

Rural Drinking Water in Newfoundland and Labrador

Understanding the Issues facing Rural Drinking Water Systems

GRENFELL
CAMPUS



Dr. Kelly Vodden, Moderator
Jeana Macleod, Graduate Student
Candice Ramalho, Graduate Student
Sarah Minnes, Coordinator

Importance of Drinking Water in Rural NL

- In rural Newfoundland and Labrador (NL), watersheds provide drinking water supplies while also supporting other resources and activities that form our cultural and economic identity
- Healthy drinking water supplies are dependent on healthy watersheds as well as on water policies, practices and infrastructure

Our Research Project

- Identify the types of risks and challenges influencing drinking water quality and availability in rural areas
- Emphasis on communities of 1,000 residents or less in NL
- There are four major components of this research
 1. Source water quality and quantity
 2. Public perception, awareness, and demand
 3. Policy and governance
 4. Water distribution infrastructure and municipal water supply

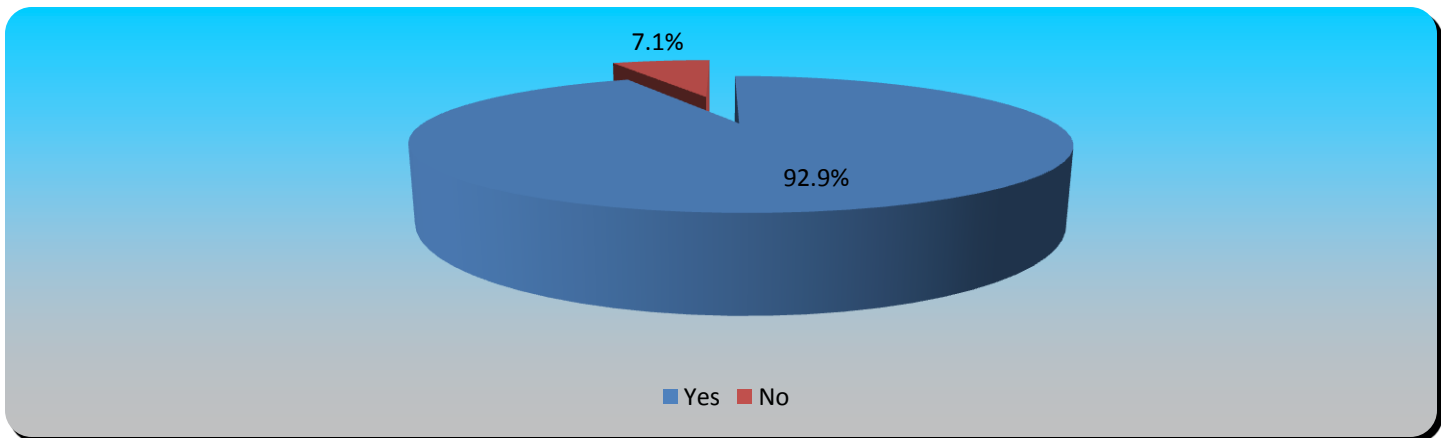
Today's Session

- Looking to hear from you about the issues facing drinking water in rural NL communities on the 4 key themes
- 1- hour clicker session (Q and A with multiple choice)
 - Some questions will have a brief discussion
 - Anonymous clicker session
- See us at our booth!

Getting to know you

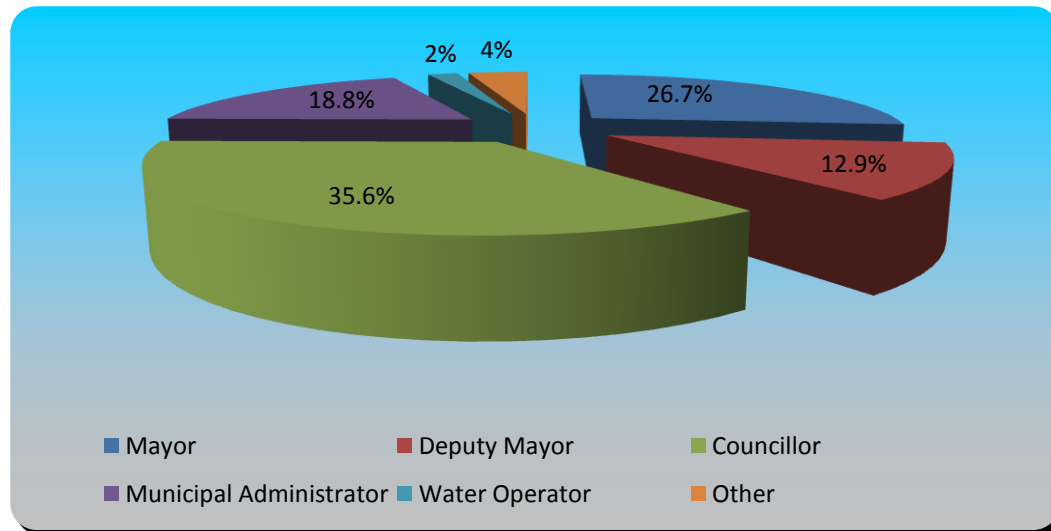
1. Do you like water? (Test Question)

1. Yes	92.9%
2. No	7.1%



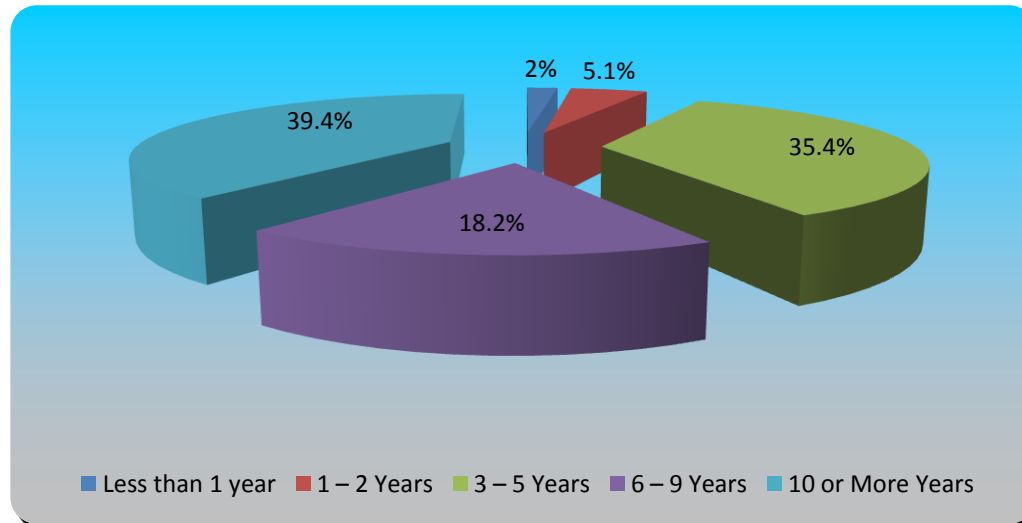
2. What is currently your primary position with your municipality?

1.	Mayor	26.7%
2.	Deputy Mayor	12.9%
3.	Councillor	35.6%
4.	Municipal Administrator	18.8%
5.	Water Operator	2%
6.	Other	4%



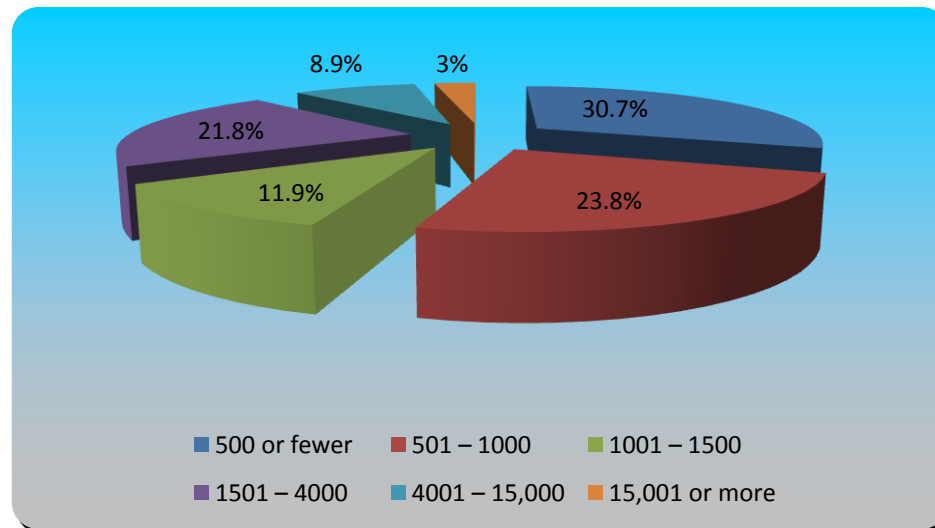
3. How long have you been in this position?

1.	Less than 1 year	2%
2.	1 – 2 Years	5.1%
3.	3 – 5 Years	35.4%
4.	6 – 9 Years	18.2%
5.	10 or More Years	39.4%



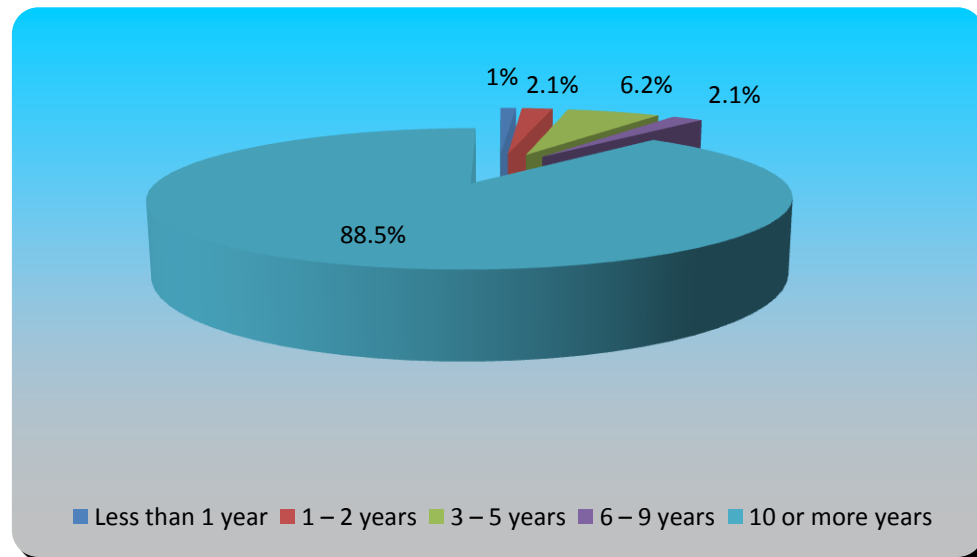
4. What is the population of your municipality?

1.	500 or fewer	30.7%
2.	501 – 1000	23.8%
3.	1001 – 1500	11.9%
4.	1501 – 4000	21.8%
5.	4001 – 15,000	8.9%
6.	15,001 or more	3%



5. How long have you lived in your municipality?

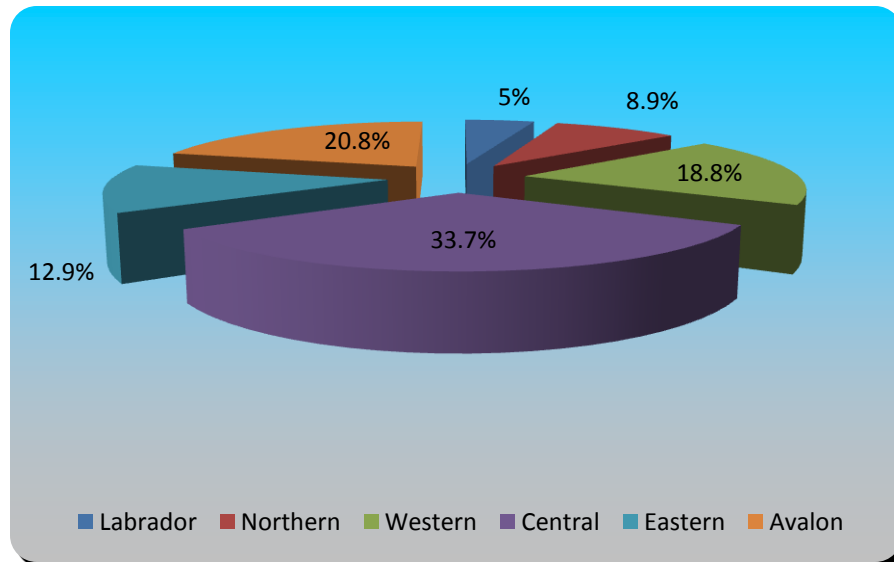
1.	Less than 1 year	1%
2.	1 – 2 years	2.1%
3.	3 – 5 years	6.2%
4.	6 – 9 years	2.1%
5.	10 or more years	88.5%



6. What MNL region is your municipality in?

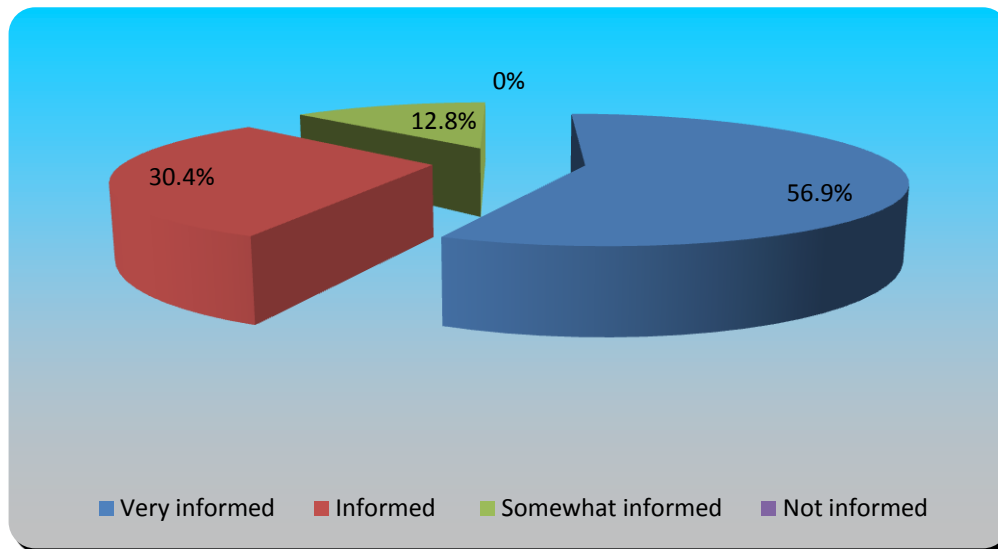
1. Labrador
2. Northern
3. Western
4. Central
5. Eastern
6. Avalon

5%
8.9%
18.8%
33.7%
12.9%
20.8%



7. In your opinion, how informed are you about issues relating to the drinking water in your municipality?

1.	Very informed	56.9%
2.	Informed	30.4%
3.	Somewhat informed	12.8%
4.	Not informed	0%



Drinking Water Sources and Threats

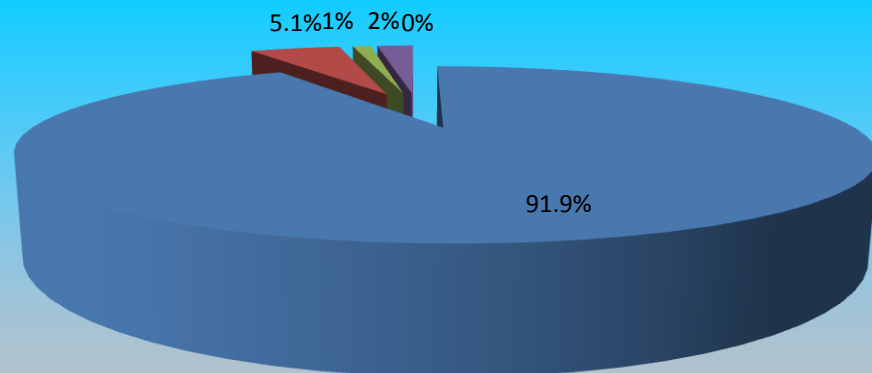
8. Sources of drinking water in NL

- **Public community water supplies**
 - Owned and operated by a municipality or local service district
 - Surface (lakes, ponds, rivers, reservoirs)
 - Groundwater (drilled and dug wells)
- **Private water supplies**
 - Private wells on private property
 - Testing is the responsibility of the owner
- **Roadside springs**
 - Groundwater that flows to the surface; people have often attached hoses
 - Not routinely tested

<http://www.health.gov.nl.ca/health/publichealth/envhealth/drinkingwater.html#q1-6>

8. Where do the majority of households in your municipality get their main source of drinking water?

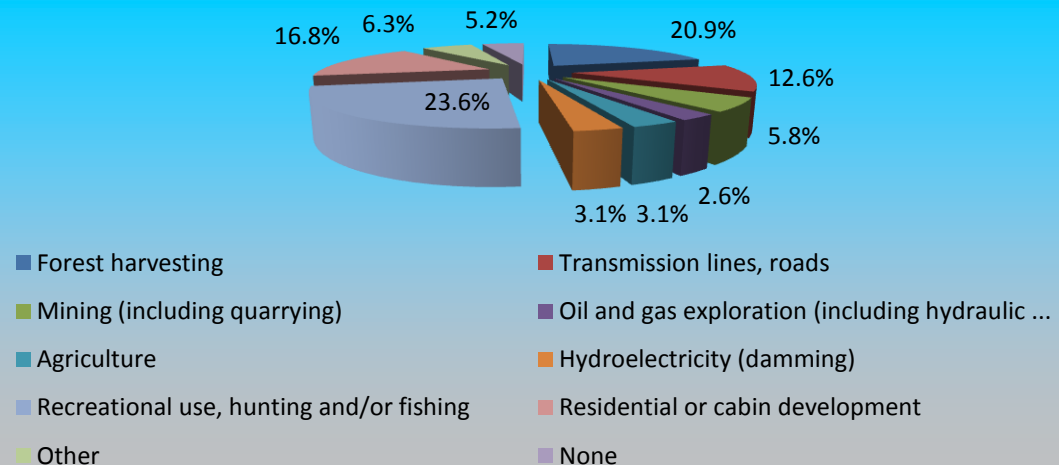
1.	Municipal water supply	91.9%
2.	Private source (e.g. personal well)	5.1%
3.	Spring	1%
4.	Other (e.g. bottled water)	2%
5.	I don't know	0%



■ Municipal water supply ■ Private source (e.g. personal well) ■ Spring ■ Other (e.g. bottled water) ■ I don't know

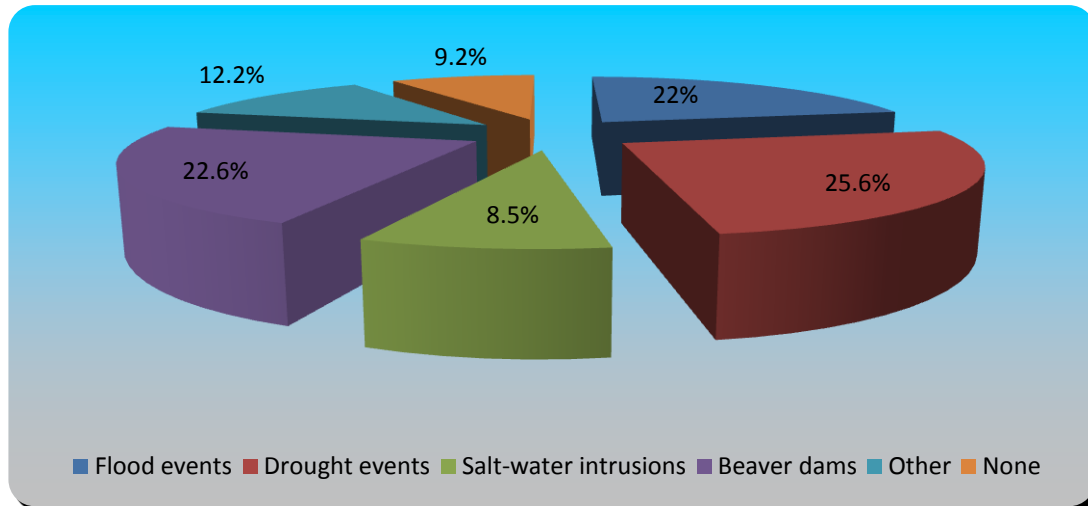
9. Which of these land-use activities do you think are currently the greatest threats to your water supply? Can choose up to three.

1.	Forest harvesting	20.9%
2.	Transmission lines, roads	12.6%
3.	Mining (including quarrying)	5.8%
4.	Oil and gas exploration (including hydraulic fracturing – fracking)	2.6%
5.	Agriculture	3.1%
6.	Hydroelectricity (damming)	3.1%
7.	Recreational use, hunting and/or fishing	23.6%
8.	Residential or cabin development	16.8%
9.	Other	6.3%
10.	None	5.2%



10. Which of these natural processes do you think are currently the greatest threats to your water supply? Can choose up to three.

1.	Flood events	22%
2.	Drought events	25.6%
3.	Salt-water intrusions	8.5%
4.	Beaver dams	22.6%
5.	Other	12.2%
6.	None	9.2%



Water Treatment

11. Why drinking water needs treatment

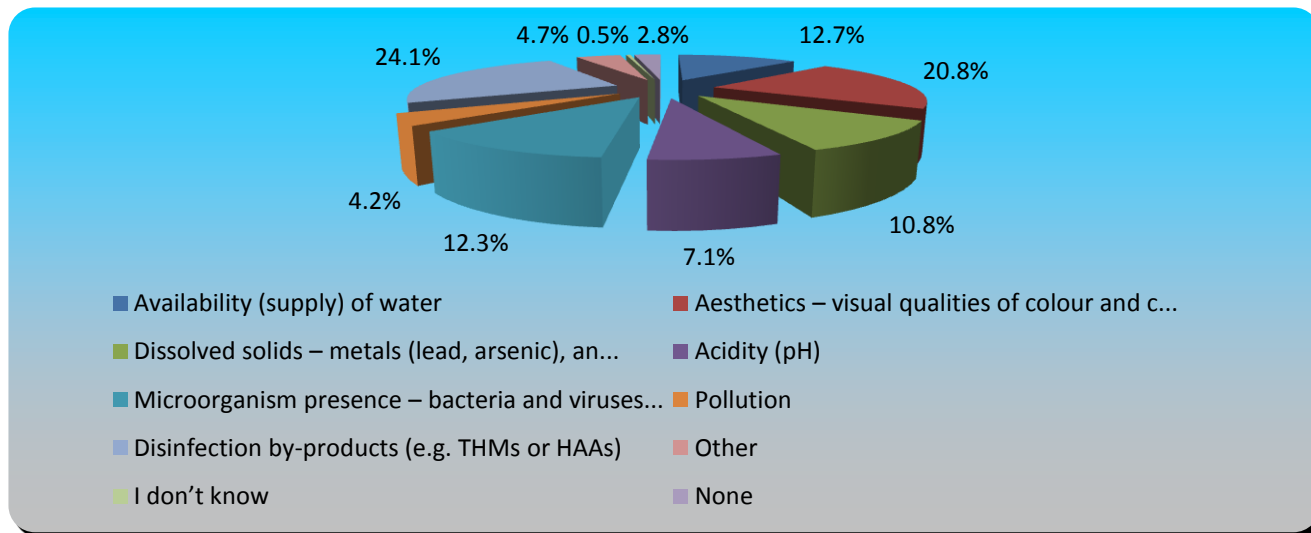
“Canadian drinking water supplies are generally of excellent quality. However, water in nature is never "pure." It picks up bits and pieces of everything it comes into contact with, including minerals, silt, vegetation, fertilizers, and agricultural run-off. While most of these substances are harmless, some may pose a health risk.”

(Health Canada, 2012)

<http://www.hc-sc.gc.ca/ewh-semt/water-eau/drink-potab/guide/index-eng.php>

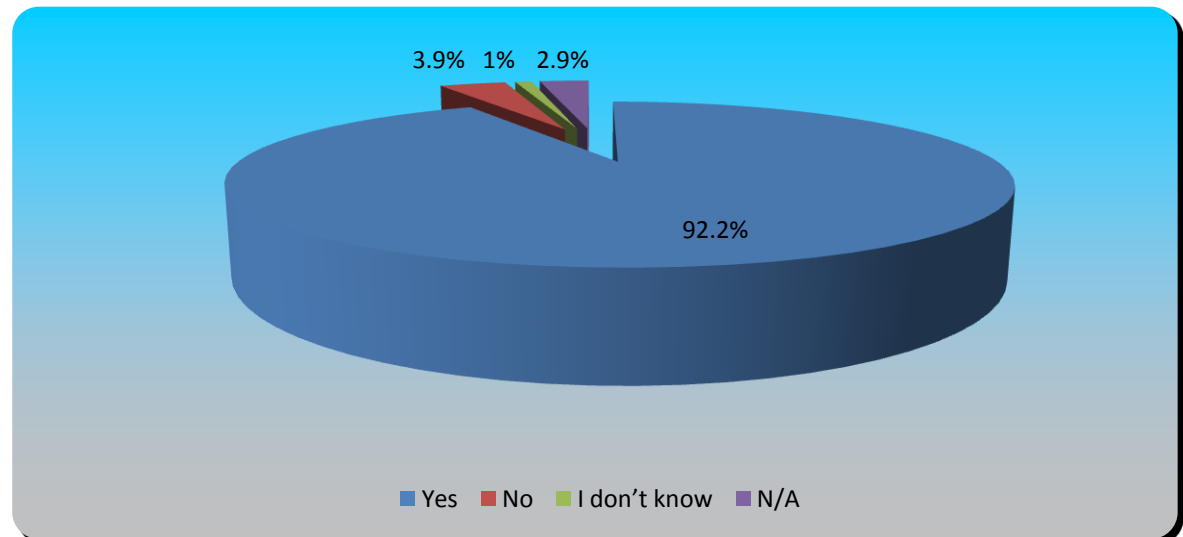
11. What do you consider to be the greatest issues currently facing your municipality's drinking water? Can choose up to three.

1.	Availability (supply) of water	12.7%
2.	Aesthetics – visual qualities of colour and cloudiness	20.8%
3.	Dissolved solids – metals (lead, arsenic), and organic carbon content	10.8%
4.	Acidity (pH)	7.1%
5.	Microorganism presence – bacteria and viruses (e.g. E. coli and Giardia)	12.3%
6.	Pollution	4.2%
7.	Disinfection by-products (e.g. THMs or HAAs)	24.1%
8.	Other	4.7%
9.	I don't know	0.5%
10.	None	2.8%



12. Is your municipality's disinfection and/or treatment facility maintained on a regular basis?

1.	Yes	92.2%
2.	No	3.9%
3.	I don't know	1%
4.	N/A	2.9%



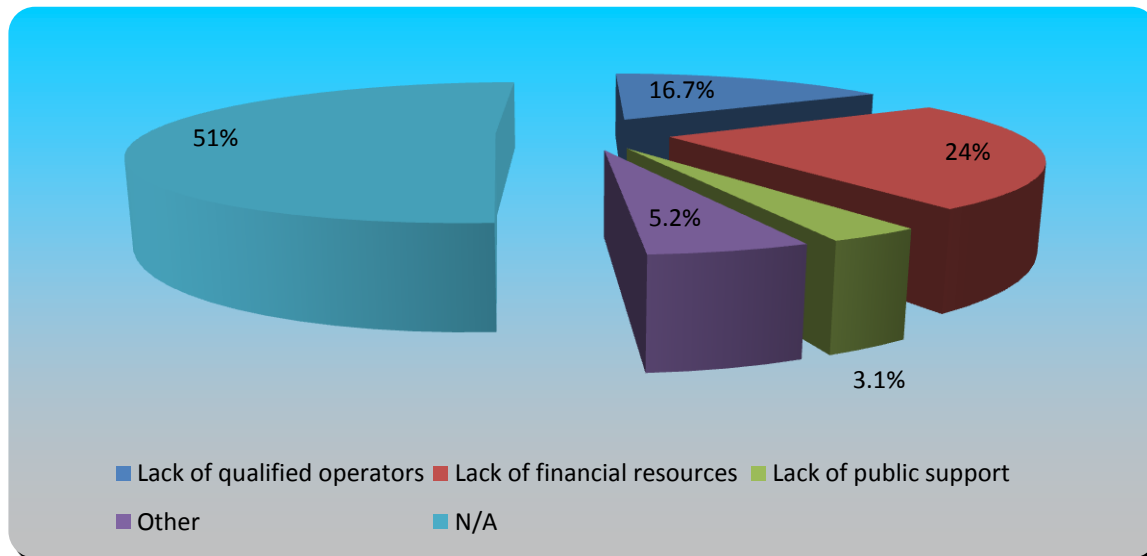
Source: Paula Dawe, P. Eng

http://www.env.gov.nl.ca/env/waterres/training/adww/ruralreactions/11_paula_dawe_bmps_for_dbps.pdf

<http://nlwater.ruralresilience.ca/>

13. What is the main barrier facing your municipality's water disinfection and/ or treatment systems?

1.	Lack of qualified operators	16.7%
2.	Lack of financial resources	24%
3.	Lack of public support	3.1%
4.	Other	5.2%
5.	N/A	51%



Operation and Maintenance

14. Two major challenges facing public water distribution systems for communities > 500

Operation and maintenance:

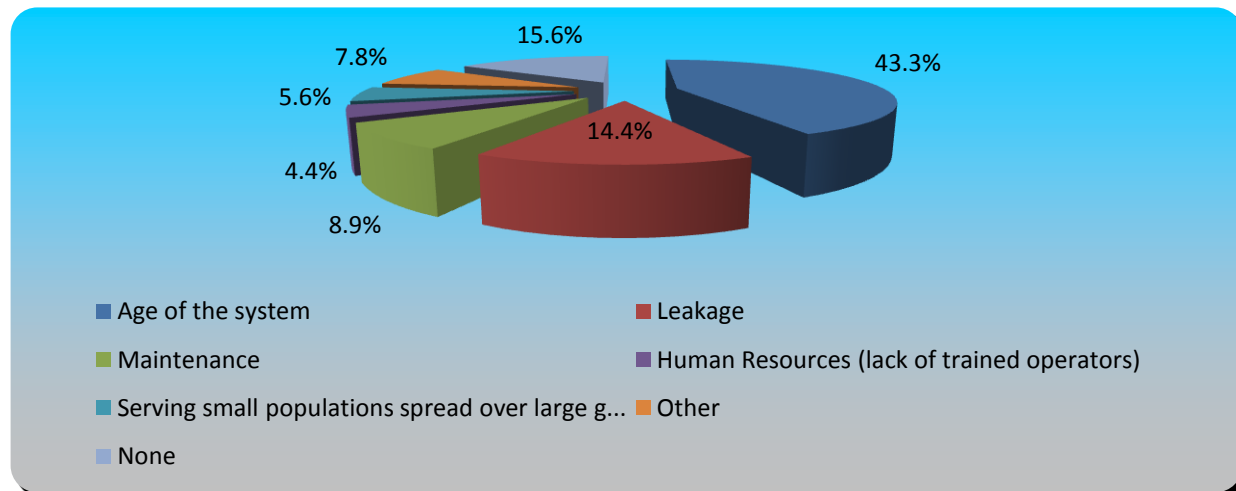
- * ... employing and retaining qualified and trained operators. This can be difficult in rural areas that are experiencing changing demographics.

Administration:

- * Many communities with very small systems, serve small populations spread over large geographic areas, which increases the challenges associated with providing safe drinking water and maintaining the water supply systems.

14. What is the biggest issue facing your water distribution system?

1.	Age of the system	43.3%
2.	Leakage	14.4%
3.	Maintenance	8.9%
4.	Human Resources (lack of trained operators)	4.4%
5.	Serving small populations spread over large geographic areas	5.6%
6.	Other	7.8%
7.	None	15.6%



Provincial Policy

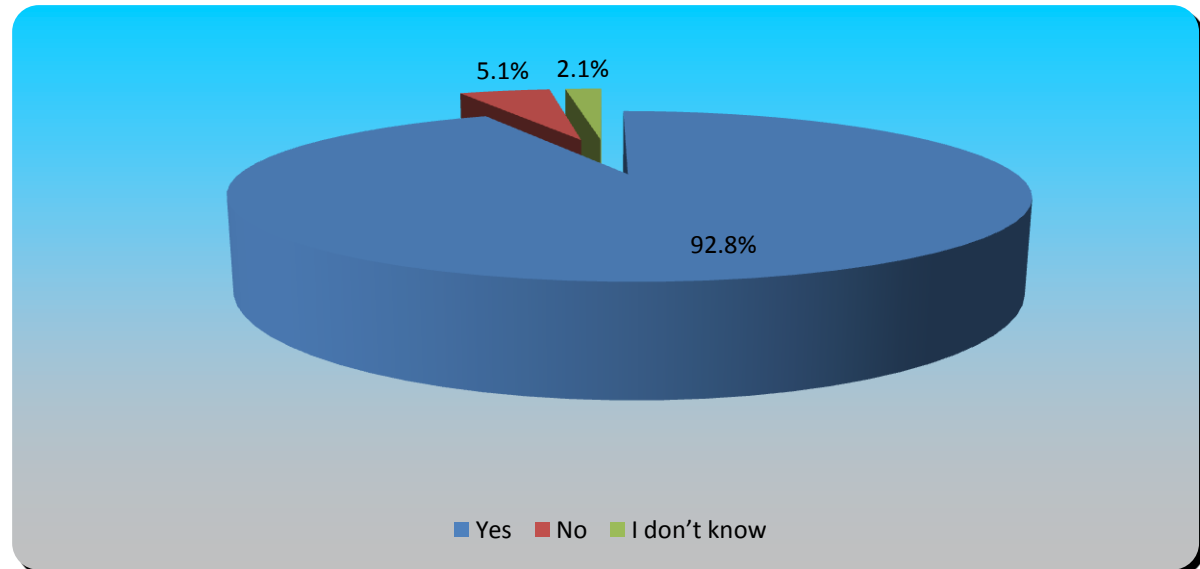
15. Protected Public Water Supply Areas

- In the province there are 301 surface and 182 groundwater sources in total
- Of these, 314 sources are designated as protected public water supply areas (PPWSAs)
- Meaning 169 are undesignated (355)
- However, 91% of the serviced population in NL uses water from PPWASs

(Annual Report, 2012)

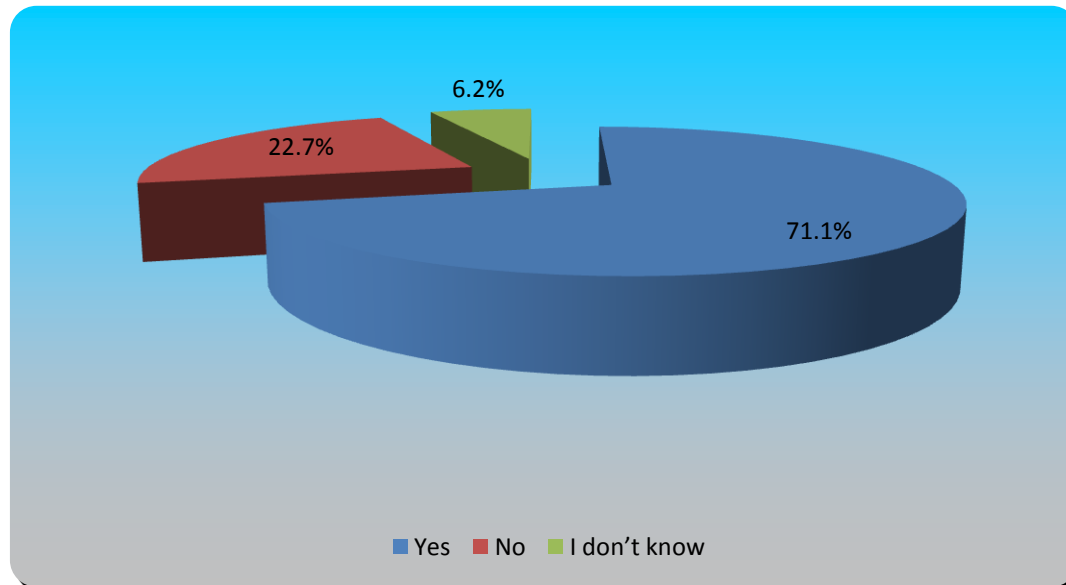
15. Is your municipality part of a protected water supply?

1. Yes	92.8%
2. No	5.1%
3. I don't know	2.1%



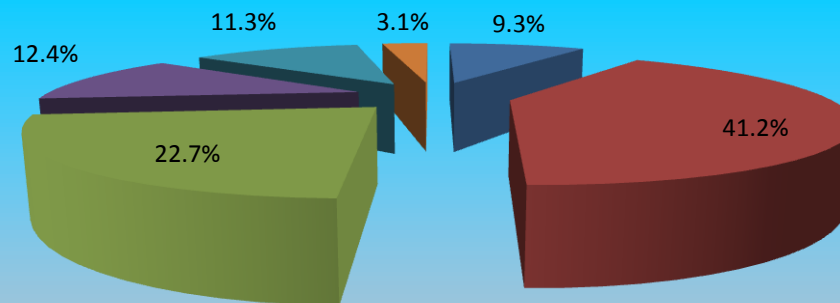
16. Based on your experience, are the province's policies and requirements for drinking water appropriate for your municipality?

- | | |
|-----------------|-------|
| 1. Yes | 71.1% |
| 2. No | 22.7% |
| 3. I don't know | 6.2% |



17. To better protect drinking water in rural NL, what should be the highest priority for provincial government?

1.	Encourage collaboration between communities and the province	9.3%
2.	Increase funding for new or improved infrastructure	41.2%
3.	Increase funding for operations and maintenance	22.7%
4.	Increase support for source water protection and watershed planning	12.4%
5.	Support research and development of drinking water related technologies for rural communities	11.3%
6.	Other	3.1%



■ Encourage collaboration between communities a... ■ Increase funding for new or improved infrastr... ■ Increase funding for operations and maintenanc...
■ Increase support for source water protection ... ■ Support research and development of drinking ... ■ Other

Looking Forward

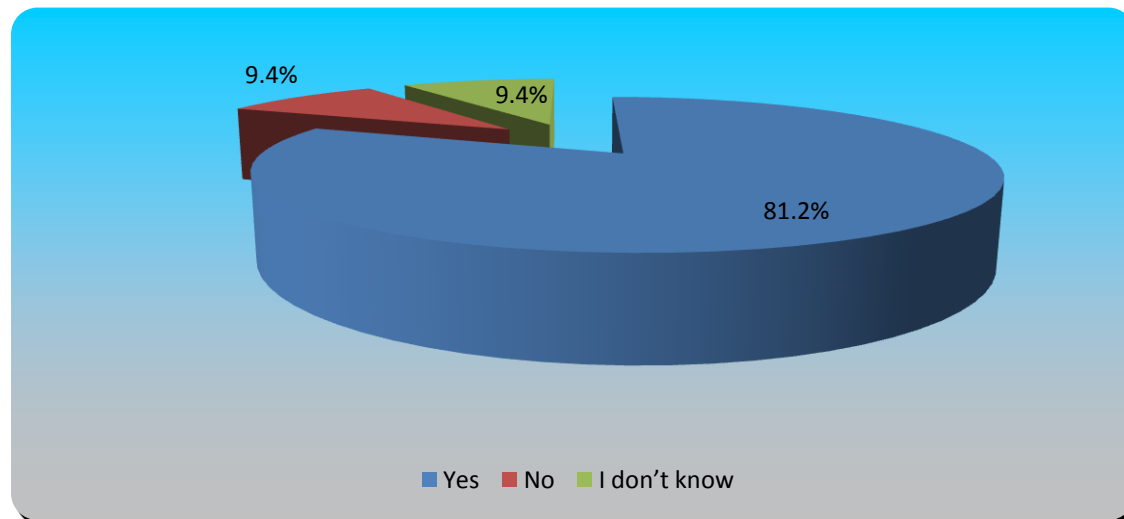
18. Watershed Management Plans

- Local or regional
- Long-term management plan with key goals
 - Protect water quality
 - Support traditional activities and developments
- As of 2012, 3 communities have a provincially recognized watershed management plan: Corner Brook, Gander, Steady Brook

(Annual Report 2012)

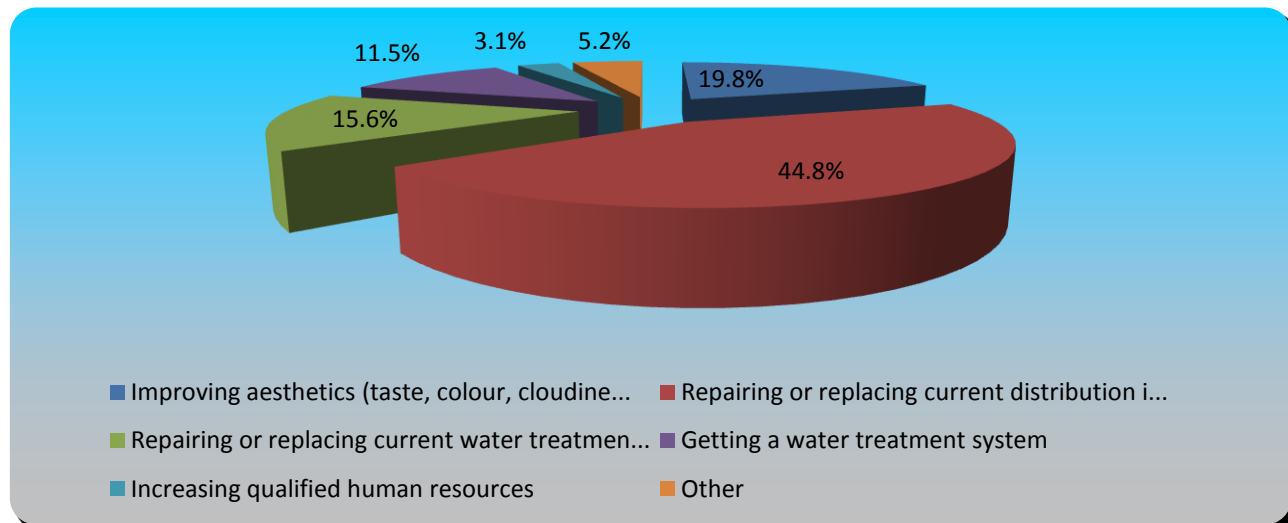
18. In your opinion, would your municipality support the development and implementation of a local or regional watershed management plan?

1. Yes	81.2%
2. No	9.4%
3. I don't know	9.4%



19. What should be the priority for improving drinking water quality in your municipality?

1.	Improving aesthetics (taste, colour, cloudiness)	19.8%
2.	Repairing or replacing current distribution infrastructure (e.g. the pipes and pumping stations)	44.8%
3.	Repairing or replacing current water treatment system (e.g. chlorine disinfection system)	15.6%
4.	Getting a water treatment system	11.5%
5.	Increasing qualified human resources	3.1%
6.	Other	5.2%



Thank you for participating and stay in touch!

- Come see us at our booth
- Visit our website
<http://nlwater.ruralresilience.ca>
- Contact Sarah Minnes,
*Project Coordinator,
NL Rural Drinking Water Project
Environmental Policy Institute,
Grenfell Campus
sminnes@grenfell.mun.ca*



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