

Indigenous-Driven Environmental Monitoring: Achieving Knowledge Sovereignty through Applied Research and Training

This project is designed in partnership with Indigenous communities to enhance Indigenous community-based monitoring. This will be achieved through customizable instruction and hands-on training delivered through applied research projects, designed with community input. This model purposely meets learners at their personal level, includes them as research team members, and supports practical skill development by solving problems relevant to their land. NAIT will instruct Indigenous learners on freshwater sampling and analysis techniques, data management, quality control and analysis. NAIT will also develop digital solutions to support Indigenous communities with knowledge-sharing efforts, enabling communities with the tools to integrate water management approaches.



RECIPIENT:

**Northern Alberta
Institute of
Technology**



PARTNERS:

**Metis Settlements
General Council**



TOTAL BUDGET:

\$1,477,615



AI FUNDING:

\$721,999



PROJECT DATES:

**APR 2023 - MAR
2026**

APPLICATION

This program is designed to support the development, quality, and long-term viability of Indigenous community-based monitoring (ICBM) programs. A new paradigm is proposed where training and applied research are combined and brought to Indigenous communities and executed with community members as part of the team. The program combines NAIT's expertise in environmental science, hands-on training, and applied research with traditional knowledge from community Elders and knowledge-keepers.

PROJECT GOALS

1. Create a highly flexible and customizable training framework in partnership with Indigenous communities to increase reliability and safety of water supplies on traditional lands under their stewardship. The program will enhance community autonomy in designing monitoring regiments, collecting and analyzing samples, processing and interpreting data, and preparing community, government, and industry reports.
2. Validate the unique training opportunity in partnership with Indigenous community members.
3. Address specific concerns of Métis Settlement General Council communities through applied research. Individualized research questions will be designed for each community partner regarding water quality sampling and processing techniques to answer long-term water safety and security needs.
4. Create databases and interactive visualization, enabling effective communication of community data sovereignty goals.

BENEFITS TO ALBERTA

- Aims to build capacity within Indigenous communities in freshwater and groundwater sampling and analysis, directly addressing identified education and training barriers substantiated by Indigenous communities;
- Better understanding of how components of watersheds important to our partners' Indigenous cultural heritage are affected by different environmental stressors such as climate change and industrial development;
- First initiative to assist Indigenous communities in developing freshwater sampling and analysis protocols, as well as laying down the foundations for Indigenous community-based monitoring programs (ICBMs) with the intent of self-sustainability and capacity-building after the lifespan of the immediate project.



2 New
Products/Services



26+ Students
Trained



2 Project Jobs

CURRENT STATUS

2025

NAIT has engaged with four Métis settlements and thirteen First Nation communities, of which four (Peavine, Sturgeon Lake, Kikino, and Sucker Creek) have active learners participating in the program. To date, program learners and NAIT staff have presented at twelve different conferences/symposiums/Indigenous events. Five learners have completed individualized capacity building curriculums and all deliverables for the first two years have been completed successfully or are in progress to be finished by the project's end date.