THEME 4

Water Quality Protection

All Albertans have the right to access safe, secure water supplies. Protecting Alberta's water for safe use and consumption requires a detailed understanding of the input and impact of contaminants to both surface and groundwater, particularly non-point source inputs and emerging contaminants (micro-plastics, pharmaceuticals, etc.).

Climate variability and evolving land management practices will also impact the quality of Alberta's water and challenge conventional water treatment for a growing population. While water quality challenges are being faced across the province, rural, Indigenous and remote communities are in critical need of a focused approach to their unique water security issues.

Alberta Innovates supports projects that tackle emerging water security challenges and priorities.

ALBERTA INNOVATES

Understand, mitigate and manage non-point source contamination.

Understand, mitigate and manage contaminant impacts on water supplies.

Improve understanding of the impact of climate and land management practices on water quality.

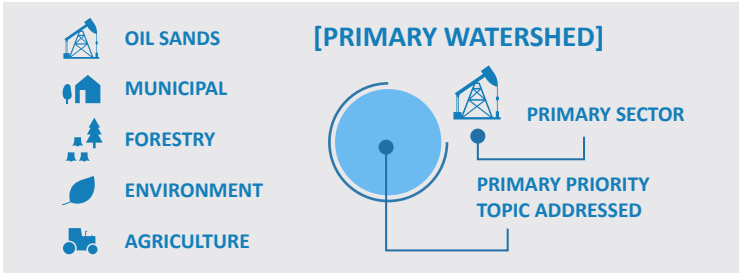
Develop solutions and strategies to address drinking and wastewater challenges in small, Indigenous and/or remote communities.

Support safe oil sands mine water release including development of low-energy mine water treatment options.

THEME 4

Projects by Watershed

Projects supported by Alberta Innovates are helping protect water quality and ensure access to safe, secure water supplies across Alberta's major river basins.



ATHABASCA RIVER BASIN

ProTech Environmental
Electrochemical treatment of ultra-fine oil sands tailings

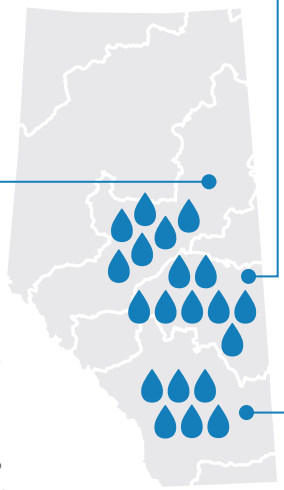
Syncrude Canada Ltd.
Water Return Demonstration Project (WRDP)

H2nanO Incorporated
Sustainable sunlight treatment for accelerated oil sands process-affected water remediation

University of Calgary
Application of genomics to enhance wetland treatment systems in northern environments

University of Waterloo
Drinking water supply after severe wildfire in Alberta: Assessing initial risks and treatment technology resilience

Innotech Alberta
Evaluating the toxicity of dissolved and particulate fractions of eroded oil sands



NORTH SASKATCHEWAN RIVER BASIN

WaterWerx
Decentralized wastewater treatment by resource recovery

University of Alberta
NSERC Associate IRC in Sustainable Urban Water Development

ISL Adapt
Optimizing the treatment of drinking water using reinforcement learning

EPCOR
Low energy ammonia reduction from ammonia-rich sludge thickening lagoon supernatant

MAGNA Engineering Services
Clearwater County—MAGNA Omni-Processor

University of Alberta
A cost-effective sustainable treatment technology for ammonia-rich wastewater

University of Alberta
Characterization of undesirable water-soluble organics in source and drinking water

University of Alberta
Detection and quantification of SARS-CoV-2 in wastewater

PROVINCE WIDE

Canadian Water Network
Canadian Water Network 2015-16 Hydraulic Fracturing Program

Associated Engineering/AEP
Drinking-water infrastructure risk & vulnerability study

University of Alberta
Evidence for the evolution of water treatment resistant pathogenic E. coli—are we on the cusp of a public health crisis?

University of Alberta
Mapping potential point sources impacting Alberta's groundwater by migration of gas from oil & gas well sites

Land Stewardship Association
Septic Sense

Roshan Water Solutions
On-site rapid testing of water samples for E. coli and total coliform

University of Calgary
Occurrence, origin and fate of aqueous contaminants in Alberta groundwater

SOUTH SASKATCHEWAN RIVER BASIN

Alberta Agriculture and Forestry
Advancing denitrifying bioreactors as a beneficial management practice for agricultural drainage waters

BioLargo Water Inc.
Assessing treatment reuse of lagoon wastewater using the advanced oxidation treatment system

University of Calgary
Development of an adaptive monitoring framework for environmental substances of concern in wastewater

University of Calgary
Assessing water quality, microbial risks and waterborne pathogens in rural Alberta using a One Health framework

Elkan Environmental Engineering
BEAST pilot design for NSF-40 certification

Water Care Company Ltd.
Clarification equipment pilot at Stoney Nakoda's Morley Wastewater Treatment Facility

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