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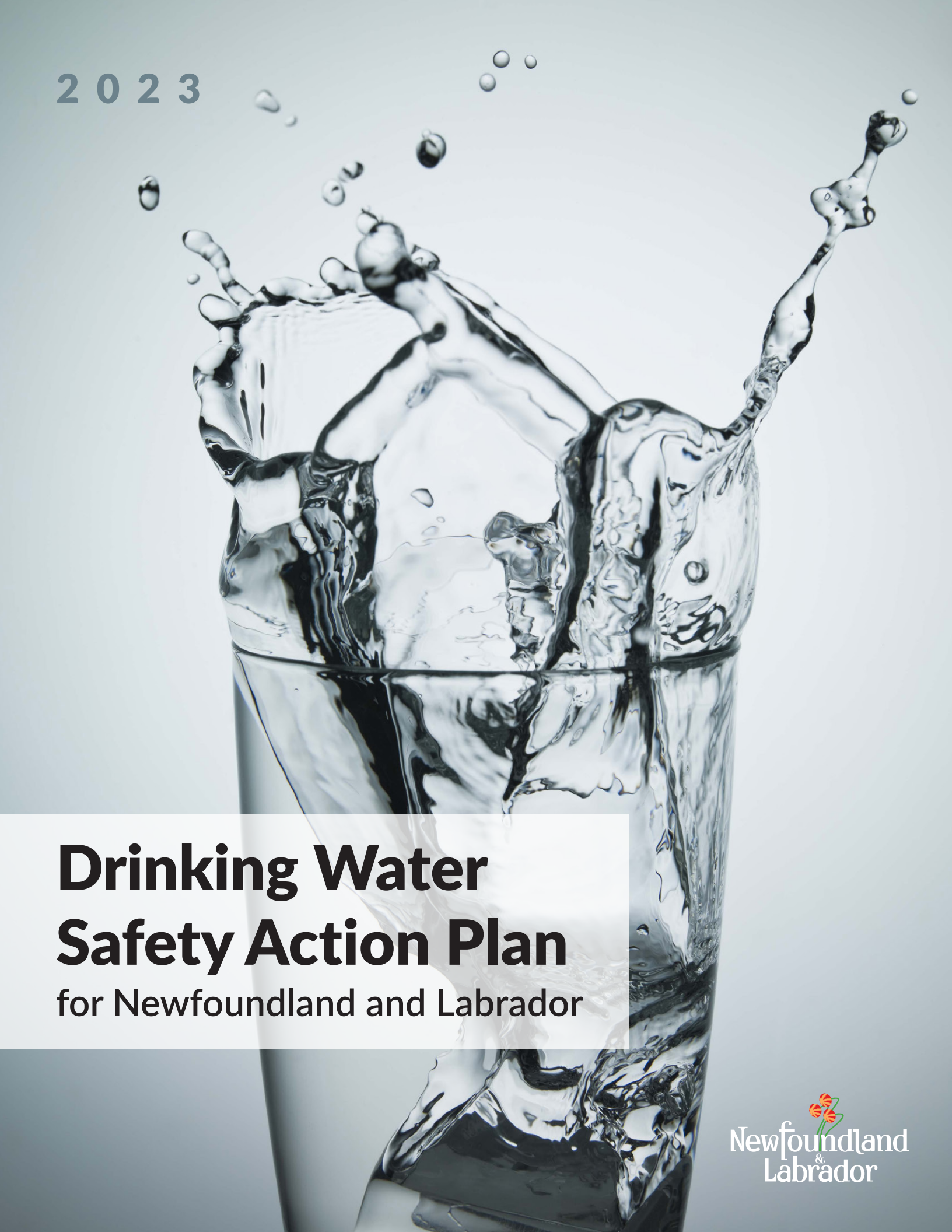

Drinking Water Safety Action Plan

for Newfoundland and Labrador

Newfoundland & Labrador

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SUMMARY

Clean drinking water is vital for the health and prosperity of the people and communities of Newfoundland and Labrador. In 2001, the Provincial Government implemented the nationally accepted Multi-Barrier Strategic Action Plan (MBSAP) to enhance drinking water safety in public drinking water systems. Since then, significant progress has been made in a number of areas including increases in the number of certified water system operators, water treatment plants, protected drinking water sources, and disinfection systems.

This 2023 Drinking Water Safety Action Plan for Newfoundland and Labrador expands the principles of the MBSAP to all types of drinking water systems in in Newfoundland and Labrador **including semi-public and private drinking water systems**. The action plan identifies 37 actions that will target further improvements to the management of drinking water systems in the areas of governance, infrastructure, risk management, regulatory frameworks, outreach, and research and innovation. Each action has been assigned a timeline and indicator in order to track progress, which will be reported through the Department of Environment and Climate Change's annual report on drinking water safety.

WHY FOCUS ON DRINKING WATER SAFETY?

Drinking water is essential to life, health, and prosperity of communities in Newfoundland and Labrador. Yet, providing clean, safe, and reliable drinking water to the many communities of the province is a complex and challenging task.

While it might be easy to take for granted that clean, safe, and secure drinking water is available at the turn of a tap, this service comes at a substantial capital and operational cost to provincial and municipal governments and water users. In spite of much progress over the last 20 years, there are still challenges with various aspects of drinking water, particularly in small, rural communities, including Boil Water Advisories (BWAs), Non-Consumption Advisories (NCAs), presence of disinfection by-products, contaminants, or aesthetic concerns.

In drinking water supplies, the highest health risk is posed by potential pathogenic contamination, followed by chemical and physical contaminants. Certain water quality parameters can sometimes affect the look, taste, and smell of drinking water. Although these aesthetic water quality parameters do not impact health, they may affect people's acceptance and degree of trust in their public drinking water system and its safety.

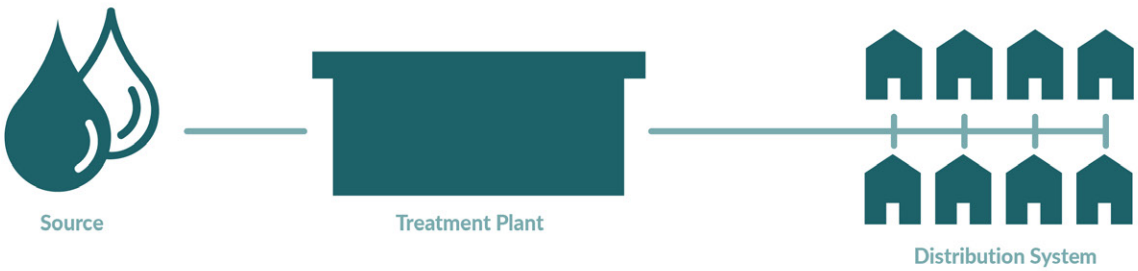


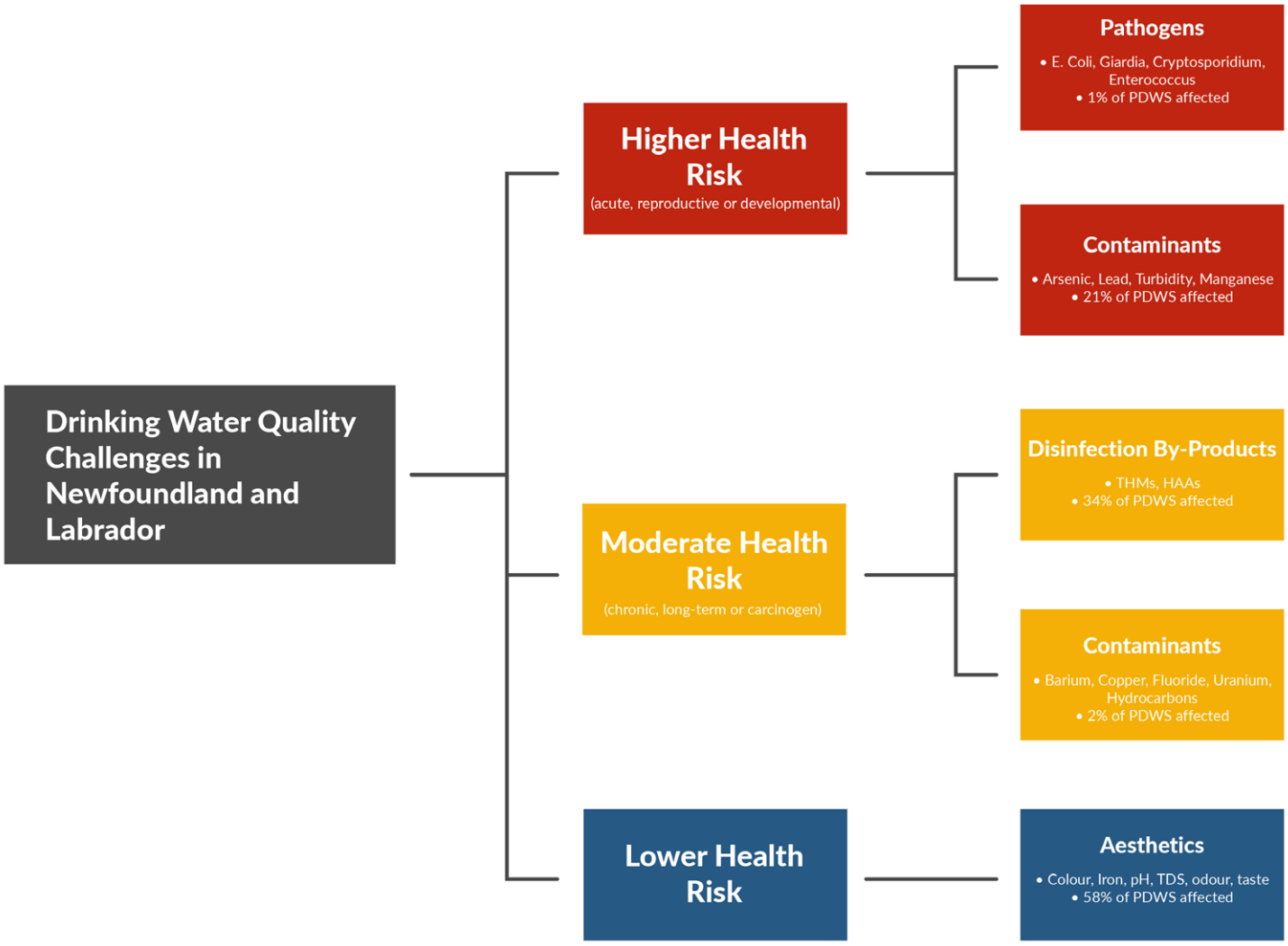
Figure 1: Water supply and distribution system

In Newfoundland and Labrador, system ownership may be public, semi-public or private. Eighty-five per cent of the population of Newfoundland and Labrador is serviced by a public drinking water system (512 systems) owned and operated by either a city, municipality, Local Service District (LSD), Inuit Community Government, or First Nations Reserve.

The remaining 15% of the population have private drinking water systems typically from a drilled or dug well. There are approximately 30,000 private drilled wells and an equivalent number of dug wells servicing individual homes in the province. Additionally, there are over 1,000 water supplies servicing semi-public systems. A semi-public drinking water system is a commercial, institutional, or recreational facility, such as a child care centre, hotel, personal care home, health clinic, school, or shared community well, where the owner of the system is providing water to the public. Approximately 600 of these facilities are in full-time operation and the rest are seasonal in nature.

Water from public drinking water systems is regularly tested, while private and semi-public drinking water systems in the province do not have the same level of regulatory oversight for testing.

Figure 2 indicates the level of risk associated with different types of drinking water quality issues and the approximate percentage of public drinking water systems in this province that experience these types of drinking water quality issues.



PDWS - Public Drinking Water System
Percentages are approximate

Figure 2: Scale of drinking water quality challenges in Newfoundland and Labrador

Fortunately, there are many steps in the supply process to ensure drinking water safety and many opportunities for intervention to address the above issues. To arrive at our taps in a potable form, water has to travel from a source, either surface water in the form of a river or pond, or groundwater from a well, through a network of pipes called a distribution system (Figure 1). Before water enters the distribution system, it typically receives treatment to help improve the quality and safety of the water. Water must then be sampled and tested regularly to ensure it is safe for consumption. Drinking water system operators need to be knowledgeable on how to operate and maintain the systems in accordance with standard protocols. System owners are ultimately responsible for the construction, operation, and maintenance of the system and meeting any regulatory requirements.

MULTI-BARRIER STRATEGIC ACTION PLAN

Newfoundland and Labrador adopted the Multi-Barrier Strategic Action Plan (MBSAP) for drinking water safety in 2001. This framework is a nationally-accepted approach to address drinking water safety, approved by the Canadian Council of Ministers of the Environment and Health Canada (CCME, 2002). The MBSAP is considered to be the most effective method of managing drinking water systems and has been implemented by other jurisdictions across Canada. Through the MBSAP, the Provincial Government has worked to strengthen the barriers that keep drinking water safe. The 2023 Drinking Water Safety Action Plan will build on the measures implemented through the MBSAP and expand its principles to all types of drinking water systems in Newfoundland and Labrador including semi-public and private drinking water systems.

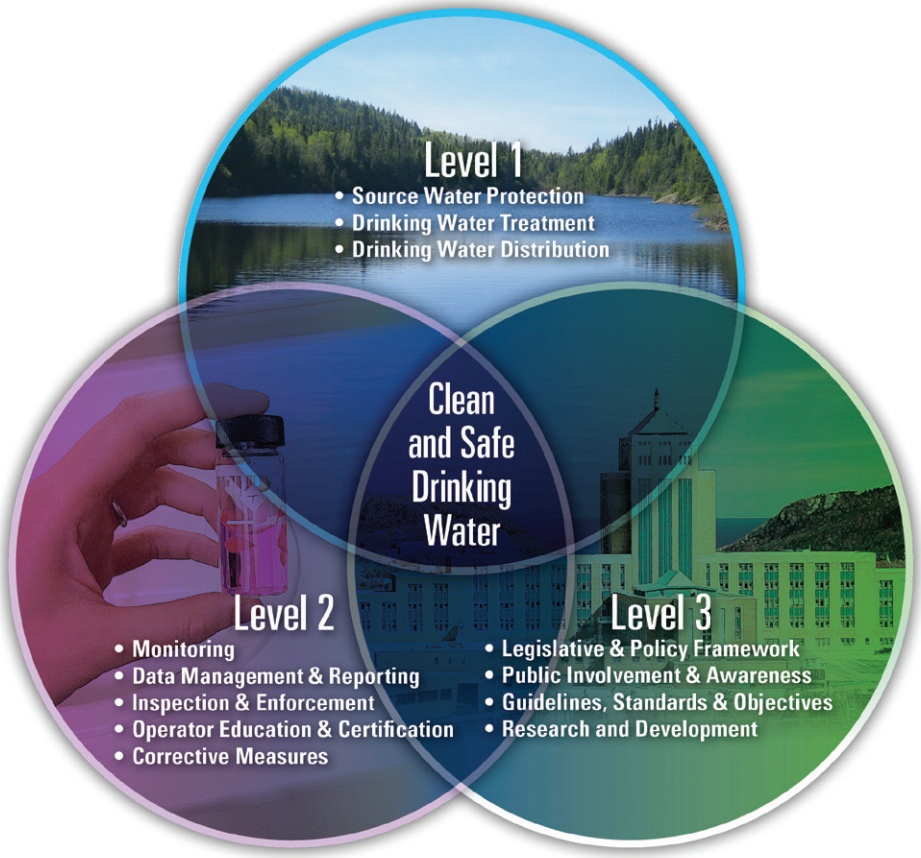


Figure 3: Multi-Barrier Strategic Action Plan for drinking water safety framework

To date, the implementation of the multi-barrier approach has involved the collaborative efforts of the key government departments having a mandate for drinking water in partnership with over 500 public drinking water system owners. Provincial Government departments that play a role in drinking water safety include the Department of Environment and Climate Change (the lead department), the Department of Health and Community Services, the Department of Transportation and Infrastructure, the Department of Municipal and Provincial Affairs, and the Department of Digital Government and Service NL.

The Provincial Government has adopted the Public Health Protection and Promotion Act, which enshrines a Health-in-all-Policies approach. This approach integrates health considerations into policy development and decision making with the long-term goal of improving health outcomes in Newfoundland Labrador. Drinking water is a key factor that influences health and the determinants of health, both of individuals and communities.

The owners of public, private, commercial, and institutional drinking water systems are responsible for the design, construction, operation, and maintenance of these systems. System owners must be aware of regulatory requirements and be able to demonstrate compliance. The departments listed above enable and support municipalities to deliver clean and safe drinking water and provide regulatory guidance to commercial, institutional, and private water supply owners to ensure the safety of drinking water.

The multi-barrier approach is comprised of three levels of barriers in the protection of public health from drinking water quality contamination (Figure 3). The first level centres on the management of drinking water sources, water treatment systems, and water distribution systems. The next level is the monitoring of the province's drinking water quality through chemical, physical, and bacteriological testing. It also includes reporting, education and training of operators, regulatory inspection and enforcement, and implementation of corrective measures. The third and final level deals with governance through the associated legislative and policy frameworks. This level also includes public involvement and awareness, as well as research and development to advance drinking water safety using new technology and management tools.

The Provincial Government is committed to expanding the scope of the previous multi-barrier approach beyond just public drinking water systems to also encompass both private and semi-public drinking water systems. The 2023 Drinking Water Safety Action Plan for Newfoundland and Labrador expands upon the direction set in 2001 and sets out our provincial approach to drinking water safety for the next five years.

PROGRESS IN DRINKING WATER SAFETY

The Provincial Government has expended considerable effort and resources to improve drinking water safety. Table 1 outlines some of the actions that have been taken since 2001 in this regard.

Table 1: Actions taken since 2001 for the improvement of drinking water safety in NL

Category	Description
Governance	• Launch of the regional operator program in 2015 as part of the Community Sustainability Partnership and in collaboration with regional service boards. Key goal is to build capacity within rural communities with respect to the operation and maintenance of their water systems. The program currently includes three regional operators working with 55 communities. There is also an additional regional operator funded by a group of communities external to this program. • Connecting small communities to regional water supply systems wherever feasible and possible. As of 2023, there are 20 shared water systems. An example of a regional system is the Exploits Regional Water System that services the Towns of Grand Falls-Windsor, Bishop's Falls, Peterview, Botwood, Northern Arm, and unincorporated area of Wooddale. • Establishment of the drinking water system operator education, training, and certification program. The program includes classroom and hands-on training opportunities that are focused on small and rural communities. The program is delivered at locations throughout the province to support accessibility. • Increase in the number of certified drinking water system operators from 66 to 562. Certification is a national cross-jurisdictional program that allows operators to demonstrate their job competency and knowledge of drinking water. • Individual hands-on, on-site training for water system operators. Training is delivered via three Mobile Training Units based out of St. John's, Grand Falls-Windsor, and Corner Brook. Training sessions cover key operation and maintenance tasks that support drinking water safety.
Infrastructure, Investment and Innovation	• Annual capital works funding from Department of Transportation and Infrastructure for drinking water infrastructure ranging from $10.9 to $78.6 million. • Increase in the number of full-scale water treatment plants from 11 to 21. • Increase in the number of small-scale water treatment systems from none to 32. • Increase in the number of public drinking water systems with disinfection from 77 to 92 per cent.
Risk Management	• Collection of 3,000 chemical/physical drinking water quality samples annually. • Collection of 19,000 bacteriological drinking water quality samples annually. • Increase in the number of public drinking water supplies designated as protected areas from 40 to 68 per cent. • Five active drinking water source protection committees.
Regulatory Framework	• Approximately 50 regulatory inspections of various components of drinking water systems undertaken annually. • Two Policy Directives relating to the management of drinking water systems adopted.

Awareness and Outreach	• All information relating to drinking water available online via the Water Resources Portal and updated on a regular basis. • Reports on drinking water safety in Newfoundland and Labrador are published annually. • Annual three day workshop on clean and safe drinking water held for municipalities and other interested stakeholders. • Ongoing development of outreach material including brochures, signs, web videos, and booklets.
Research and Development	• Implemented non-conventional water treatment options (e.g., potable water dispensing units, piloting of new technologies).

The Provincial Government has identified six main areas for targeted improvement in drinking water safety (Table 2). All actions to advance drinking water safety can be addressed within this framework. To provide context of the local situation, the following table illustrates some of the challenges associated with each target area.

Table 2: Main areas targeted for improvement of drinking water safety in NL

Category	Associated Challenges
Governance	The geography, population density, demographics, and municipal structure of the province make providing safe drinking water a challenge for many communities. Many communities are challenged to recruit and retain the human resources capacity needed to operate and maintain their drinking water systems. Improving the governance capability of communities to operate and maintain their drinking water systems is vital.
Infrastructure, Investment and Innovation	Drinking water systems require significant infrastructure investment and many smaller communities are challenged from a financial and technological perspective to construct, operate, and maintain their drinking water systems.
Risk Management	Various communities in the province face serious challenges with respect to their source water quality, which can lead to BWAs and NCAs. While the population impacted is relatively small, improved drinking water quality and source protection are needed in many small communities in the province.
Regulatory Framework	With new research, technology, and approaches to drinking water safety, the Province's existing policy, standards, objectives and guidelines need to be continually updated to reflect best practice. Regulatory options to promote drinking water safety, compliance and enforcement must be examined to create a workable framework for Newfoundland and Labrador.
Awareness and Outreach	Residents may not fully appreciate the role drinking water plays in public health as there is a general lack of understanding of the basics of drinking water safety. Residents may, over time, take drinking water safety for granted. It is incumbent on Government and drinking water owners and operators to ensure the public is fully informed about this important resource and measures required to maintain it.
Research and Development	There are information gaps on the impact of emerging trends on drinking water systems in the province. Impacts of economic development, climate change, and demographic change need to be better understood to inform future decision-making. New technology, tools and approaches are being developed for use in the drinking water sector that need to be examined for potential application in this province.

The result of these efforts has been the decrease in the number of BWAs from over 300 in 2001 to below 200 in 2017. From 2017 to 2022, there has been an average of 191 BWAs affecting 146 communities and a population of 44,000. Additionally, there has been a decrease in the number of NCAs on public drinking water systems since 2013. On average, there are eight NCAs in place at any given time affecting a serviced population of approximately 440. Drinking water quality in this province is better today than it has been at any point in the past.

OUR FOCUS GOING FORWARD

This plan organizes actions on drinking water safety according to drinking water system type:

1. Public drinking water systems
2. Semi-public drinking water systems
3. Private drinking water systems

Each action item has also been assigned one or more indicators to be able to track progress made over time. Two subsets of indicators have been identified – indicators that already have an annual baseline value as of 2020, and indicators that are new or have not previously been assessed. The department will provide a comprehensive report of progress on these indicators at five year intervals.

Tables 3, 4, and 5 outline the actions and indicators for public, semi-public, and private drinking water systems respectively.

Timelines to achieve actions range as follows:

Timelines
0-5 years
>5-10 years
Ongoing Activity

Indigenous Engagement

The Department of Environment and Climate Change works with Inuit Community Governments and First Nations Reserves to assist in drinking water monitoring, operator education, certification, and training, and also provides technical support in the areas of drinking water and municipal wastewater, as requested.

While the Provincial Government transferred water rights to the Federal Government and no longer manages water on First Nations Reserves, the Department of Environment and Climate Change continues to provide water quality testing in keeping with the commitment in the 2001 Drinking Water Action Plan.

The goal of this Action Plan is to promote best practices with respect to drinking water; it does not alter or impact drinking water rights in the Labrador Inuit Settlement Area or on First Nations Reserves.

PUBLIC DRINKING WATER SYSTEMS

Table 3: Public drinking water system actions and their indicators with an existing baseline value as of 2020

	Action	Indicator	Baseline Value as of 2020[1]	Type of Value[2]
	Governance			
1	Increase the number of shared drinking water services, such as regional water supply systems, regional operators, bulk purchases of equipment and consumables, and regional service agreements. Undertake regional source supply studies.	Number of shared drinking water services	21	Cumulative
		Number of Regional Operators	4	Cumulative
2	Encourage communities to commit to the principles of full-cost accounting based on the life cycle concept, including capital and operational costs, in order to determine actual costs to sustain operation of the system.	Average annual community water service fee	$345	Annual
		Number of communities with Full-Cost Accounting Tool assessments completed	0[2]	Cumulative
3	Build management and financial capacity in communities through training seminars and workshops and the development and adoption of administrative tools including accounting tools, asset management tools, and Geographic Information System tools.	Number of communities with asset management plans	0[2]	Cumulative
		Number of participants attending local governance municipal training sessions	366	Annual
4	Build technical capacity in the operation of drinking water systems by increasing the number of certified drinking water system operators, organizing advanced or specialty courses for operators of public drinking water systems, improving record keeping, and developing tools to address human resource and technical challenges including tailored operator logbooks, standard operating procedures, and video maintenance guides.	Number of certified drinking water system operators	562	Cumulative
		Number of social media drinking water-related videos available	23	Cumulative
		Number of training seminars and workshops for capacity building	135	Annual
		Percentage of communities submitting an annual report as per their Permit to Operate	63.3%	Annual

	Action	Indicator	Baseline Value as of 2020[1]	Type of Value[2]
5	Improve communication among all stakeholders on drinking water safety.	Number of visits to the "One-Window on Drinking Water" website[3]	36,621[3]	Annual
		Number of provincial, regional and local committee/council meetings on drinking water issues with Government of Newfoundland and Labrador stakeholder involvement	22	Annual
6	Study and implement alternative methods of service delivery for drinking water including decentralized treatment and water delivery, and different levels of service for public drinking water systems.	Number of systems with Point of Use/Point of Entry treatment or water delivery	0	Cumulative
		Number of Potable Water Dispensing Units	32	Cumulative
	Infrastructure, Investment, and Innovation			
7	Invest in drinking water-related infrastructure under ongoing and new federal-provincial cost- shared programs, with emphasis on non-conventional water treatment options (e.g., point of use, point of entry).	Amount of capital works funding for drinking water- related infrastructure	$82 million	Annual
		Amount of other funding for drinking water systems	$4,139,879	Annual
8	Improve and expand eligibility criteria of capital works funding to capture issues such as water supply system risk, source vulnerability, and drinking water-related infrastructure and water quality issues.	Number of communities that submitted capital works applications for drinking water infrastructure	133	Annual

	Action	Indicator	Baseline Value as of 2020[1]	Type of Value[2]
9	Prioritize infrastructure spending to increase the number of water treatment systems to deal with high health risk drinking water quality issues.	Number of BWAs	189	Annual
		Number of Non Consumption Advisories	10 (including 3 partial)	Annual
		Number of full-scale water treatment plants	21	Cumulative
		Number of Potable Water Dispensing Units	32	Cumulative
		Number of pH adjustment systems	55	Cumulative
		Number of Arsenic, Iron/Manganese, Lead and Strontium removal systems	17	Cumulative
		Number of systems with POU/POE treatment or water delivery	0	Cumulative
10	Ensure the success of high-level water infrastructure projects (e.g., water treatment plant, projects that cost more than $1 million, changes in water supply) throughout the pre and post-funding approval periods by ensuring the appropriateness of any pre-funding feasibility studies and holding post-funding planning meetings with all relevant stakeholders.	Number of tap E. coli exceedances	137	Annual
		Number of tap chemical and physical contaminant exceedance	83	Annual
		Number of tap disinfection by-product exceedances	191	Annual
		Number of tap aesthetic exceedances	749	Annual
	Risk Management			
11	Continue to work with communities to reduce the number of BWAs with a focus on the long-term BWAs, and reduce the number of NCAs.	Number of BWAs	189	Annual
		Number of NCAs	10 (including 3 partial)	Annual

	Action	Indicator	Baseline Value as of 2020[1]	Type of Value[2]
12	Continue to work with communities to reduce the number of public drinking water systems that do not meet the Newfoundland and Labrador Drinking Water Quality Guidelines.	Average community water index value	6	Annual
		Number of tap E. coli exceedances	137	Annual
		Number of tap chemical and physical contaminant exceedances	83	Annual
		Number of tap disinfection by-product exceedances	191	Annual
		Number of tap aesthetic exceedances	749	Annual
13	Prevent the occurrence of any outbreak of waterborne disease.	Number of outbreaks of waterborne disease from public drinking water systems	0	Annual
14	Identify site-specific corrective measures based on assessments of individual drinking water system issues.	Number of assessments of individual drinking water systems (issues and corrective measures)	0[2]	Annual
15	Increase the percentage of public water supplies that are designated as protected areas under the Water Resources Act and enhance source water protection through the development of a source protection plan template for use by communities. Examine the role of municipal land use planning in source protection.	Percentage of public surface water supplies designated as protected areas under Section 39 of the Water Resources Act	87%	Cumulative
		Percentage of public groundwater supplies designated as protected areas under Section 61 of the Water Resources Act	34%	Cumulative
	Regulatory Framework			
16	Require owners and operators to comply with the provincial regulatory framework for drinking water safety.	Average active Permit to Operate inspection rating score	79.6%	Annual
		Percentage of communities submitting an annual report as per their Permit to Operate	63.3%	Annual

	Action	Indicator	Baseline Value as of 2020[1]	Type of Value[2]
17	Acknowledge and recognize compliant drinking water system owners and operators.	Number of awards and letters of recognition to drinking water systems owners and operators	2	Annual
18	Update and develop, as necessary, standards, policies and guidelines to protect drinking water to reflect the current state of practice, including to account for the impacts of climate change.	Number of new and/ or revised agreements, accreditations, policy directives, standards, objectives, Standard Operating Procedures (SOPs) or guidelines relating to drinking water	0[2]	Cumulative
19	Introduce new policy, enforcement, and regulatory mechanisms to address non-compliance.	Number of enforcement actions taken relating to drinking water systems	0[2]	Annual
20	Adopt the Drinking Water Treatment Standards and Drinking Water Quality Standards for Newfoundland and Labrador, and update the Design Guidelines for Drinking Water Systems in Newfoundland and Labrador.	Number of new and/ or revised agreements, accreditations, policy directives, standards, objectives, SOPs, or guidelines relating to drinking water	0[2]	Cumulative
	Awareness and Outreach			
21	Develop a one-window on drinking water website for the province where information for users of public drinking water systems is hosted. Department of Environment and Climate Change will lead the departments involved in drinking water to collaborate on the development of this site, public messaging and education tools to be hosted on the site.	Number of visits to the "One-Window on Drinking Water" website[3]	36,621[3]	Annual
22	Develop public outreach material on relevant drinking water topics and different modes of delivery to target various stakeholder groups.	Number of social media drinking water-related videos available	23	Cumulative
23	Develop programs and outreach material to educate elected municipal officials about the importance of clean, safe, and secure drinking water.	Amount of social media traffic/views relating to drinking water-related content	3017	Cumulative
24	Continue to post all newly developed tools and monitoring data on the one-window on drinking water website for public sharing and benefit.	Number of visits to the "One-Window on Drinking Water" website[3]	36,621[3]	Annual

	Action	Indicator	Baseline Value as of 2020[1]	Type of Value[2]
25	Develop a community water index to aggregate data on water quality and quantity into more easily understandable information for decision making.	Number of new drinking water systems management innovations adopted (e.g., new treatment technology, apps, GIS tools, data storage tools, reporting tools, models, risk assessment methodologies, management tools, monitoring and communication tools, analytical technologies, smart water systems, AI, new areas of drinking water- related research, etc.)	0	Cumulative
26	Partner with EngageNL to help determine baseline public awareness on drinking water issues in the province and to solicit public feedback on issues, solutions, and priorities for improving drinking water safety. Feedback from public engagement will be used to help further inform actions from this plan.	Number of public responses on EngageNL to Newfoundland and Labrador Drinking Water Safety Action Plan	0[5]	Cumulative

	Action	Indicator	Baseline Value as of 2020[1]	Type of Value[2]
	Research and Development			
27	Continue research and development on public drinking water systems in the area of piloting new treatment technologies, modelling work for corrective actions, waterborne disease outbreak risk assessment, water system management tools, smart water systems, climate change impacts, water apps, etc.	Number of new drinking water systems management innovations adopted (e.g., new treatment technology, apps, GIS tools, data storage tools, reporting tools, models, risk assessment methodologies, management tools, monitoring and communication tools, analytical technologies, smart water systems, AI, new areas of drinking water- related research, etc.)	0	Cumulative
28	Undertake additional research into the prevalence of waterbourne pathogens and development of appropriate risk assessment and management measures.	Number of outbreaks of waterborne disease (e.g., Cryptosporidosis, Giardiasis, Verotoxigenic E. Coli) from public drinking water systems	0	Annual
		Inclusion of new measures in assessments of public water supply systems	0	Cumulative

	Action	Indicator	Baseline Value as of 2020[1]	Type of Value[2]
		Number of new drinking water systems management innovations adopted (e.g., new treatment technology, apps, GIS tools, data storage tools, reporting tools, models, risk assessment methodologies, management tools, monitoring and communication tools, analytical technologies, smart water systems, AI, new areas of drinking water- related research, etc.)	0	Cumulative

Table 3: Public drinking water system actions and their indicators with an existing baseline value as of 2020

[1] Baseline values provided for activities with data already collected as part of the last 20 years of progress made under the Multi-Barrier Strategic Action Plan, or baseline value starting at zero as of 2020
[2] Baseline values reported as annual to be reassessed each year. Baseline values reported as cumulative add to the count from the previous year.
[3] "One-Window on Drinking Water" website to be developed for users of public, semi-public and private drinking water systems to access information in one location; baseline value based on number of visits to current Department of Environment and Conservation "Drinking Water" site and derivative sites.
[4] "~" indicates number is approximate.
[5] A one-time activity.
[6] Indicator tool to be developed.

SEMI-PUBLIC DRINKING WATER SYSTEMS

Table 4: Semi-public drinking water system actions and their indicators with an existing baseline value as of 2020

	Action	Indicator	Baseline Value as of 2020[1]	Type of Value[2]
29	Develop guidance framework for semi-public drinking water systems that would include direction for treatment, annual drinking water sampling, compliance with corrective measures, and reporting by owners.	Percentage of semi-public drinking water systems with disinfection	15%	Cumulative
		Number of semi-public drinking water systems that submit chemical/ physical drinking water quality sample results annually	19	Annual
		Number of bacteriological drinking water quality samples collected from semi-public drinking water systems annually	~1584[3]	Annual
		Number of new and/or revised policy directives, standards, objectives, SOPs or guidelines relating to semi-public drinking water systems	0	Cumulative
30	Provide guidance and training opportunities to owners of semi-public drinking water systems on the operation and maintenance of these systems.	Number of owners and operators of semi-public drinking water systems that participate in training	0	Annual
31	Develop an inventory of all semi-public drinking water systems in the province.	Number of semi-public drinking water systems	1006	Cumulative

	Action	Indicator	Baseline Value as of 2020[1]	Type of Value[2]
32	Develop a one-window on drinking water website for the province where information for users of semi-public drinking water systems is hosted. Government departments involved in drinking water will collaborate on the development of this site, public messaging and education tools to be hosted on the site. Develop and distribute public awareness material specifically for owners of semi-public drinking water systems.	Number of visits to the "One-Window on Drinking Water" website	0	Annual

[1] Baseline values provided for activities with data already collected as part of the last 20 years of progress made under the Multi-Barrier Strategic Action Plan, or baseline value starting at zero as of 2020
[2] Baseline values reported as annual to be reassessed each year. Baseline values reported as cumulative add to the count from the previous year.
[3] "~" indicates number is approximate.

PRIVATE DRINKING WATER SYSTEMS

Table 5: Private drinking water system actions and their indicators with an existing baseline value as of 2020

	Action	Indicator	Baseline Value as of 2020[1]	Type of Value[2]
33	Develop regulatory guidance for the construction, operation, maintenance, and abandonment of dug wells used as private drinking water supplies, and for the sampling of drinking water from private drinking water systems.	Number of bacteriological drinking water quality samples collected from private drinking water systems annually	6600	Annual
		Number of new and/or revised policy directives, standards, objectives, Standard Operating Procedures or guidelines relating to private drinking water systems	0	Cumulative
34	Introduce a one-time chemical/physical water quality monitoring program on private drinking water systems in the province to collect baseline information on the drinking water quality of private systems. Owners of private wells would be responsible for collecting and submitting their own well sample.	Number of private drinking water systems that have submitted a chemical/physical drinking water quality sample result	1013	Cumulative
35	Develop and maintain an inventory of drilled and dug wells in the province used as private drinking water sources.	Number of drilled wells	20,016	Cumulative
		Number of dug wells	~20,000[3]	Cumulative
36	Undertake a baseline study of private groundwater well quantity issues.	Number of private groundwater wells in pilot program with water quantity issues	0	Cumulative

	Action	Indicator	Baseline Value as of 2020[1]	Type of Value[2]
37	Develop a one-window on drinking water website for the province where information for users of private drinking water systems is hosted. Government departments involved in drinking water will collaborate on the development of this site, public messaging and education tools to be hosted on the site. Develop and distribute public awareness materials specifically for owners of private drinking water systems including on the use of point of use and point of entry devices.	Number of visits to the "One-Window on Drinking Water" website	0	Annual
		Number of new drinking water systems management innovations adopted (e.g., new treatment technology, apps, GIS tools, data storage tools, reporting tools, models, risk assessment methodologies, management tools, monitoring and communication tools, analytical technologies, smart water systems, AI, new areas of drinking water- related research, etc.)	0	Cumulative

[1] Baseline values provided for activities with data already collected as part of the last 20 years of progress made under the Multi-Barrier Strategic Action Plan, or baseline value starting at zero as of 2020
[2] Baseline values reported as annual to be reassessed each year. Baseline values reported as cumulative add to the count from the previous year.
[3] ~indicates number is approximate.

MOVING FORWARD ON DRINKING WATER SAFETY: REPORTING ON PROGRESS

The “Drinking Water Safety Action Plan for Newfoundland and Labrador” provides a variety of actions for stakeholders involved in drinking water safety to pursue and participate in to help ensure the safety and sustainability of drinking water systems in the province. This plan takes an inclusive approach that will depend on the participation and cooperation of all stakeholders. To ensure the transparency and accountability of this plan, the Department of Environment and Climate Change will, in addition to the Annual Report on Drinking Water Safety in Newfoundland and Labrador, provide at five year intervals a comprehensive report on progress using the indicators outlined above.

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