



# 2013 Minerals Yearbook

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## NEW CALEDONIA

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# THE MINERAL INDUSTRY OF NEW CALEDONIA

By Susan Wacaster

In 2013, New Caledonia's economy remained heavily dependent upon nickel and byproduct cobalt production. The country ranked among the top 10 nickel-producing nations in the world. Other metallic mineral resources known to occur in New Caledonia include chromite, copper, gold, lead, silver, and zinc. Grande-Terre, the main island of New Caledonia, comprises late Eocene massive peridotites that represent one of the largest mantle rock complexes in the world. The peridotites, through which supergene alteration brought about widespread nickel concentrations, occupy one-third of the surface of Grande-Terre. Mineral production from these structures is fundamental to the economy of New Caledonia. Other significant metallic mineral concentrations are associated with the central plutonovolcanic units, which host volcanogenic massive sulfide (VMS) deposits that contain copper and gold; the volcanosedimentary deposits of the Diahot basin to the north, which contain copper, lead, and zinc (and lesser amounts of gold and silver); the East Coast and West Coast basalt provinces, which host VMS deposits that contain copper and lesser amounts of gold; mineral deposits related to major faults, which may contain antimony, copper, lead, and tungsten; and other mineral occurrences related to granodioritic intrusions, which may contain minor deposits of molybdenum, tungsten, and lesser amounts of antimony (Direction de l'Industrie, des Mines et de l'Energie, 2009).

## Production

In 2013, New Caledonia produced 127,027 metric tons (t) of nickel from 7.8 million metric tons (Mt) of saprolite ore and 36,839 t of nickel from 4.2 Mt of laterite ore compared with 102,400 t of nickel from 6.4 Mt of saprolite ore and 29,300 t of nickel from 3.3 Mt of laterite ore in 2012. In 2013, the amount of nickel derived from ferronickel production decreased by about 6.0% to 40,459 t (Direction de l'Industrie, des Mines et de l'Energie, 2014). Data on mineral production are in table 1.

## Structure of the Mineral Industry

The country's most recent major mineral industry development was the commissioning in 2010 of Vale S.A. of Brazil's Goro nickel and byproduct cobalt operation. Goro was jointly owned by Vale (80.5%), Japanese companies Sumitomo Metal Mining Co. Ltd. (7.6%) and Mitsui & Co. Ltd. (6.9%), and Société de Participation Minière du Sud Calédonie S.A.S. (SPMSC, 5%), which was a change from the ownership structure in 2012 when Vale held a 74% share; Sumitomo, 11%; Mitsui, 10%; and SPMSC, 5%.

The Koniambo nickel mine was a joint venture between Société Minière du Sud Pacifique (SMSP; 51%) and Glencore plc of Switzerland (49%, which is the share previously held by Xstrata plc of Switzerland). In May 2013, Glencore International plc and Xstrata completed a merger whereby Glencore acquired the 65.9% of Xstrata that it did not already

own and changed its name to Glencore Xstrata plc. Glencore Xstrata's profits decreased by 39%; however, in the first half of 2013, the company wrote down the value of the assets acquired in the merger with Xstrata by \$7.7 billion. SMSP continued to be a major nickel ore producer in New Caledonia at the Sud-Pacifique laterite mine, which is located northwest of Noumea. The Sud-Pacifique Mine was a joint venture between SMSP (51%) and POSCO of the Republic of Korea (49%) (table 2; Risenborough, 2013).

In New Caledonia, 20 facilities were in place to handle the transport of mineral commodities, including 5 conveyors, 3 ports, and 12 wharves, which had a combined gross tonnage capacity of 8.09 million metric tons per year (Mt/yr). Of those facilities, 17 were used for exports. Six of the facilities were located in South Province, and the rest were located in North Province. The individual facilities ranged in capacity from 50,000 metric tons per year (t/yr) for the Tanlé wharf in Poum to 786,000 t/yr for the Karembe wharf in Koumac. Of the 20 facilities, 17 were for the movement of ore. The Doniambo port facility was used for the export of ferronickel and nickel matte, and the Baie de Prony port facility was used for the export of cobalt carbonate and nickel oxide and hydroxide. The Doniambo facility had the capacity to handle 206,000 t/yr, and the Baie de Prony facility, 23,000 t/yr. Ownership of the 20 facilities was distributed among eight companies (table 2).

## Mineral Trade

The strength of the economy of New Caledonia was linked directly to the country's trade in nickel and cobalt. Despite a decrease in the value of imports to the country, New Caledonia's trade deficit continued to increase in 2013. The value of New Caledonia's exports decreased in 2012 and 2013, after having increased substantially in 2010 and 2011 when the global economy was rebounding from recession, China was importing ferronickel in greater volumes, and nickel prices were relatively higher than more recently.

In 2013, the value of exported goods from New Caledonia decreased to about \$1.2 billion (88.2% of which was accounted for by cobalt and nickel mining and metallurgical products), or by 9.4% compared with that of 2012, and the value of imports decreased to about \$3.3 billion, or by 3.5%. The value of exported cobalt and nickel products from New Caledonia decreased despite increased ore production because international prices for nickel decreased owing to an oversupply and the injection of nickel pig iron from China into the global market. In 2013, the value of ferronickel exports decreased to about \$560 million, or by 23% compared with the value in 2012; the value of nickel matte exports, to about \$165 million, or by 22%; and the value of exports of nickel content in ores and concentrate, to about \$192 million, or by 18.5%. The values of exported nickel oxide, nickel hydroxide cake, and calcium carbonate increased in 2013 relative to those of 2012 to

\$99 million, \$51 million, and \$12 million, respectively, owing to production from the Goro Mine (Institut de la Statistique et des Études Économique, 2014).

About 50% of mineral exports (by value) from New Caledonia was typically received by countries in Asia. Of that amount, Japan received about 30% and the Republic of Korea received most of the rest. Japan and the Republic of Korea imported mainly nickel ore and ferronickel products. China also imported ferronickel from New Caledonia. The countries of the European Union (EU) were the second-ranked importers of New Caledonia's exports, accounting for 27% of New Caledonia's total. France was the leading EU importer of New Caledonia's products and primarily imported nickel matte. Australia was the third-ranked recipient of New Caledonia's exports and mainly imported nickel hydroxide cake and nickel ore (Institut de la Statistique et des Études Économique, 2014).

## Commodity Review

### Metals

**Nickel and Cobalt.**—In 2013, Vale's Goro nickel mine continued to have difficulties ramping up to capacity, but production in 2013 nonetheless increased to 16,300 t from 4,000 t in 2012. At full production, Goro was expected to produce up to 60,000 t/yr of nickel and 4,650 t/yr of cobalt using high-pressure acid leaching to extract the large volumes of low-grade nickel, but the project had been beset by delays, protests, and vandalism from its inception and since commencing operations in the third quarter of 2010 (Vale S.A., 2010; 2013, p. 7).

In April 2009, commissioning of the acid plant at the Goro Mine was halted after an acid spill into a local waterway. By that time, total capital cost estimates had increased to \$4.3 billion from a 2007 estimate of \$3.2 billion. When the operation commenced in 2010, capital cost estimates had reached \$6 billion. In 2011, efforts to ramp up production continued, but the plant's high-pressure acid-leaching technology was difficult to get started. Output increased at Goro in the fourth quarter of 2011; however, in May 2012, Vale suspended sales and purchases after declaring force majeure following an incident at the mine's sulfuric acid plant. In November 2013, the plant was temporarily closed when a leak was discovered in the 21-kilometer-long effluent pipe leading from the plant into a lagoon that is listed as a United Nations World Heritage Site. The plant was temporarily closed at that time. Production was again halted in early 2014 when an estimated 100,000 liters of effluent spilled into a waterway. This was the fifth such spill at the plant in the past 5 years (Vale S.A., 2012, p. 38; Economist Intelligence Unit, 2013; Radio New Zealand International, 2014).

Production started at the Koniambo nickel mine in 2013. The operation produced 1,400 t of nickel in ferronickel for the year. As of December 31, 2011, proven and probable reserves at the Koniambo nickel project included 62.5 Mt grading 2.4% nickel. The project was expected to process 3 Mt/yr of limonite and saprolite ore during a 25-year mine life and to produce 60,000 t/yr of nickel at full production, which was expected to be reached in 2014 (Xstrata plc, 2011, p. 36; Glencore Xstrata plc, 2014).

## Outlook

New Caledonia is expected to remain a globally important cobalt- and nickel-producing country, and output is expected to increase as production is ramped up at the Goro and the Koniambo Mines. No exploration and (or) development of other mineral resources appeared to be taking place, and no other major nickel operations were in feasibility or later stages of development.

## References Cited

- Direction de l'Industrie, des Mines et de l'Energie, 2009, Geological map of New Caledonia (1st ed.): Noumea, New Caledonia, Direction de l'Industrie, des Mines et de l'Energie, 2 sheets.
- Direction de l'Industrie, des Mines et de l'Energie, 2014, Productions et exportations minières & métallurgiques—Septembre 2014: Noumea, New Caledonia, Direction de l'Industrie, des Mines et de l'Energie, October 20, 3 p.
- Economist Intelligence Unit, 2013, Goro Mine to close temporarily after leak: Economist Intelligence Unit, November 27. (Accessed December 8, 2014, at <http://country.eiu.com/article.aspx?articleid=631275847&Country=New%20Caledonia&topic=Economy&subtopic=Forecast&subsubtopic=Economic+growth&u=1&pid=1032392687&oid=1032392687&uid=1>.)
- Institut de la Statistique et des Études Économique, 2014, Échanges extérieurs: Noumea, New Caledonia, Institut de la Statistique et des Études Économique, 3 p.
- Glencore Xstrata plc, 2014, Production report for the 12 months ended 31 December 2013: Zug, Switzerland, Glencore Xstrata plc, February 11, 9 p.
- Radio New Zealand International, 2014, New Caledonia nickel plant suspended: Radio New Zealand International, May 8. (Accessed December 8, 2014, at <http://www.radionz.co.nz/international/pacific-news/243692/new-caledonia-nickel-plant-suspended>.)
- Risenborough, Jesse, 2013, Glencore posts \$7.7 billion writedown as profit declines: Bloomberg Business, August 20. (Accessed December 8, 2014, at <http://www.bloomberg.com/news/2013-08-20/glencore-posts-7-7-billion-writedown-as-profit-declines.html>.)
- Vale S.A., 2010, Vale's Goro produces its first nickel metal: Rio de Janeiro, Brazil, Vale S.A. press release, August 9, 1 p.
- Vale S.A., 2012, Form 20-F—2012: U.S. Securities and Exchange Commission, 231 p. (Accessed December 8, 2014, at <http://www.sec.gov/Archives/edgar/data/917851/000104746912004389/a2208810z20-f.htm>.)
- Vale S.A., 2013, 4Q12 production report: Rio de Janeiro, Brazil, Vale S.A., February, 15 p.
- Xstrata plc, 2011, Mineral resources and ore reserves: Zug, Switzerland, Xstrata plc, December, 50 p.

TABLE 1  
NEW CALEDONIA: PRODUCTION OF MINERAL COMMODITIES<sup>1</sup>

(Metric tons unless otherwise specified)

Commodity <sup>2</sup>	2009	2010	2011	2012	2013
Cement	140,173	161,236	147,761	123,668	125,000 <sup>c</sup>
Nickel:					
Ore:					
Gross weight thousand metric tons	5,689	8,709	8,835	9,659	11,967
Co content	2,000	2,850	3,240	3,500	3,190
Ni content	95,649 <sup>r</sup>	131,309 <sup>r</sup>	128,732 <sup>r</sup>	131,693 <sup>r</sup>	163,866
Ferronickel:					
Gross weight	156,553 <sup>r</sup>	165,506 <sup>r</sup>	169,513 <sup>r</sup>	184,476 <sup>r</sup>	170,000 <sup>c</sup>
Ni content	38,230	39,802	40,015	43,030	40,459
Nickel matte:					
Gross weight <sup>c</sup>	18,600 <sup>r</sup>	18,600 <sup>r</sup>	18,400 <sup>r</sup>	17,900 <sup>r</sup>	17,700
Ni content	13,902	13,917	13,780	13,417	13,279

<sup>c</sup>Estimated; estimated data are rounded to no more than three significant digits. <sup>r</sup>Revised.

<sup>1</sup>Table includes data available through December 5, 2014.

<sup>2</sup>In addition to the commodities listed, chromite, copper, crushed stone, gold, iron, manganese, silica sand, and silica are produced, but available information is inadequate to make reliable estimates of output.

TABLE 2  
NEW CALEDONIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2013

(Metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity <sup>c</sup>
Cement	Tokuyama Nouvelle Calédonie S.A. (Tokuyama Corp., 74.1%)	Grinding plant, Noumea	200,000
Cobalt, in ore and concentrate, Co content	Société le Nickel (SLN) [Eramet Group, 56%; Société Territoriale Calédonienne de Participation Industrielle (STCPI), 34%; Nisshin Steel Co., 10%]	Kouaoua, Nepoui-Kopeto, Poum, Thio, and Tiebaghi mining centers	3,000
Do.	Vale S.A., 80.5%; Sumitomo Metal Mining Co. Ltd., 7.6%; Mitsui & Co. Ltd., 6.9%; Société de Participation Minière du Sud Calédonie S.A.S. (SPMSC), 5%	Goro, 58 kilometers east of Noumea in South Province	4,600
Nickel			
In ore and concentrate, Ni content	Société le Nickel (SLN) [Eramet Group, 56%; Société Territoriale Calédonienne de Participation Industrielle (STCPI), 34%; Nisshin Steel Co., 10%]	Kouaoua, Nepoui-Kopeto, Poum Thio, and Tiebaghi mining centers	55,000
Do.	Société Minière du Sud Pacifique, 51%, and POSCO, 49%	SMSP laterite operation in South Province	31,000
Do.	Société des Mines de la Tontouta, 100%	Moneo and Nakety mining centers	50,000
Do.	Other small nickel mining companies, including Société Minière George Montagnat SA (SMGM)	Tontouta mining center	1,000
Do.	Vale S.A., 80.5%; Sumitomo Metal Mining Co. Ltd., 7.6%; Mitsui & Co. Ltd., 6.9%; Société de Participation Minière du Sud Calédonien SAS, 5%	Goro, 58 kilometers east of Noumea in South Province	60,000
In ferronickel, Ni content	Société Minière du Sud Pacifique (SMSP), 51%, and Glencore plc, 49%	Koniambo open pit 13.3 kilometers west of Kone in North Province	60,000
Do.	Société Le Nickel (SLN) [Eramet Group, 56%; Société Territoriale Calédonienne de Participation Industrielle (STCPI), 34%; Nisshin Steel Co., 10%]	Doniambo, Noumea	60,000
In nickel matte, Ni content	do.	do.	15,000

<sup>c</sup>Estimated. Do., do. Ditto.