



# N<sub>2</sub>O<sub>2</sub> BI

Information Package

# *Table of Contents*

|                            |             |
|----------------------------|-------------|
| <b>About Nibi</b>          | <b>2-3</b>  |
| <b>Pillars</b>             | <b>4</b>    |
| <b>Workshops</b>           | <b>5-12</b> |
| <b>Contact Information</b> | <b>13</b>   |

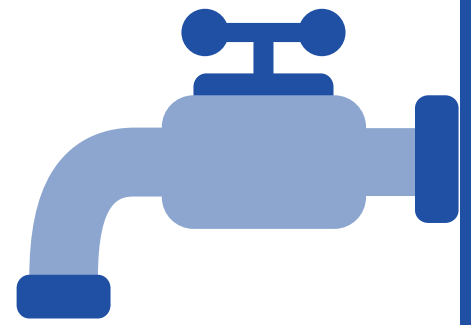


# About Nibi

## What is the water crisis?

Canada has the third largest renewable freshwater supply in the world. But not everyone in the country has access to clean and safe drinking water.

Indigenous communities across our nation lack the proper infrastructure or the funding to access safe water.



**157 communities are on long-term boil water advisories.**

As of 2020, 87 have been resolved temporarily with short term solutions. Since, 33 communities have reverted back to short-term boil-water advisories.



In 2015, the Government of Canada promised to lift in entirety by 2021.

**This date has since been pushed to 2023.**

# About Nibi

## What is Nibi?

Nibi is a student-led initiative run out of Enactus at the University of Ottawa as a social enterprise.

## Our Goal

Investigate the water crisis affecting Indigenous communities across Canada and provide lasting solutions to terminate long and short term boil-water advisories.

## Our Mission Statement

Empower Indigenous Peoples by supporting and helping them exercise their right to safe drinking water through the means of a community-tailored and ownership of their purification solution.

## Our Vision

Develop and maintain efficient community-based solution to promote ownership of proper water infrastructure for Indigenous communities.



# Our Pillars



Through our partnerships, we facilitate the process of identifying contaminants found in the community's water.

This can be done in one of two ways:



- Connecting communities to certified laboratory partners.
- Teaching youth and community members how to monitor their water on-site.

Our partners will identify filtration systems that best fit the regional situation.

Following the monitoring process, we conduct needs-based assessments to identify purification solutions that meet the socio-economic needs of the community.



Empowering youth to maintain their water quality and infrastructure.

We help to create a service that can be operated in local hubs and enable communities to take ownership of the quality and treatment of their drinking water.



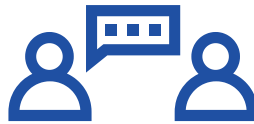
# Workshops



## Science Based Workshops

Nibi is currently offering 6 science based workshops. These workshops:

- Are hands on.
- Encourage in-depth learning on water, water infrastructure, and water maintenance.
- Include activities for students or youth to participate in.
- Raises awareness to the water crisis in Indigenous communities across Canada.
- Can be customized to the needs of the organizer.
- Includes 2 quizzes (1 elementary level and 1 high school level).



## Outreach Based Workshops

Nibi also offers outreach based workshops. These workshops:

- Encourage discussion on various topics related to Indigenous rights.
- Encourage students and youth to create change for an equitable and sustainable future.
- Are customizable to the needs of the organizer.
- Are created on a needs basis.





# Workshop #1: Introduction to Water & its Contaminants

## Overview

- In this workshop, participants will be briefly introduced to water and its role in human health, the environment and spirituality.
- They will also be introduced to the concept of safe drinking water, water contaminants and a brief overview of the effects of contaminated water on humans and the environment.

## Topics covered & level of detail

- Water in human health, environment & spirituality – brief
- Safe drinking water – brief
- Water Contaminants – in-depth
- Effects of water contaminants on humans & the environment – brief

## Activity

In groups, participants will be assigned a case study of contaminated water on an Indigenous reserve and they must identify the category and source of the contaminant and find possible effects of the contaminant on human health and the environment.

## Learning Objectives – By participating in this workshop, participants will:

- Be introduced to water's diverse roles in human health, the environment and spirituality.
- Learn the definition of safe drinking water and will be able to recognize four categories of drinking water contaminants.
- Gain an understanding of how the four categories of drinking water contaminants can impact human health and the environment.
- Be introduced to important research-related skills such as the use of reliable sources and the importance of accurate citations.



## Workshop #2: Water Testing

### Overview

- In this workshop, participants will be introduced to the importance of drinking water testing
- Introduced to the general parameters of safe drinking water while discussing the possible threats that can contaminate water sources.
- Determine how to test a water sample and the different methods to treat an individual's contaminated drinking water.

### Topics covered & level of detail

- Parameters found in drinking water – in-depth
- Methods of exposure towards water contaminants to our water sources – in-depth
- Treatment methods for drinking water sources – brief
- Significance in indigenous communities – brief

### Activity - Testing pH of at Home Solutions

Participants will use the provided website to analyze the pH of multiple solutions. The purpose of this experiment is to help increase their knowledge of pH, and to understand basic chemistry concepts such as dilution. Finally, participants will discover the importance of maintaining a healthy pH for their drinking water.

### Learning Objectives – By participating in this workshop, participants will:

- Gain a significant understanding towards different types of water contaminants, potential methods of entering into water sources, and its possible effects on human health.
- Be introduced towards modern day water treatment options.
- Learn the concepts of pH by understanding the importance of maintaining a healthy parameter in drinking water and potential health concerns surrounding abnormal pH.





## Workshop #3: Purification Devices

### Overview

- In this workshop, participants will learn about the different purification solutions, but in particular about water filters.
- Includes explaining common water contaminants, water filter mechanisms, composition examples, and discussion.

### Topics covered & level of detail

- Introduction to purification solutions – in-depth
- Filters and mechanism of function – in-depth
- Example of an actual commercial water filter – brief

### Activity

Students will read an article and discover potential filter benefits and why filters are efficient. The goal of the activity is to help students build the most effective filter and compare the differences with various filtration ingredients.

### Learning Objectives – By participating in this workshop, participants will:

- Understand the common water contaminants found in untreated water.
- Recognize the different purification methods and the advantages of water filters.
- Understand the mechanisms of water filtration systems.
- Develop an appreciation for the various components in a filter and their functions in purifying water.
- An opportunity to brainstorm creative filter solutions using different compositions and layers.



## Workshop #4: Water Pollution

### Overview

- In this workshop, participants will learn the various ways in how our water sources become contaminated by different types of human pollutants.
- Includes detailed case studies that demonstrate the cause and effect of different contaminants.
- Provides a brief overview on how to prevent/decrease water pollution.

### Topics covered & level of detail

- Importance of Canada's freshwater resources – in-depth
- Highlighting different types of water pollutants – in-depth
- Impact of water pollution on the environment – in-depth
- Ways to prevent water pollution – brief

### Activity

Students will experiment with various methods to help remove oil from the water. Participants aim to find the most effective extraction method and determine the scientific reasoning behind the best treatment method.

### Learning Objectives – By participating in this workshop, participants will:

- Understand different types of water pollutants.
- Learn how/why current human practices continue to exacerbate water pollution.
- Gain an understanding of how each different type of water pollution impacts the environment.



## Workshop #5: Water Potability

### Overview

- In this workshop, participants will learn about water potability and its two main components: aesthetics and safety.
- In terms of the aesthetics of drinking water, the workshop will discuss how the palatability of water (i.e. its taste, odour and appearance) can affect consumers.
- For the safety aspect, the workshop will discuss the concept of minimum standard chemical allowances and the idea that it is desirable to have certain chemicals/minerals in water.
- Participants will learn about the three main types of drinking water advisories.

### Topics covered & level of detail

- Difference of aesthetics and safety in drinking water – in-depth
- Palatability of water and impact towards consumers – in-depth
- Drinking water parameters – brief
- Brief explanation on water advisories – brief

### Activity

Participants will analyze a letter sent from a community that has contaminated drinking water. The letter will include information about their community and symptoms community members are experiencing. It will be their job to identify the significant hints and determine 3 main parameters that are abnormal within the community's water.

### Learning Objectives – By participating in this workshop, participants will:

- Be introduced to the main concepts of water potability.
- Gain an understanding of how important palatability of water can impact an individual's perspective on their water.
- Be introduced to the different types of water advisories.



## Workshop #6: Test to Address

### Overview

- In this workshop, participants will be introduced to water testing and the importance of different water testing parameters that are used to determine water potability.
- Students will participate in a mock-water testing activity that will aim to illustrate some general concepts of water testing.

### Topics covered & level of detail

- Importance of water testing – in-depth
- Water testing parameters - brief
- Understanding pH and hardness in drinking water – in-depth

### Activity

Participants will be invited to perform a test to determine the relative pH and hardness levels of a simulated water sample. They will then be invited to read and analyze three distinct case studies and determine which case study their simulated water sample could belong to.

### Learning Objectives – By participating in this workshop, participants will:

- Be introduced to the basics of water testing and to several of the parameters involved.
- Develop an appreciation for the importance of water testing.
- Learn about examples of water contaminants and its many consequences.
- Have the opportunity to work on critical thinking skills as they relate to scientific analysis.

# Contact Information



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**For any more information or to work with  
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*In Partnership with...*

