

May 01, 2011

Dr. David Liverman
Assistant Deputy Minister,
Mines Branch, Department of Natural Resources
P.O. Box 8700, St. John's, NL, A1B 4J6

RE: Submission to "A Minerals Strategy for Newfoundland and Labrador"

Dear Dave:

To begin with we wish to thank the Newfoundland and Labrador Department of Natural Resources (NLDNR) for the opportunity to comment on this most important strategic plan for the province; it is highly commendable of the department to not only pursue the development of this strategy, but to seek such wide public consultation throughout the province inviting input from all sectors. We constitute a group of faculty in the Department of Earth Sciences (EASC), Memorial University of Newfoundland (MUN) involved in teaching economic geology and related topics, and conducting mineral deposit research.

There has been a great tradition of mutually beneficial co-operation between the Geological Survey Branch (GSB), NLDNR, and EASC which we trust will continue into the future. We conduct research together, mentor students together, and collaborate on a range of activities from national organizations to running local geological get-togethers. Some of the GSB geologists serve as members of our department in the role of adjunct professors, directly supervising graduate and senior undergraduate students and conducting research. Members of EASC have conducted mapping projects for the GSB. Our laboratories are closely linked, providing a full-range of analytical capabilities for the province.

We also acknowledge the GeoEXPLORE research program recently announced by the Research and Development Corporation of the Government of Newfoundland and Labrador. This program will provide up to \$3 million over three years to support mineral deposit research in the province. This is a very significant contribution and will certainly contribute to our understanding of mineral resources in the province.

As pointed out in your discussion paper, "A Minerals Strategy or Newfoundland and Labrador", the mining and minerals industry is very important to the province. Coupled with petroleum production, the other non-renewable earth extraction industry, the resource business in Newfoundland and Labrador is the principal driver of the provincial economy. As stated in your document, the mining and mineral

industry constitute up to 9% of provincial GDP; this is the highest of all provinces in Canada. Such a reliance on the typically cyclical resource industries for the economic basis of the provincial economy is viewed with alarm by some as secondary processing of, and manufacturing with, the mineral resources is typically completed outside of the province; this may suggest that full-benefits from the resources do not accrue to the provincial economy. This leaves the economy dependant on the vagaries of the commodities market rather than on value-added processing. These concerns, will in part, be alleviated with the construction of the Vale hydro-smelter at Long Harbour which will demonstrate that secondary processing of mineral ores can be profitably conducted in the province.

According to a 2005 report by Mining Industry Training and Adjustment Council – Canada (MITAC) entitled “Prospecting the Future – Meeting Human Resources Challenges in the Canadian Minerals and Metals Industry”, compared to competing industrial sectors in Canada, the average weekly earnings in the minerals and metals industry were second to petroleum. Thus, jobs in the mining and minerals industry are quality ones which provide significant financial benefits to those involved. Many of these jobs are also located in rural areas of the province, providing some of the only employment opportunities in these areas.

As geologists we view the GDP dependence on natural resources somewhat differently. The reason for the great contribution of the mining and mineral industry (along with the petroleum industry) to the provincial economy is not a factor of government incentives, nor proximity to markets, nor population size, nor historical developments, nor specialized home-grown technologies, but is due to the fantastic geological endowment with which we have been blessed in this province. The province has a continent-scale geology with rocks ranging from as old 3.9 billion years, nearly as old as the Earth itself, to younger rocks, ca. 50 million-years old, offshore on the continental shelf. The province contains portions of all major structural provinces of the Precambrian Canadian Shield, plus some of the North Atlantic craton of Greenland that exist nowhere else in Canada.

The island of Newfoundland is the best exposed portion of the Paleozoic Appalachian Mountain Belt that stretches southward through the Canadian Maritimes through the US to the state of Georgia; the zones for this belt through its entirety were defined here in Newfoundland and in fact bear Newfoundland place-names. To many geologists, the geology of Newfoundland was the proving ground for the basic tenet of modern geological thought, plate tectonics.

Then in the offshore, the provincial geology includes the Mesozoic sedimentary successor basins which contain the provincial reserves of one of the most significant global commodities: petroleum. The Grand Banks of Newfoundland constitute the widest portion of these Mesozoic basins and work on our side of the Atlantic is having an impact on potential development of similar-aged basins on the west coast of Ireland.

Simply put, the province of Newfoundland and Labrador is a world-class natural geological laboratory: witness Gros Morne National Park, which is a UNESCO world-heritage based on the exposures of mantle rocks in the Tablelands. The province has affectionately been termed the “rock” (though some find the term pejorative) because the geology is so splendidly exposed in our great and deep fiords, cliffs, river valleys, coasts and mountains, including the Torngats: the highest mountains east of the Rockies. There are very few, if any, other places on the face of the Earth where one can see rocks and geology in such splendor. Memorial University’s new logo is essentially a cliff-face.

From a mineral deposit perspective, because there is such huge temporal range in the rocks and geology, almost every single mineral deposit-type is present in the province at some scale. Granted there are no tropical weathering laterite deposits present today, but there are some in the rock record, including some of the economically most significant iron ores in western Labrador, which were subject to Cretaceous weathering.

We think that given our unique geological setting and the clear role of natural resources in our economic and social well being, it is only logical that we should also be an international leader in education and research in natural resources. We suggest that one of the best ways to achieve that goal would be to turn the province into a world-class educational and research centre in natural resources with Newfoundland and Labrador being the preferred destination for students and researchers to come to learn about the Earth and mineral deposits. Such a facility, for want of a better term, could be called the **Newfoundland and Labrador School of Natural Resources** and would be a consortium between the NLDNR, MUN and the College of the North Atlantic (CNA). The scope of this school could range from full-fledged programs in post-secondary education, and research and development on the main campuses of MUN and CNA, to specialized field trips/ field schools/ field camps for groups from within the province, elsewhere in Canada, or internationally.

MUN is a comprehensive university with a significant group of researchers and educators that have a wide variety of backgrounds who could possibly provide input into such a school. Coupled with expertise at the CNA, the MUN consortium could provide education and research in a full range of activities related to the mining and minerals industry ranging from cradle to grave; *i.e.*, discovery, through development, production and finally reclamation. Seven years ago, geologists and engineers came together at Memorial to develop integrated facilities for mining research at the Inco Innovation Centre, now known as the Bruneau Centre for Research and Innovation. Plans are underway to capitalize on these investments through a consortium of faculty at MUN that will cooperate on multidisciplinary, mining-related research programs. These programs, which will include a wide range of supporting activities from grassroots exploration to green mining, could form an important component of the proposed School of Natural Resources.

Aside from using the sublime provincial geology as the basis for a nationally/internationally attractive school of natural resources, serious consideration must be given to the future effects of demographic changes. In their 2010 report “Canadian Mining Industry Employment and Hiring Forecasts”, MITACS forecasts that the mining industry will need to hire over 100,000 new employees by 2020 just to keep up with retirements

(http://www.mininghrforecasts.ca/en/resources/MiHR_Canadian_Mining_Employment_Forecasts_July2010.pdf).

The Professional Engineers and Geoscientists of Newfoundland and Labrador (PEG-NL) report that fully 29%, almost one-third, of P. Geo. members are from out of province,

(<http://www.pegnl.ca/dialogue/issues/2011/March%202011/Articles/Membership%20Growth.htm>)


suggesting in part that there are not sufficient highly qualified personnel (HQP) available in the province for these very important jobs. In fact, there are signs that some major developments may not proceed because of the lack of HQP. Establishment of a School of Natural Resources would be a means to maximize the benefits from natural resources through the education of future generations of workers who can take advantage of the great natural endowments of the province. We suggest that a workshop be held between government officials, education administrators, NLDNR, MUN and CNA researchers, and industry representatives in order to explore and develop this proposal further.

In terms of specific small points, we would suggest that:

- Though the Junior Exploration Assistance program (JEAP) is a justifiably, widely-lauded program for the junior exploration industry, the program could be used to encourage junior exploration companies to mentor and hire students and/or recent graduates.

- Thought might be given to developing a whole new JEAP program, or modifying the present one, to provide funding to junior exploration companies to conduct research (geological/geochemical/mineralogical/geophysical/environmental, etc.) on their properties using students and/or senior researchers at MUN and CNA. Often a junior company may need the answers to some fundamental questions, such as what is the mineralogy of the ore, on one of their properties before they can proceed further to meaningful development, but they may not have the wherewithal (time, expertise, and/or facilities) to answer such questions.
- The NLNDR should consider becoming a member of the Canadian Mining Innovation Council (CMIC). This newly created council, supported by NRCan, consists of most major mining, mineral exploration and supply companies in Canada and was created “to improve the competitiveness of a responsible Canadian mining industry by strengthening mining research excellence across Canada” (<http://www.cmic-ccim.org/en/>). MUN is set to join and this group could be key in attracting mining-related research to the province.
- Some support should be considered such that the CNA can re-establish its two-year mineral technician program. MUN could also be involved to make sure that the diplomas from this program could be used to provide transfer credits for qualified individuals to enroll in baccalaureate programs.

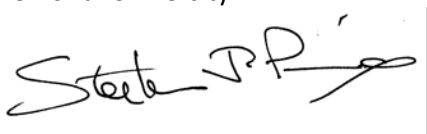
Yours truly:



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A handwritten signature in black ink that reads "Paul Sylvester". The signature is written in a cursive, flowing style with a long horizontal stroke at the end.

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