



Centre of Excellence for Sustainable Mining and Exploration (CESME)

Annual Report to the Office of Research Services

June 2014

CESME Goals & Objectives

As outlined in the original proposal to the Senate Research Committee the purpose, rationale, mission and goals of the Centre of Excellence in Sustainable Mining and Exploration (CESME) are as follows:

Purpose

CESME will encourage and support research, education and outreach activities regarding the nature and impacts of mineral resource exploration and extraction particularly in Northern Ontario.

Rationale

Northern Ontario's dynamic mining sector is booming, creating challenges regarding how best to undertake sustainable economic development while ensuring environmental protection and respecting constitutionally protected Aboriginal and Treaty rights. CESME will help address these challenges by linking Lakehead University researchers with partners from First Nation, Métis and local communities, 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. CESME uses the term "sustainable" to imply reconciliation of the three pillars of environmental, social equity, and economic demands (2005 World Summit on Social Development) that is now widely recognised by the mining industry. To this end, CESME is structured under three pillars: 1) Mining and Exploration; 2) Environmental Impacts; and 3) First Nation, Métis and Local Community Engagement.

Through the Centre, academic, community, government, and industry partners will carry out cutting-edge research in discovery, advanced exploration, and development, and address the environmental, social and cultural aspects of mineral extraction.

Mission

CESME will:

- Support the development of community-based research and outreach activities in both the Lakehead University community and the region as a whole;
- Generate research projects that facilitate sustainable resource development in Northern Ontario and evaluate the current and future ecological, social, cultural and economic impacts of development; and
- Apply research outcomes from Northern Ontario projects to broader sustainable development issues in other northern Canadian and international jurisdictions and apply the lessons learned in other jurisdictions to Northern Ontario.

Goals

CESME will:

- Increase the capacity for mineral deposit research at Lakehead University and enhance the reputation of the institution in the region, nationally and internationally;
- Increase the capacity for research into the environmental impacts of mining and the sustainability of this activity in Northern Ontario;
- Increase the capacity for research into the social and cultural impacts of mining, especially the involvement of local and First Nation and Métis communities and the recognition of Aboriginal and treaty rights;
- Increase the capacity for research into mining and mineral processing;
- Initiate interdisciplinary research into these fields and develop multidisciplinary research proposals for funding agencies and research partners;
- Bring together a diverse range of researchers at Lakehead University working in fields related to mining exploration, sustainable mining, and environmental and community impacts; and
- Make Lakehead University the hub for sustainable resource extraction research in Northern Ontario.

Progress towards the Centre's Goals

In our original proposal to the Senate Research Committee we indicated that we would achieve the goals of the Centre by undertaking a number of activities. This section lists those activities and highlights progress made.

1. Initiate discussions with the wider community to shape the research activities of the Centre.

We have participated in meetings with a number of groups on and off campus in order to address this point. These include meetings with representatives of the mining industry (Goldcorp, Noront, SNC Lavalin), with First Nations and Métis communities (Métis Nation of Ontario, Lakehead's Ogimaawin-Aboriginal Governance Council, Matawa First Nations), politicians (federal Minister of Natural Resources, Greg Rickford and provincial Minister of Northern Development and Mines, Michael Gravelle) and alumni. In addition, we have established contact with the recently established Northern Policy Institute to explore future collaboration.

2. Generate multidisciplinary research proposals and apply for external funding

We have received a \$150,000 donation from Lakehead University Chancellor Derek and Joan Burney to support a three-year Postdoctoral Fellowship that will be based out of the Department of Economics. We are in the process of soliciting additional funding to support research projects through both philanthropy and research

councils. In addition CESME Director Dr. Peter Hollings is the Principal Investigator on an application for an NSERC CREATE grant entitled “Canadian Sustainable Exploration and Resource Development Training Program” based out of Western with research partners across Canada.

3. *Invite and fund proposals for research and outreach activities*

We are in discussions with local partners to achieve this goal.

4. *Recruit and foster faculty, postdoctoral fellows, postgraduate, graduate, and undergraduate student participation*

As additional funding becomes available we hope to increase student participation in CESME

5. *Establish working relationships with similar national and international centres (e.g., Mineral Deposit Research Unit (MDRU) at the University of British Columbia, Mineral Exploration Research Centre (MERC) at Laurentian, CODES – ARC Centre of Excellence in Ore Deposits at the University of Tasmania, Centre for Exploration Targeting (CET) at the University of Western Australia)*

We have established excellent working relationships with CET and CODES with CESME members currently co-supervising students at both institutions. In addition we are building relationships with the Centre for Excellence in Mining Innovation (CEMI) based out of Sudbury.

6. *Develop and maintain a website for the Centre*

We have established a website that highlights CESME activities and has been used to post presentations and speaker videos from the December Policy conference.

Members of CESME

The following faculty members have signed up as CESME members:

Dr. Matthew	Boyd	Anthropology
Dr. Aicheng	Chen	Chemistry
Dr. Andrew	Conly	Geology
Dr. Bahram	Dadgostar	Business Administration
Dr. Amanda	Diochon	Geology
Dr. Martha	Dowsley	Anthropology
Dr. A. Ernest	Epp	History
Dr. Philip	Fralick	Geology
Dr. Scott	Hamilton	Anthropology
Dr. Mary Louise	Hill	Geology
Dr. Mary Lou	Kelley	Social Work
Dr. Rhonda	Koster	Outdoor Recreation
Dr. Peter	Lee	Biology
Dr. R. Harvey	Lemelin	Outdoor Recreation
Dr. Baoqiang	Liao	Chemical Engineering

Dr. Nancy	Luckai	Natural Resources Management
Dr. Douglas	Morris	Biology
Dr. Wensheng	Qin	Biorefining Research Institute
Dr. Manit	Rujimethabhas (Rappon)	Chemistry
Dr. Chander	Shahi	Natural Resources Management
Dr. Darlene	Steven	Nursing
Dr. Robert	Stewart	Geography
Dr. Shannon	Zurevinski	Geology
Dr Ehsan Rezazadeh	Azar	Civil Engineering
Dr Amir	Azimi	Civil Engineering
Dr Peggy	Smith	Natural Resources Management
Dr Rob	Petrunia	Economics
Dr Jason	MacLean	Faculty of Law
Dr Karen	Drake	Faculty of Law

In addition there is one postdoctoral fellow (Karl Skogstad) and one PhD student (Dan Duckert) affiliated with CESME.

Research Projects & Scholarly Activities

PhD student Dan Duckert, supervised by Dr. Peggy Smith, is studying First Nation community definitions of wellbeing in the face of mining development. His project is titled “Creating a space to speak: Developing a community-based communication strategy for First Nation values and world view related to community well-being and resource development in the Ring of Fire.” The project is in its initial stages, with a literature review completed and community collaboration being sought.

Educational Activities

The primary educational activity undertaken by CESME in the past year was a conference on “The Role of Government Policy in Sustainable Mining Development” that was held at Lakehead University December 5-6, 2013. The conference was attended by 140 participants from government, academia, industry and local, First Nation and Métis communities. Speakers at the conference came from a similarly diverse group and included Jason Aagenes (Cliffs Natural Resources), Mark Bowler (Métis Nation of Ontario), Laura Calmwind (Indigenous Rights Activist), John Cole (Shibogama First Nations Council), Sue Craig (Consultant), Bahram Dadgostar (Faculty of Business Administration), Bill Gallagher (Strategist, Lawyer/Author), Ramsey Hart (MiningWatch Canada), Ugo Lapointe (Coalition pour que le QueMeilleure MINE), Camillo Lento (Faculty of Business Administration), Steve Lindley (SNC Lavalin), Elsie MacDonald (Webequie First Nation), Eliezar McKay (Wunnumin Lake First Nation), Glenn Nolan (Noront), Karen Peterson (Consultant in Planning, Development & Impact Assessment), and Bob Rae (Negotiator, Matawa Tribal Council). In addition, as part of the conference we held a public lecture on the topic of “Creating Possibilities for Aboriginal Youth in Mining” by Laurie Sterritt (BC Aboriginal Mine Training Association &

First Resources Impact Ventures Ltd). The conference would not have been possible without support from eleven corporate partners (Thunder Bay Community Economic Development Commission/Thunder Bay + District Entrepreneur Centre, Cliffs Natural Resources, Nordmin Engineering Ltd, SNC Lavalin, Zenyatta, Stillwater, Genovar, Musselwhite, PDAC, Noront and Superior Survey Inc.

On April 12, 2013 CESME sponsored a talk by Bill Gallagher, author of “Resource Rulers: Fortune and Folly on Canada's Road to Resources”, on “The Rise of Native Empowerment”. The talk was attended by over 45 people.

Undergraduate and Graduate Training

As discussed above we currently have one PhD student undertaking research related to CESME. We are in the process of seeking funding to support CESME-related scholarships that will be used to support undergraduate and graduate research.

Six students registered for the policy conference and an additional 13 participated as volunteers.

We are currently in discussions with CESME faculty about the possibility of establishing a 0.5 FCE course with the theme of Aboriginal Engagement.

Financial statement

CESME is in reasonable financial health thanks to donations of \$18,000 and a profit of \$13,777 from the Policy conference in December 2013. The statement provided below covers the period from the initiation of CESME in 2013 to the end of the 2014 financial year.

Year	Item	Credit	Debit
2013	Startup	\$35,000.00	
	Donations	\$4,000.00	
	Travel & Conferences		\$4,586.71
	Subtotal	\$39,000.00	\$4,586.71
2014	Carry forward	\$34,413.29	
	Donations	\$14,015.00	
	Travel & Conferences		\$7,175.87
	Telecommunications		\$448.35
	Conference revenue	\$34,309.76	
	Conference costs		\$20,532.14
	Subtotal	\$82,738.05	\$28,156.36
	Balance	\$54,581.69	

In addition to the items listed above CESME received a \$150,000 donation from Derek and Joan Burney to support a Postdoctoral Fellow for a period of three years.

One-year and Five-year Plans

The immediate goals of CESME are as follows:

- Complete the staffing of the three pillar leaders. To date the First Nation, Métis and Local Community Engagement pillar is led by Dr. Peggy Smith from the Faculty of Natural Resources Management, and we are currently seeking leaders for the Mining and Exploration and Environmental Impacts pillars. We are looking for dynamic researchers who are willing to play a strong leadership role in CESME activities.
- Establish a Board of Directors for CESME. To date Dr. Jim Franklin has agreed to serve on the Board and we have approached the Ogimaawin-Aboriginal Governance Council for recommendations as to suitable representatives. We are seeking motivated individuals who will provide guidance and serve as ambassadors for the Centre.
- We are in discussions to develop a 0.5 FCE undergraduate course on First Nations engagement that would be taught by members of CESME.
- We have initiated discussions with the Ogimaawin-Aboriginal Governance Council, and Beverly Sabourin and Peter Andre Globensky of BASA Consulting about the possibility of creating a series of courses on the subject of Aboriginal Governance.
- We are seeking funding both from research councils and donors to support graduate and undergraduate research.
- We are considering the possibility of hosting another conference at Lakehead or alternatively providing support to other related events on campus
- We continue to engage with faculty across campus to encourage them to participate in and identify CESME activities.

In the medium term we are seeking to establish three research chairs, one related to each of the CESME pillars (Mining and Exploration, Environmental Impacts and First Nation, Métis and Local Community Engagement). These chairs are critical to the long-term success of CESME as they will provide the core researchers around which Centre activities can be developed. In addition to funding the Chair we are seeking ways to support graduate students and Post-Doctoral Fellows who will undertake much of the research. We are investigating a number of mechanisms to fund these chairs, including:

- The NOHFC Industrial Research Chairs program;
- Corporate donations;
- Philanthropy; and
- NSERC Industrial Research Chairs program

We are working closely with the Office of Research Services and External Relations to achieve this goal.

2014-2015 Budget

Item	Cost
Attend PDAC meeting to promote CESME (2 x\$2,000 people)	\$4,000
Attend Roundup meeting to promote CESME (2 x\$2,000 people)	\$4,000
Conferences for CESME members	\$2,000
Teaching relief for Director and pillar leaders (4 x \$8500)	\$34,000
Promotional materials	\$1,000
Invited speakers	\$3,500
Meetings with external partners	\$3,000
Research projects	\$5,000
Total	\$56,500

Emerging Trends

CESME activities are more important than ever in the face of changing developments and conditions in the mining sector in northern Ontario. The provincial government has made commitments to develop infrastructure to support the development of the Ring of Fire. Market conditions have contributed to Cliffs Natural Resources suspending its operations in the Ring of Fire. A breakthrough in relations with First Nation communities has been achieved through a Framework Agreement negotiated with Matawa First Nations. Environmental assessments are in process for several mining developments across northern Ontario. Recent Supreme Court of Canada decisions (Tsilhqo'tin and Keewatin) have underscored the importance of consultation with First Nations and emphasise the need for CESME.