared drinking water systems servicing a population of 166,220
- Regional Operators Initiative
 - 1 Regional Operator hired in each of the following Regional Services Boards:
 - Eastern
 - Central
 - Western
 - To build capacity within communities with respect to the operation and maintenance of their drinking water and wastewater systems
 - Reduction in number of BWAs
 - O&M Plans for community drinking water systems developed

Progress via Special Initiatives

- BWA Reduction Initiative
 - 10 projects since 2015
 - Developed Standard Operating Procedures (SOPs) for the removal of BWAs
 - Developed tools and training materials for public, towns and operators
 - 7 training videos
 - 6 fact sheets
 - System assessment tool
 - Developed full cost accounting tool for communities to assess:
 - Cost of operating a public drinking water system
 - Water rates
 - Community mentorship
 - 16 BWAs lifted
 - BWA Workshops with 75 participants



DWS Action Plan and You

DWS Action Plan Framework

The Multi-Barrier Strategic Action Plan will be expanded to include public, semi-public and private drinking water systems.



DWS Action Plan Framework

| Category |
|---|
| Governance |
| Infrastructure, Investment and Innovation |
| Risk Management |
| Regulatory Framework |
| Awareness and Outreach |
| Research and Development |

- Six main areas for targeted improvement in drinking water safety have been identified
- Actions will fall under these main categories

Stakeholder Input

- What are existing government actions to protect drinking water that you support?
- What are existing government actions to protect drinking water that you think should be expanded upon?
- What new government actions to protect drinking water would you like to see?

Path Forward

Next Steps for the Drinking Water Safety Action Plan

1. Digest feedback from the public consultation
2. Summary “What We Heard” Report from public consultation
3. Finalize the Drinking Water Safety Action plan with input from public consultation
4. Release and implement Drinking Water Safety Action Plan