

CENTRE OF EXCELLENCE FOR
SUSTAINABLE MINING AND EXPLORATION

STRATEGIC PLAN

2020



Lakehead
UNIVERSITY

Centre of
Excellence for Sustainable
Mining and Exploration





The Centre of Excellence for Sustainable Mining and Exploration (CESME) strives to be a global leader in sustainable resource development.

Our research will enhance sustainable development in Northern Ontario through partnering with our industry and local Indigenous communities.

OUR VISION

The Centre of Excellence for Sustainable Mining and Exploration will encourage and support research, education, and outreach activities regarding the nature and impacts of mineral resource exploration and extraction.

CESME WILL:

- Support the development of community-based research and outreach activities
- Generate research projects that facilitate sustainable resource development in Northern Ontario
- Apply research outcomes to broader sustainable development issues

CESME is built on three key pillars:



CESME was established in 2014 with a goal of bringing together stakeholders to advance the sustainable development of Northern Ontario. To achieve this, CESME is linking Lakehead University researchers with partners from First Nations, Métis, government, and industry.

This collaborative approach recognizes that Canadian natural resource development requires sophisticated planning, collaboration, assessment, implementation, and remediation strategies that are calculated to minimize negative environmental, socio-economic, and cultural impacts.

To further these goals, the Advisory Board has worked with the Director of CESME to establish ten Goals to drive our future activities.



GOAL #1: ENGAGEMENT

OBJECTIVES

1. Contribute to a healthy exploration and mining economy in Northern Ontario by engaging directly with all partners involved, including Indigenous and remote communities, municipalities, producing mines and the exploration industry.

ACTIONS

1. Meet with General Managers of Northern Ontario producing mines to explore mutual benefits, specifically research, business, and workforce opportunities.
2. Engage with senior management for major exploration projects advancing the production in Northern Ontario to identify workforce hiring and research opportunities.
3. Connect with Indigenous community leaders who are, or will be, engaged formally with mines; and to discuss support opportunities that Lakehead University & CESME can offer, including training, education and business themes.
4. Engage municipal leadership in Northern Ontario for communities affected by exploration, development and mining, to share knowledge of the exploration and mining sector.
5. Share information and opportunities with local and national mining organizations.
6. Ensure that the Exploration and Mining industry are aware of CESME.

GOAL #2: RESEARCH GOALS

OBJECTIVES

1. To explore and promote mineral deposit research niches for CESME in areas including: graphite, lithium, copper-zinc, chromium, and diamond deposits.

ACTIONS

1. Research Ontario mineral exploration companies involved in specific commodities.
2. Define the mineral deposit research niches to which CESME can add value.
3. Introduce CESME to industry explorers and develop a background information package on CESME and the opportunities it can bring to the exploration companies.
4. Develop linkages between CESME and industry explorers.



GOAL #3: EDUCATIONAL PARTNERSHIPS

OBJECTIVES

1. Develop working partnerships between Indigenous communities, industry and academic organizations, to ensure that academic programming meets the needs of those groups.
2. Develop education opportunities that provide training for community residents in the subjects most likely to create employment and business opportunities.
3. Provide the knowledge and tools necessary to engage students in understanding their traditional environment, bringing Indigenous traditional knowledge of these environments to these students, and ensuring that they develop a curiosity about, and a full understanding of, the natural surroundings in which they live.

ACTIONS

1. Create a working group to explore the ways in which K-12 teachers might be better equipped and assisted by government, academic, Indigenous and industry organizations to develop an interest in, and excitement about, their natural environment.
2. Establish industry, academic and Indigenous partnerships, assisting all parties to develop their social responsibilities, maximize geological research and enhance educational opportunities.
3. With specific focus on Grades 3, 7 and 11, examine if the curricula provides adequate opportunity for developing geoscience knowledge of the local environment.
4. Develop field-oriented mini projects for teachers, by which to engage them, and subsequently their students, in examining the local natural environment, with a focus on geological processes.
5. Develop short courses, to be delivered in the communities, that develop the technical and business skills necessary to allow Indigenous peoples to more fully engage in the mining industry. These courses should include expertise from the Lakehead University's Faculty of Business Administration, industry and local communities.

GOAL #4: DEVELOP EDUCATIONAL, BUSINESS AND EMPLOYMENT PATHWAYS

OBJECTIVES

1. To establish strong industry and Indigenous contacts.
2. To support the expansion of the Indigenous workforce at mines in accordance with mining companies hiring policies and Impact Benefit Agreement (IBA) employment targets.
3. To assist in developing Indigenous small businesses.
4. To establish and grow partnerships amongst the mineral industry in Northern Ontario.

ACTIONS

1. Engage with Indigenous Community leadership, at national, tribal council and community levels, illustrating CESME's role and offerings academically.
2. Engage with Northwestern Ontario mine General Managers, Procurement Managers and Human Resources coordinators to explore business and educational opportunities in the mining sector for Indigenous people.
3. Meet with local and national mining groups to investigate workforce opportunities in mineral exploration in Northern Ontario.





GOAL #5: DEVELOP A HIGHLY EDUCATED AND SKILLED WORKFORCE

OBJECTIVES

1. To develop a highly educated and skilled workforce to support and grow an innovative mining sector by developing curricula to meet the requirements of Indigenous communities and industry.
2. To develop an Indigenous Certificate in Geological Sciences at Lakehead University.
3. To work with Lakehead University and Queen's University's Engineering Departments to create a Mining Certificate Program.
4. To continue to cultivate active partnerships with other educational institutions.

ACTIONS

1. Establish a working group to advise on the development and content of an Indigenous Certificate in Geological Sciences.
2. Establish a funded and operational Indigenous Certificate of Geological Sciences.
3. Promote and market the Engineering Certificate Program amongst current/future students and industry, assuring that enrollment numbers sustain the programs.



GOAL #6: DEVELOP AND SHARE BEST PRACTICES

OBJECTIVES

1. Develop cutting edge "best practice" for industry and Indigenous community engagement in Northern Ontario for the mining sequence.
2. Establish a working group of Indigenous and industry organizations to establish "best practices", and provide support during the mining process.
3. Provide support during development of accords, regarding the implementation of best practices surrounding exploration and mining activities in traditional lands, while respecting the fact that mineral exploration agreements are confidential and unique to a partnership related to mineral exploration/development activity.

ACTIONS

1. Catalogue all past "best practice" documentation and any and all public mineral agreements between industry and Indigenous peoples (MOUs and IBAs) in a live repository.
2. Consider engaging the services of a professional facilitator in concert with the aboriginal pillar lead or the Director of CESME, to coordinate the meetings, and develop a database of best practise activities.



GOAL #7: SUSTAINABLE GROWTH AND ENVIRONMENTAL MANAGEMENT

OBJECTIVES

1. Engage with producing mines, to discuss their key challenges for sustainable growth and environmental management.
2. Identify baseline, existing conditions at each mine, and the current research relationships with Lakehead University.
3. Partner with local, provincial, and national mining organizations to identify and address key research questions.
4. Seek global success stories as learning tools.

ACTIONS

1. Encourage targeted research in sustainable growth and environmental management.
2. Identify key contacts at local mines and develop research collaborations.

GOAL #8: PROMOTE GEOSCIENCE

OBJECTIVES

1. Promote Northern Ontario's geology to schools and communities, including Indigenous students, in the context of "Northern Ontario as a natural laboratory".
2. Develop partnerships with groups who could assist in knowledge dissemination.
3. Work with industry to provide in-kind and direct financial support.

ACTIONS

1. Approach school boards in Northern Ontario to develop a process to bring a geology and mining based curriculum into the classroom.
2. Share information related to mineralogy, crystals, basic geology, exploration, different methods of mining, environmental protection and partnerships with Indigenous groups.
3. Engage with local events, such as, Thunder Bay Mining Day to showcase geoscience opportunities at Lakehead University.
4. Work with other groups that deliver school-based mining awareness programs to form partnerships to share in costs, curriculum development, and contacts.
5. Formalize relations with companies to provide financial and in-kind assistance in delivering school-based programs, field trips to exploration camps, and mine site operations.





GOAL #9: CREATING ROLE MODELS

OBJECTIVES

1. Identify mineral sector role models to match one-on-one with Indigenous youth seeking career development in exploration or mining.

ACTIONS

1. Contact companies operating in Northern Ontario to identify potential role model candidates.
2. Reach out to mining-related businesses to identify all aspects of the mining sector to include direct professions and jobs and the service and supply sector.
3. Develop policy for vetting role models – ensuring the safety of the students who will be working with the role models.
4. Develop policy identifying process for mentor and mentee interactions, and engage with the Lakehead University's Aboriginal Mentoring Program (AMP) program to develop best practices.



GOAL #10: BUILD CONNECTIONS

OBJECTIVES

1. Identify and engage with Northern Ontario mineral processors.
2. Highlight the research opportunities that Lakehead University's Centre for Advanced Studies in Engineering and Sciences (CASES) can bring to green mineral processing.
3. Facilitate ongoing research between mill processors and the researchers at Lakehead University.

ACTIONS

1. Research and identify all Northern Ontario mineral processors.
2. Develop background information packages about CASES and opportunities in the green mineral processing space.
3. Connect local companies with CASES to fully explore all research opportunities.
4. Monitor activity and progress between mineral processors and Lakehead University researchers.



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**SUSTAINABLE MINING
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955 Oliver Road
Thunder Bay, ON P7B 5E1

+1 (807) 343-8329

CESME.lakeheadu.ca

