

Geoscience: The Roadmap to Economic Strength

Ge-o-sci-ence: n. Study of the earth; involves the collection of scientific data, which may be used to identify and assess mineral, petroleum, geothermal and water resources, while also aiding other land use, natural hazard, and environment decisions.



Photo by G. Pignotta



Photo courtesy of Sander Geophysics Ltd.

British Columbia has a rich endowment of energy resources and high mineral potential, together with a vibrant exploration sector. For decades, mineral exploration, mining, oil and gas production have been key drivers of the provincial economy.

In 2009, BC's mining industry generated approximately \$6 billion¹ in total sales value. This activity creates high-paying jobs for more than 13,000^{2,3} people in mineral exploration and mining and provides \$292 million⁴ in payments to the provincial government. Mineral exploration alone creates more than 2,700³ jobs annually in areas surrounding more than 30 communities across the Province. In those same communities, exploration companies spent more than \$154 million³ looking for minerals suitable for production.

The province's oil and gas sector generated approximately \$4 billion³ in total sales value in 2009, providing \$1.4 billion³ in revenue to the Province of BC, accounting for over 50 per cent of BC's total resource revenue. BC's natural gas and petroleum industry provides direct employment for

more than 20,000⁵ people in northern BC communities. Workers in natural gas and petroleum extraction and mining earn some of the highest wages in the province.

The foundation of a healthy resource industry is exploration, which ultimately leads to discovery, new mines, oil and gas production, jobs and a robust economy. To ensure high levels of investment in grassroots mineral exploration and orderly development of energy resources over an extended period of time, BC needs high quality, readily accessible, new geoscience information to be competitive in a global marketplace.

Geoscience opens up new areas for development. A continually expanding knowledge base of geoscience data helps develop clusters of economic activity in support of exploration, mining and oil and gas extraction, attracting talent and helping government make more informed decisions on public investment in infrastructure. Funding geoscience is a sustainable investment in BC's future.



"Geoscience maps and data continue to underpin mineral exploration, just as basic infrastructure supports mine development and the economy as a whole. BC is and should remain a global leader in modern geoscience – geology, geophysics and geochemistry, the tools that explorationists use to make new discoveries to sustain our industry and our Province."

**Dr. Norman Keevil,
Chairman, Teck Resources**

"Up-to-date geoscience data is the foundation for a strong, vibrant mining and oil and gas industry that delivers high-paying jobs, and supports a healthy and sustainable economy in British Columbia."

**Dan Miller, former Premier
of British Columbia**

1 Natural Resources Canada
2 PricewaterhouseCoopers
3 BC Ministry of Energy, Mines and Petroleum Resources
4 BC Ministry of Finance
5 WorkSafe BC





Photo Courtesy of Shell Canada



Photo courtesy of Geotech Ltd.



Photo by G. Lovern

Geoscience BC: A Sustainable Investment in BC's Future

As part of its commitment to the resource sector, the BC government created Geoscience BC (GBC), a non-profit organization, in 2005 through a \$25 million provincial investment to aggressively encourage mineral and oil and gas exploration investment in BC. Original funding was targeted to mineral geoscience (\$20 million) and oil and gas geoscience (\$5 million). In 2008, the provincial government provided an additional \$11.7 million to support mineral geoscience and exploration investment in pine beetle affected areas of the province (\$6 million) and for oil and gas geoscience in northeast BC (\$5.7 million). GBC's collection, interpretation and marketing of geoscience data and expertise in partnership with

industry, academia, government, First Nations, and communities has been a key component of encouraging resource exploration investment and activity throughout the province.

Over the last five years, GBC has undertaken a number of major regional projects using a combination of geoscience techniques including:

- The QUEST series of projects, which combine geophysical and geochemical surveys over large areas of central BC (over 40,000 square kilometres each), to help the mineral exploration industry better understand the geology and potential of the region and guide their exploration programs.

- The Nechako Seismic Project, which is increasing the understanding of the oil and gas potential in central BC's Nechako Basin.
- The Horn River Basin Aquifer Study, a partnership between GBC and industry. The project focuses on identifying subsurface aquifers capable of producing high volumes of water needed for production of shale gas in BC's Horn River Basin and accepting disposal of fluids after production.
- The new Montney Water Project, a partnership and government, will create a comprehensive database of surface water, ground water and deep saline aquifers in the Montney area in northeast BC, to assist in identifying the quantity and quality of water resources in the area.

"It is very important to be able to identify potential minerals in everyone's Traditional Territory. Knowing your own backyard and what might be in it and building a sustainable, environmentally friendly economy is the future for all of us."

**Richard Lebourdais, Hereditary Chief,
Whispering Pines Indian Band**

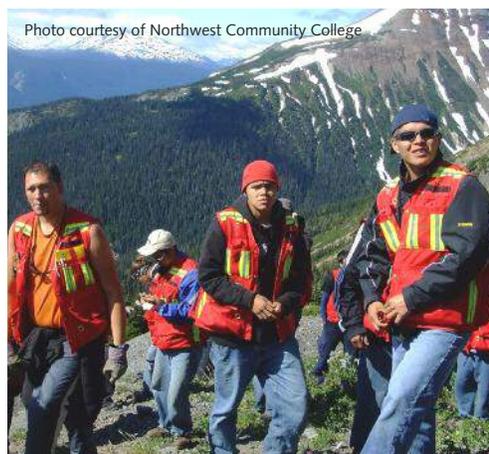


Photo courtesy of Northwest Community College

GBC has also supported over 80 partnership projects and provided support through scholarships and project funding to over 50 geoscience students.

"As we hunt for new exploration opportunities, our principal reviews start with those regions that have committed to capturing geological information through easily accessible, multidisciplinary databases."

**Jason Weber, President,
Kiska Metals Corporation**



Photo by W. Jackaman



Photo by T. Bissig

Photo courtesy of Sander Geophysics Ltd.

A recent independent evaluation of four of GBC's projects has confirmed the substantive benefits that have been delivered through its strategic, entrepreneurial approach to collecting, interpreting and marketing geoscience data. The benefits of just these four projects include:

- More than one million hectares of new mineral claim staking for exploration;
- More than \$8 million in exploration expenditures related directly to GBC work;
- Identification of new resources at the Huckleberry Mine (an estimated 220 jobs and more than \$3 million annually in income to BC if the mine life is extended).

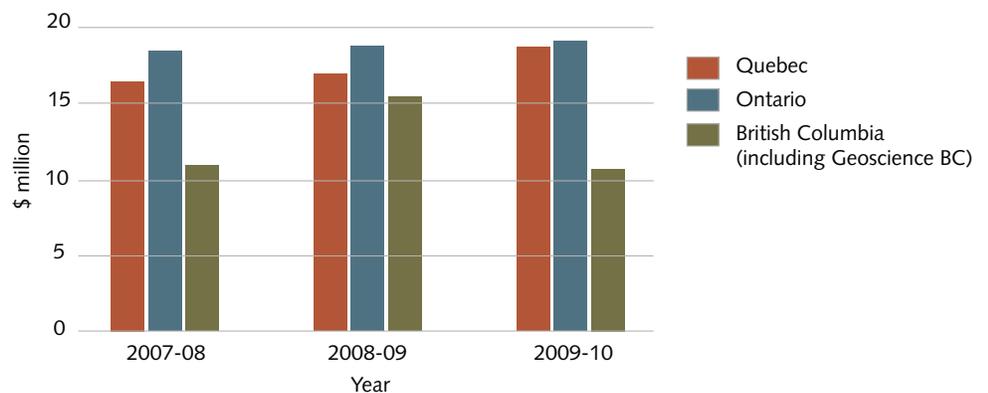
British Columbia remains competitive in attracting international mineral and energy exploration investment. The geoscience knowledge base strongly influences international companies' decisions to invest in BC. Investing in geoscience provides an important strategic edge in a competitive global market and ensures BC's place as a global leader in resource discovery and development.



"Geoscience BC has provided an invaluable service and has created increased interest from the mining industry in what Smithers has to offer as a base for mineral exploration and development."

**Cress Farrow, Mayor,
Town of Smithers**

Geoscience Spending by Year (in \$million)



Provincial spending on geoscience in Ontario, Quebec and British Columbia. British Columbia figures include Geoscience BC spending. Data from Geoscience BC and Duke, J.M. (2010): Government geoscience to support mineral exploration: public policy rationale and impact; Report prepared for the Prospectors and Developers Association of Canada, 64p.



Photo by A. Calvert

"The geoscience data planned in the 5 year Data For Discovery Plan will help us move toward diversifying our economy, creating jobs, and building strong, sustainable communities in our region."

Dave Pernarowski, Mayor, City of Terrace and Chair, Highway 37 Coalition



Photo by G. Pignotta

Data for Discovery

Geoscience BC's new Data for Discovery initiative will stimulate mineral and energy exploration and development investment in BC and continue to position the Province as a preferred global destination for resource exploration and development capital.

The Data for Discovery initiative includes five key areas:

- Mineral Exploration Geoscience
- Energy Geoscience
- First Nations Engagement
- Community Outreach and Awareness
- Marketing BC's Resource Potential and Exploration Advantage

The five-year program will focus on providing new, high quality mineral geoscience information in under-explored areas of the Province, including northwest BC and the East Kootenays. In addition, activities will continue in areas of the Province negatively affected by the Mountain Pine Beetle and other challenges to assist in the economic diversification of these regions.

The Data for Discovery energy geoscience activities will support collaborative studies on water resources in northeast BC, and investigate the geoscience of carbon capture and storage.

The Data for Discovery initiative will also promote engagement of First Nations in geoscience projects, as well as provide information to the public interested in resource developments in their region.

GBC will publish and market the results of all project activities to ensure that both significant short-term benefits to rural and remote communities, and ultimately new mineral and energy discoveries and development in the Province are promoted. In addition, GBC will actively market BC's resource potential and exploration advantage locally, nationally and internationally.

Geoscience BC will provide sustained economic and social benefits to communities across the province, particularly aboriginal and rural communities. A continuing investment of \$10 million annually in the Data for Discovery initiative will solidify BC's position as one of the world's preminent jurisdictions for mineral and oil and gas investment, helping our industries remain healthy, innovative and competitive.

Geoscience BC's public data sets and information will be of value to the exploration sector for the next 15 to 20 years."

Henry Awmack, P.Eng.
Principal, Equity Engineering

FOR MORE INFORMATION

Dr. 'Lyn Anglin
President and CEO, Geoscience BC
Suite 440 - 890 West Pender Street
Vancouver BC V6C 1J9
Tel: 604.662.4147
Email: anglin@geosciencebc.com
Web: www.geosciencebc.com

