Economic Impact of the Mineral Industry in Nova Scotia - 2012 Update

D. A. Khan

Introduction

The mineral industry in Nova Scotia has been an important component of the Nova Scotia economy for over two hundred years, and the Department of Natural Resources (DNR) periodically assesses the economic impact of the industry by sponsoring studies that evaluate the value of mineral production, direct and in-direct employment, and the gross domestic product (GDP) of activities related to mineral production and secondary (value-added) processing of mineral products.

In 2013, Gardner Pinfold Consulting Inc. (GPCI) was issued a contract to update the last mineral industry study completed in 2008, which had used 2006 industry results. The *Economic Impact of the Mineral Industry in Nova Scotia - 2012 Update* study was released in May 2013 as an open file report (ME 2013-003) and used 2012 industry results to model and analyze economic benefits and comment on trends.

The 2012 updated study report focused on overall economic impact results, exploration expenditure trends, mining sector production trends and reclamation activity impacts. It provides a number of graphs showing mineral production values and exploration expenditure trends by commodity produced. This article highlights some of the key indicators and trends that show the impact of mineral exploration and production in the province.

Employment and Gross Domestic Product

Table 1 shows the 2012 mineral industry gross domestic product and employment results. Overall employment was equivalent to over 5,400 person-years and the GDP was about $419 million in 2012.

Figures 1 and 2 show the results of the last three economic impacts studies, which indicate a decline from 2006 values and an increase compared to 2002.

Mineral Production

After a six-year period of increasing values that peaked in 2008 at over $420 million, Nova Scotia has experienced an overall decreasing trend in mineral production value, as shown in Figure 3. The overall value of mineral production was about $247 million in 2012 with construction aggregates representing over 42% of the total value of mineral production.

The majority of the decrease in value of production during the period from 2008 to 2012 was related to the following:

- Suspension of production of zinc and lead at the province's only base metal mine in 2009;
- A severe and unprecedented downturn in the

Table 1. Mineral industry gross domestic product and employment results for

Industry activity	Employment (person-years)			Gross Domestic Product ($ millions)		
	Direct	Spin-off	Totals	Direct	Spin-off	Totals
Primary extraction	1467	1476	2943	139.2	94.9	234.1
Secondary processing	1254	1287	2541	104.3	81.3	185.6
Total	2721	2763	5484	243.5	176.2	419.7

Khan, D. A. 2014: *in* Mineral Resources Branch, Report of Activities 2013; Nova Scotia Department of Natural Resources, Report ME 2014-001, p. 105-110.

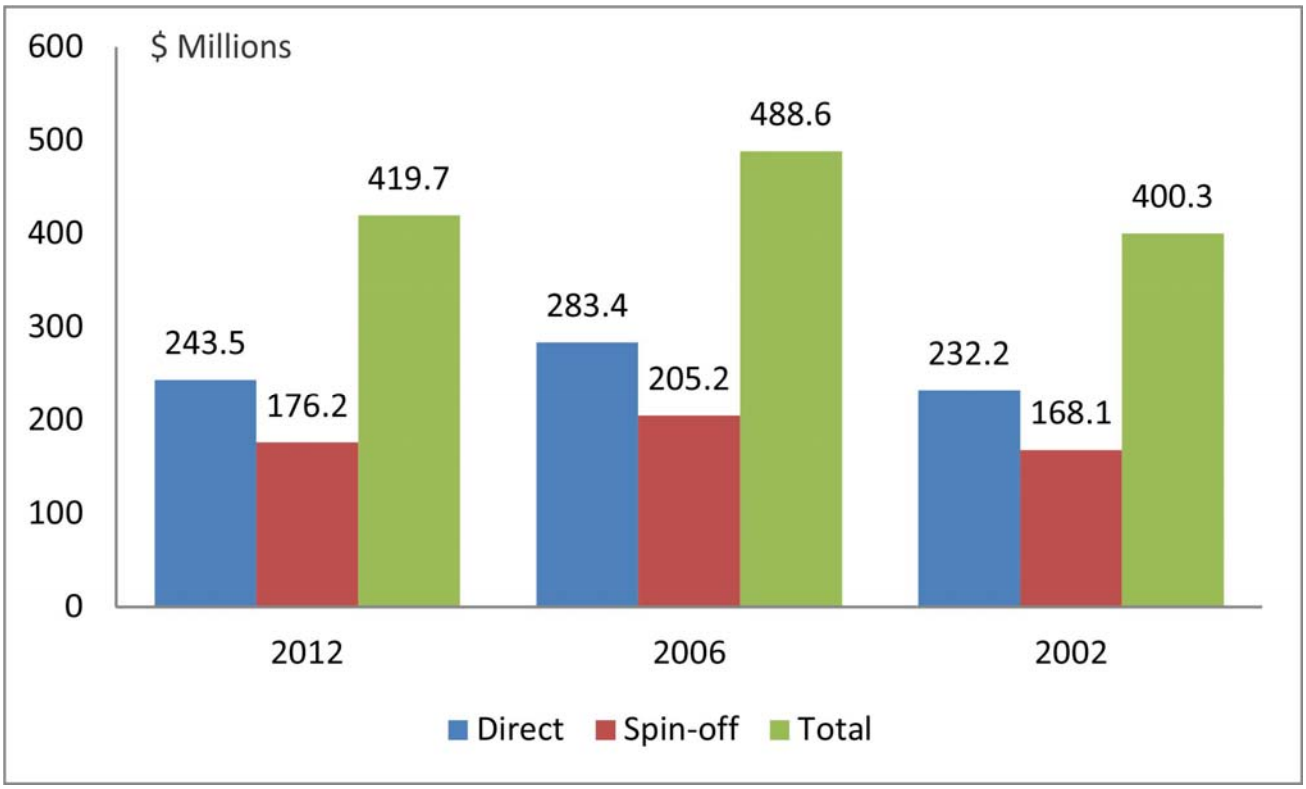

Figure 1. Gross domestic product in millions of dollars for 2012, 2006 and 2002.

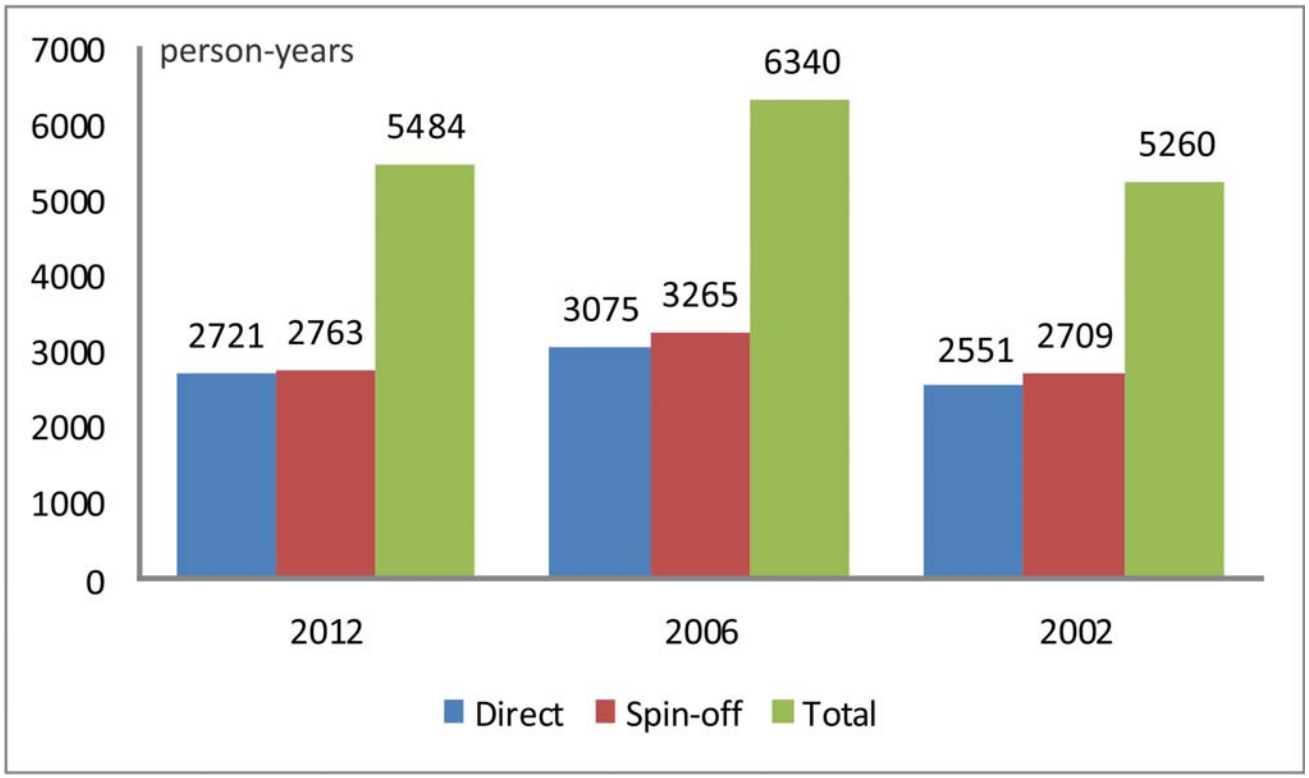

Figure 2. Employment in person-years for 2012, 2006 and 2002.

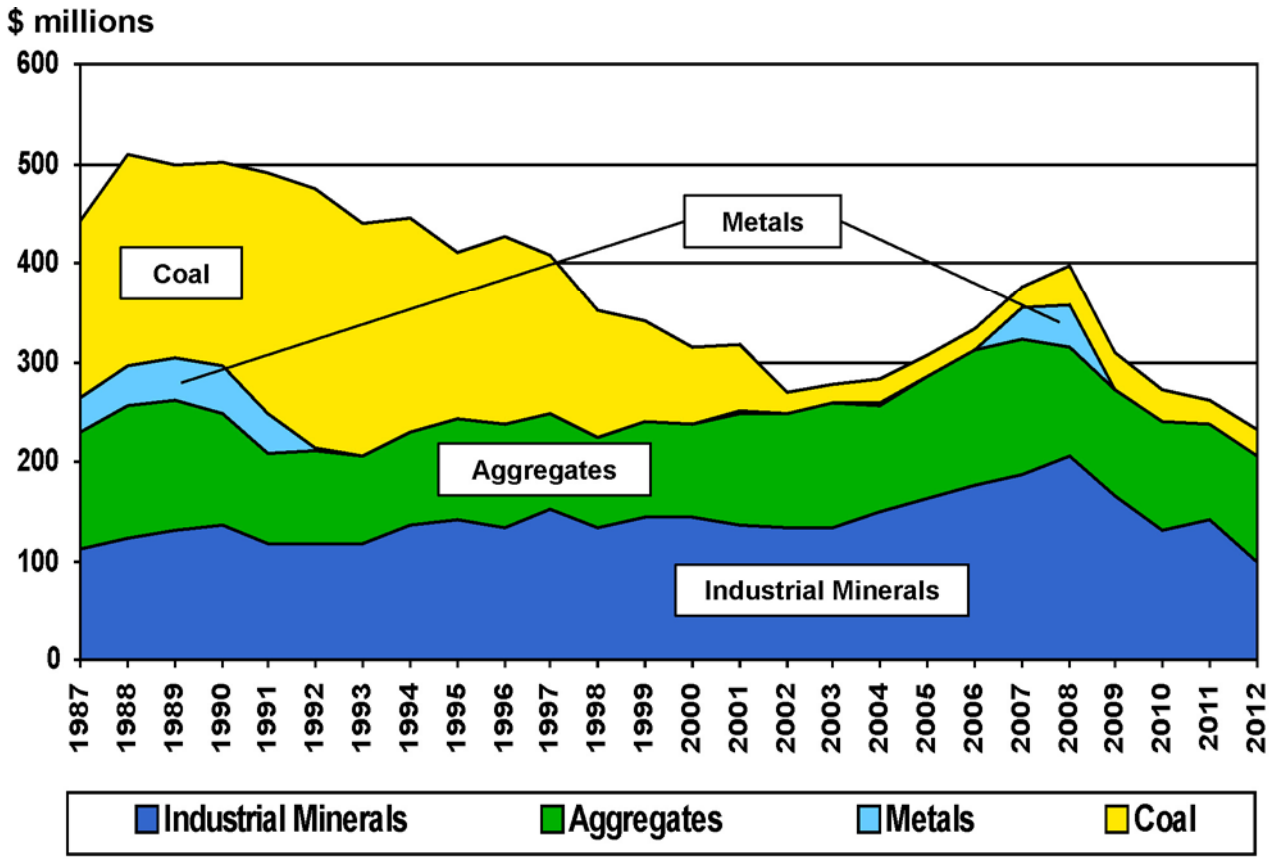

Figure 3. Value of Production 1987-2012 shows steady performance of industrial minerals and aggregates. Overall mineral production values have decreased since 2008.

gypsum mining industry from a record 8.6 million tonnes in 2005 to 2.0 million tonnes in 2012 (a 77% reduction in production); and
- Coal production, from two surface mines, was about 550 000 tonnes in 2012, down from over 700 000 tonnes a few years earlier.

Other major trends were noted:

- Salt and limestone (non-cement) production remained relatively steady over the past five years.
- Construction aggregate production continued on an upward trend, supplying both domestic and export markets. In 2012, the sales-value of 13 million tonnes of aggregate production represented 42% of the entire mineral industry compared to 26% in 2008.
- In 2012, there were no active metal mines operating in the province; however, a company was attempting to re-open a small-scale gold mine in Port Dufferin and has begun de-watering existing flooded workings, and another company has been actively pursuing development of the province's first open-pit gold mine near Moose River.

Exploration Expenditures

Mineral exploration expenditures have been relatively steady and have returned to more normal values after a significant drop in 2009. In 2011, about $11 million was invested in the province, as is shown in Figure 4. The study drew the following conclusions:

- Expenditures related to exploration have generally increased since a recent low in 2001.
- Exploration expenditures are important to specialized technical service providers, whose skills are required to evaluate feasibility. These account for one third of overall exploration expenditures.
- Much of the other expenditures related to exploration take place in local communities.

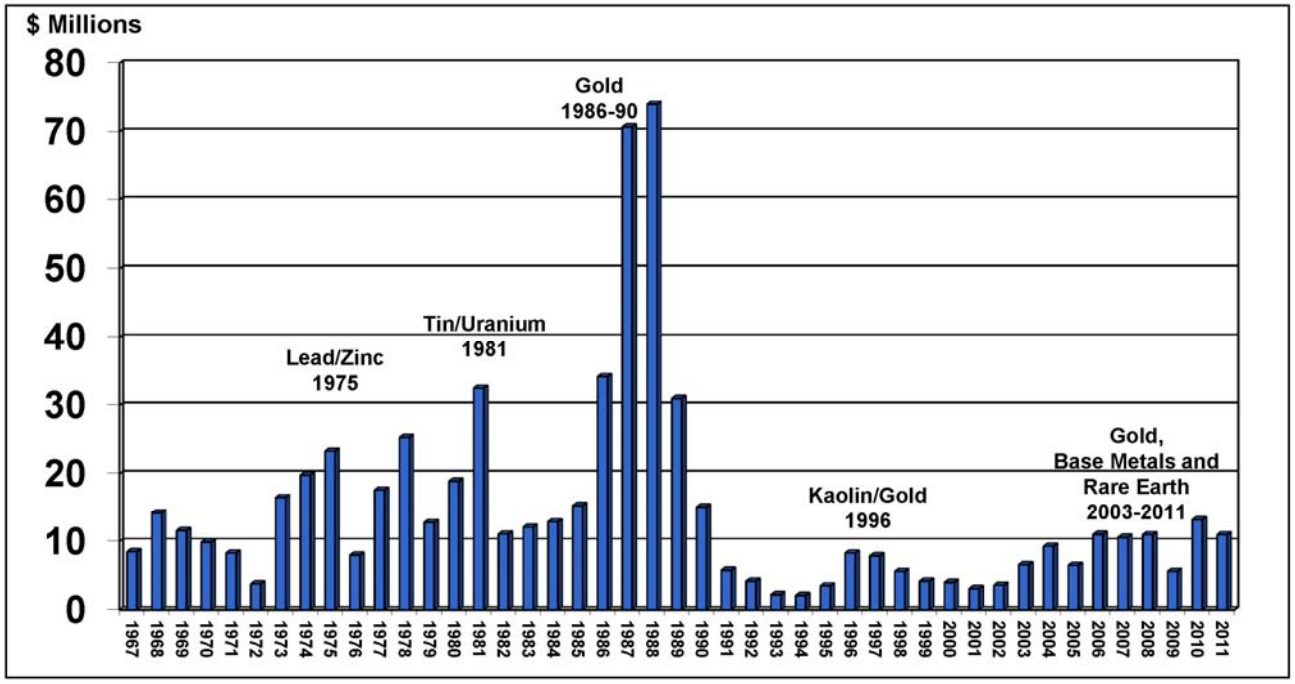

Figure 4. Mineral exploration expenditures 1967 to 2012. Values are adjusted for 2005

Direct Government Revenues

The revenues collected from mineral production royalties, taxes and fees, and from exploration licence fees go directly into general revenues collected by the provincial government. In 2012, nearly $2.5 million in revenues were received through direct revenue through DNR's management of mineral resources (Table 2).

Economic Benefits Associated with Reclamation of Mines and Quarries

The GPCI report provided the following comments on the benefits associated with reclamation activity at mines and quarries in the province.

- In modern society, mines are developed with the intention that upon completion the site will be put to an alternative use.
- Many sites in North America are restored for innovative recreational purposes that provide many tangible and intangible benefits to communities.
- Developers are required to place a bond in Nova Scotia to ensure costs associated with reclamation are covered.

Figure 5 shows reclaimed mine lands following coal extraction in Stellarton, Pictou County. In this particular mineral development project, derelict lands impacted by historical underground mining activity were re-mined to remove remaining coal resources. The reclamation mining allowed physical hazards to be removed, and the lands were backfilled and stabilized, which provided an opportunity to develop valuable community facilities such as the sports track and field, and water reservoir tank for the town of Stellarton. With co-operation of the mining company, municipality and provincial government, planning for this type of reclamation can help provide longer term community benefits following the closure of the mining operations.

How was the Analysis Undertaken?

The GPCI report used the following methods and approach to conduct the analysis:

Table 2. Government revenues collected in 2012 related to both exploration and mineral production activity.

Exploration	Number	Claims	Hectares	**Revenue**
New licences	480	9365	151,592	$92,462
Renewals	535	11,722	189,745	$197,812
Other revenue				
Mineral lease rentals				$60,482
Royalties				$1,686,939
Taxes on non-mineral production				$415,194
Total Direct Revenue				**$2,452,889**

Figure 5. Stellarton surface coal mine and reclaimed areas.

- Interviews were conducted with industry participants to collect expenditure data and to collect information for the initial baseline study done in 2006.
- Mineral production data was primarily sourced from the Nova Scotia Department of Natural Resources and Natural Resources Canada.
- Statistics Canada and Natural Resources

Canada data were used to analyze the secondary mineral-processing industry.
- The Nova Scotia Department of Finance's Economic Impact Model was used to assess the spin-off impacts attributable to the industry for a baseline study.
- Impact ratios were used to update the study to 2012.
- Primary direct economic impacts are those attributable to the individual mine operators, exploration companies or secondary processors. They are the expenditures made by these businesses on various goods (fuel, electricity, etc.) and services (accounting, legal, etc.), including wages and salaries.
- Both capital and operating expenses were included.
- The spin-off or multiplier effect includes both indirect and induced impacts; these result from businesses that supply goods and services to the mining industry. Also, they result from consumers spending the income they earn from both the direct and indirect stages.
- Impacts are reported both in terms of person-years of employment and gross domestic product.

The reader is encouraged to review the report in its entirety. The report can be found at the DNR library in Halifax and the government website: http://novascotia.ca/natr/meb/data/pubs/13ofr03/ofr_me_2013-003.pdf.