

BUREAU GÉOSCIENTIFIQUE CANADA-NUNAVUT KANATAMI-NUNAVUMI GEOSCIENCE TITIGAKVIIT

March 21, 2016

To the Canada First Research Excellence Fund (CFREF) Selection Committee:

The Canada-Nunavut Geoscience Office (CNGO) is Nunavut's 'de-facto' Geological Survey. This office opened in 1999 and is supported by two federal departments — Natural Resources Canada (NRCan) and Indigenous and Northern Affairs Canada (INAC) — and by the Government of Nunavut, Economic Development and Transportation. The funds that are provided by these three organizations are used annually for salaries and O & M for CNGO. For core research, CNGO is reliant on additional funds under Strategic Investments in Northern Economic Development (SINED) programming through CanNor (Canadian Northern Economic Development Agency). This research funding is ~\$1.5 million per year.

It is hoped that the CNGO will eventually become self-sustaining and independent and ultimately 'devolve' into the Nunavut Geological Survey. This scenario will likely happen under the auspices of the Government of Nunavut (GN). The office agreement (2013-2018) that manages the core office funding to CNGO, when renewed in 2012, stated that "the intention over the longer term is for the CNGO to grow in geoscience expertise and capacity and operate under the Territorial jurisdiction of the government of Nunavut while continuing to work with GSC and AANDC [now INAC] on a co-operative basis". It is also expected that, when this 'devolution' happens, the geologists working in Nunavut within INAC, GN and CNGO would amalgamate to form Nunavut's Geological Survey.

Nunavut is the largest jurisdiction in Canada, with over 20% of Canada's landmass, but conversely has the smallest population (~33,000 people). The geology of Nunavut is diverse and the commodities sought for economic development and growth are numerous and varied. When the CNGO first opened, it was estimated that over 70% of this territory was insufficiently mapped. Mapping has been conducted regularly since 1999 but with Nunavut being such a large area, there are still many parts of the territory where there is insufficient knowledge and understanding of the rocks and the geological history.

Nunavut has a young government that is continually formulating policy and directions. All recognize that geoscience, exploration and mining, both current and future, have the potential to positively and strongly impact Nunavut's economy. In 2010, when the Meadowbank gold mine first opened, the mine output increased Nunavut's GDP by over 20%. Recently, on March 7, the GN reversed its policy initiative – arguably controversial for geoscientists – involving the government's approach to balancing economic development and wildlife protection within Nunavut. Initially, GN had supported a 'no-development of any kind' stance within caribou calving grounds. With this announcement, the GN now supports 'responsible development' and this includes supporting, with conditions, mining activities on all land.

The CNGO is fully staffed with (only) six people that includes four geoscientists and two computer/GIS professionals. As Chief Geologist, I manage the office and formulate the office's direction. Therefore, my reality is that the CNGO has (only) three geoscientists who regularly conduct field work. Our tiny office strongly relies on, and supports, partnerships and collaborations with other researchers to produce first-rate geoscience research in Nunavut. The Metal Earth mineral exploration research initiative, led by Laurentian University, is one such proposal that CNGO completely endorses.







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The western portion of Nunavut is underlain by rocks of the Archean Slave Geological Province. Within the Slave Craton lie some of Nunavut's, and Canada's, best deposits and prospective rocks. Examples of these include: the Hope Bay Greenstone Belt, which hosts several world-class gold deposits including Doris, Madrid and Boston, owned by TMAC Resources; the High Lake and Izok base metal deposits owned by MMG; the Hackett River base metal deposit owned by Glencore plc; and the George and Goose gold deposits owned by Sabina Gold & Silver Corp. The Hope Bay belt, in particular, has the potential to host more as-yet-undiscovered deposits and become a world-class mining district.

Since 1999, there have been several collaborative research projects undertaken with CNGO – with NRCan (GSC) under GEM (Geo-Mapping for Energy and Minerals) programming, with numerous collaborators under SINED programming, and with private mineral exploration companies. This Metal Earth Project – and particularly for work proposed in the Slave Craton – fits well into CNGO's mandate and goals to map and understand Nunavut's geology. Several recent research projects have involved collaborative work on the Hope Bay belt, and the Metal Earth Project also has a focus on these rocks. I view the CFREF initiative as a chance to further our collective understanding of the genesis of base and precious metals during Earth's evolution.

CNGO's research funding under SINED was renewed for two years (2016-2018) in the recent federal budget. That funding is \$20 million for two years and split amongst the three territories; the specific breakdown of this funding is currently not known. However, I have been working on proposals for CNGO in the order of \$1.5 million annually. I do not have in-house capacity to provide a geologist to work in the Slave Craton but definitely welcome collaboration with the Metal Earth Project.

CNGO can support joint projects under CFREF with graduate students and post-doctoral fellows starting in 2016-2017. This support would include mentoring of graduate students by experienced CNGO geologists, the provision of field assistants, logistical and expediting services, cartographic and GIS support, and collaborative geological mapping and sampling projects for the Slave Craton project. Field-support and in-kind contributions are estimated to be \$10,000 per graduate student per year.

In upcoming years, CNGO geologists conducting field work also can be involved with Laurentian and CFREF. The CNGO has already an established and productive track record of collaboration with researchers at Laurentian, as both Dr. Elizabeth Turner and Dr. Alessandro Ilepi, now professors at Laurentian, worked in this office and continue to have collaboration on SINED projects.

As Chief Geologist of CNGO, I encourage the Canada First Research Excellence Fund to recognize the significant contributions that Laurentian University can make under the Metal Earth Project – to understand the geological history, and the mineral endowment, of Canada's north, a frontier for geoscience in our country.

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