

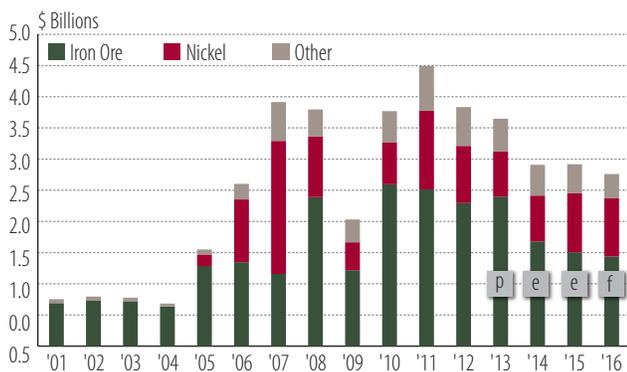
# Mining



*Voisey's Bay Mine Site. Courtesy: Vale*

The value of provincial mineral shipments totalled \$2.9 billion in 2015, representing an increase of 0.4% from 2014 (see chart). This increase was due to higher nickel shipment value which offset lower iron ore shipment value. Total mining related employment (including employment associated with activities at Vale's Long Harbour nickel processing facility) averaged approximately 7,100 person years in 2015.

## Value of Mineral Shipments



p: preliminary; e: estimate; f: forecast

Source: Department of Natural Resources; Natural Resources Canada

## Market Conditions

Market conditions in 2015 continued to be challenging for the mining industry, particularly the iron ore sector. Slowing demand growth for iron ore in China, coupled with an increase in supply stemming from production increases by a number of key global iron ore producers, resulted in a significant decline in iron ore prices. Iron ore spot prices averaged US\$55.54/tonne in 2015, down 42.7% from 2014.<sup>1</sup> Overall, iron ore spot prices have fallen almost 70% in the past two years (see chart). Nickel prices also fared poorly in 2015, averaging US\$5.37/pound, down 29.9% from 2014. Copper prices declined by 19.8% in 2015, averaging US\$2.50/pound.

## Iron Ore

Following the suspension of operations at Labrador Iron Mines and the closure of Wabush Mines in 2014, the Iron Ore Company of Canada (IOC) and

<sup>1</sup> Iron ore spot prices are for iron ore 62% Fe Qingdao China.

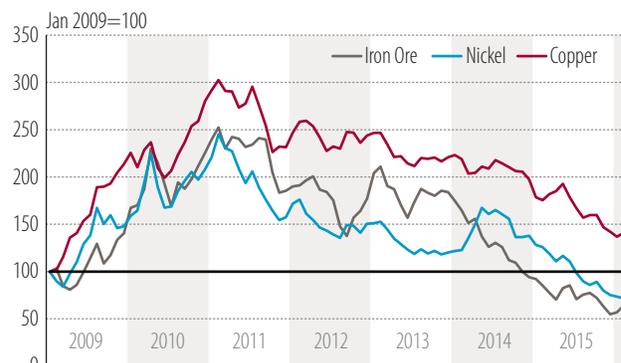
Tata Steel Minerals Canada (TSMC) remain Newfoundland and Labrador's only iron ore producers. Total iron ore shipments for the province were approximately 20 million tonnes in 2015, an increase of about 30% relative to 2014. The growth was due to production increases at both operations. However, the value of shipments fell by 10.3% as lower prices more than offset higher shipment volumes.

## Iron Ore Company of Canada

IOC undertook a \$2 billion concentrate expansion program (CEP) from 2011 to 2014. This program increased its rated capacity to 23 million tonnes from 18 million tonnes. Total production from IOC increased from about 14 million tonnes in 2014 to over 18 million tonnes in 2015. The increase in production was due to efforts to decrease per unit costs, facilitated by the new CEP infrastructure. Most of IOC's costs are fixed costs and increasing production allowed the company to reduce its production costs per tonne.

In November, as a result of the declining pellet premium (the difference in price between pellets and concentrate), IOC shut down three of its six pelletizing lines and shipped the iron ore previously processed at those lines as concentrate instead of pelletizing it. The company continues to look for ways to reduce costs and in December reported that it would not renew its office leases in St. John's and Montreal, though no job losses in St. John's

## Mineral Price Indices



Note: Price indices calculated based on U.S. dollar prices.

Source: Bloomberg

resulted. IOC currently employs approximately 1,750 people and plays a key role in the economy of Western Labrador.

### **Tata Steel Minerals Canada**

TSMC's Direct Shipping Ore (DSO) project, which straddles the Québec-Labrador border, is a joint-venture owned by Tata Steel and New Millennium Iron Corp. The first shipment of iron ore from the project occurred in September 2013. Newfoundland and Labrador's share of shipments during 2015 totalled approximately 2 million tonnes.

Weak iron ore markets have negatively impacted TSMC's operations. In the current environment, the company has determined that it is not economically feasible to operate during the winter months. As a result, the company announced in January 2016 that it was temporarily scaling down winter operations.

Provincial shipments in the coming years are expected to fluctuate as Newfoundland and Labrador's share of the company's production varies. The project (both production and continued development) created employment of over 850 person years in the province in 2015 and will decline to around 200 persons (during operations) in 2017 as construction is completed.

### **Voisey's Bay**

The value of nickel shipped by Vale Newfoundland and Labrador (VNL) increased by 28.6% in 2015. Higher production volumes and a greater portion of the ore processed in the province more than offset lower market prices. Employment for all aspects of the Voisey's Bay project, including mining operations and Long Harbour operation and construction, was about 3,200 person years for 2015. Approximately 450 people were employed at the Voisey's Bay mine site and the balance were associated with the processing plant at Long Harbour. Operational employment (including contractors) at Long Harbour was about 700. Construction activity

remained the biggest contributor to project employment in 2015.

In July 2015, Vale sanctioned the development of the Reid Brook and Eastern Deeps underground mine at Voisey's Bay. Construction is expected to begin in the fall of 2016 and access to the underground ore is expected to extend the life of the mine beyond 2030. Once completed, the underground mine is expected to produce about 40,000 tonnes of nickel concentrate that will be processed into finished nickel at the Long Harbour processing plant.

Phase 1 of VNL's Long Harbour nickel processing facility construction was completed in October 2013, with successful production of first nickel in July 2014. However, construction delays at the plant required amendments to the Voisey's Bay Development Agreement to allow continued export of concentrate from the mine. The latest amendment, announced in February 2015, is expected to result in an additional \$200 million to the Provincial Government and \$30 million for community initiatives in Newfoundland and Labrador. In exchange, the Province raised the export cap allowing Vale to export nickel concentrate from Voisey's Bay until the Long Harbour processing plant reaches full capacity. In January 2016, the plant switched from operating on imported nickel matte to 100% Voisey's Bay high grade concentrate.

### **Other Mines**

Rambler Metals and Mining Canada Ltd. (RMM) extracts and processes ore from its copper-gold Ming Mine on the Baie Verte Peninsula. RMM commenced commercial production in November 2012 and shipped around 4,200 tonnes of copper concentrate in 2015. The original mine plan suggested a six year mine life, but a reserve statement published in early 2014 stated that additional reserves had been identified, adding an extra year to the mine's life.

## Voisey's Bay Port Site, Newfoundland and Labrador.



*Courtesy: Vale*

In July 2015, RMM announced that it had completed a pre-feasibility study of a high-tonnage, low grade resource in the area known as the Lower Footwall Zone (LFZ) located 100 metres below the sections currently being mined. This study outlined a plan to develop the LFZ. If developed, the project would reach full production capacity of 1,250 metric tonnes per day by 2018 and increase the mine life to 21 years.

Anaconda Mining Inc. began gold production in 2008 at its Point Rousse Project near Baie Verte. The project shipped approximately 17,000 troy ounces of gold in 2015 and work continued on exploring and delineating other deposits in the area to extend the life of the project beyond its current three years. Development of the nearby Stog'er Tight gold deposit is underway, following approval under the province's *Mining Act*. The operation currently employs around 90 people.

The Teck Duck Pond copper-zinc mine closed as scheduled on June 30, 2015 due to reserve exhaustion. The operation had employed approximately 300 people. Around 20 people remain employed for work associated with rehabilitation and closure of the site.

Atlantic Minerals continues to mine and ship chemical-grade limestone, chemical-grade dolomite and construction aggregate to markets around the world. The operation is a major employer on the Port au Port Peninsula, generating about 150 person years of employment in 2015.

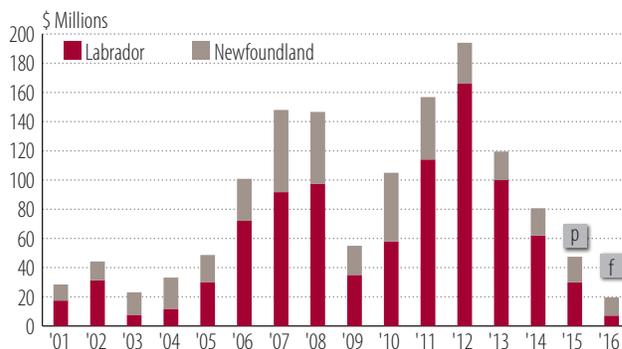
The province's aggregate stone, sand and gravel industry shipped approximately 11 million metric tonnes valued at \$44.4 million last year. This activity generated around 550 person years of employment in 2015, in addition to that at Atlantic Minerals.

## Exploration and Development

Mineral exploration and development activity remained depressed in 2015 due to weak markets and a difficult investment climate. Exploration

expenditures fell to \$47 million from \$81 million in 2014 (see chart).

## Mineral Exploration Expenditures



p: preliminary; f: forecast  
Source: Department of Natural Resources

Several mining projects in various stages of advancement have been either cancelled, postponed or scaled back. Alderon Iron Ore Corp. indefinitely deferred the development of its Kami iron ore project in 2014, and Paladin Energy Ltd. has placed the development of the Michelin Uranium Project into care and maintenance mode, with a reassessment of the project scheduled for July 2017. In September 2015, New Millennium Iron Corp. and Tata Steel announced that they would be reevaluating the proposed LABMAG/KEMAG iron ore project straddling the Québec-Labrador border. The development, rebranded the NuTac project, will consider a number of smaller scale projects that rely more on existing infrastructure.

Nonetheless, some projects are proceeding. Canada Fluorspar Inc. (CFI) is undergoing permitting for its AGS surface and underground mining project in St. Lawrence. The project was released from environmental assessment in November 2015. As well, Search Minerals recently completed a preliminary economic assessment of a rare earth element mine in the Port Hope Simpson area. Construction of a \$1.9 million demonstration plant is underway and the company is in the process of conducting further testing and evaluation of the project while looking for investment partners.

Exploration activities continued throughout many regions of Newfoundland and Labrador, albeit at a reduced rate compared to previous years. Companies such as RMM and Anaconda undertook exploration at or near their current operations in an attempt to identify new resources. Both companies have also made acquisitions outside their current operations. RRM has acquired Thundermin Resources Inc.'s Little Deer copper project and Anaconda has entered into an option agreement with Spruce Ridge Resources Ltd. on its Viking gold project. In addition, junior companies explored for a wide range of minerals including gold, zinc, lead, copper, nickel, rare earth elements and potash.

While the short-term is expected to remain challenging for mineral exploration and development, the province has a vast wealth of mineral resources that offer tremendous future potential when mineral markets improve and prices rebound.

## Mining

### 2016 Outlook

- The value of mineral shipments is expected to decline in 2016 as production increases at IOC are more than offset by lower average prices and reduced shipments from Voisey's Bay.
  - Iron ore prices have rebounded somewhat, and as recently as the end of March, prices rose to around US\$54/tonne from a low of US\$40/tonne in early January.
  - Nickel prices have stabilized in early 2016, averaging US\$3.86/pound in the first three months.
- Construction of Vale's nickel processing plant at Long Harbour will continue with construction work expected to be completed in late 2016 or early 2017. This work will enable the plant to transition from processing only high grade Voisey's Bay nickel concentrate to the introduction of Voisey's Bay middling concentrate.
- Construction on the underground mine at Voisey's Bay is expected to begin in the fall of 2016. Access to the underground ore is expected to extend the life of the mine beyond 2030.
- Exploration expenditures are expected to decrease by about 59% to \$20 million.