



# 2009 Minerals Yearbook

---

## NEW CALEDONIA

---

# THE MINERAL INDUSTRY OF NEW CALEDONIA

By Susan Wacaster

The archipelago of New Caledonia is an overseas territory of France located in the South Pacific region of Melanesia. In 2009, New Caledonia was the world's fifth ranked producer of mined nickel (in order of tonnage produced) after Russia, Canada, Australia, and Indonesia. Mining began in 2009 at the Goro nickel mine, which was operated by Vale Nouvelle-Calédonie S.A.S. (Vale) (a subsidiary of Vale Inco Ltd. of Canada). The Goro nickel mine was expected to become one of the world's leading nickel laterite mines; however, commencement of the processing plant had been delayed throughout the year because of a spill of sulfuric acid at the plant during commissioning, as well as burgeoning construction costs, local environmental opposition, and decreased nickel demand. In 2009, about 7% of the world's nickel production and about 2% of the world's cobalt production was from New Caledonia. According to Vale Inco, the saprolite and laterite nickel ore resources in New Caledonia represent between 20% and 25% of the nickel resources in the world (Vale Nouvelle-Calédonie S.A.S., 2008; Kuck, 2010; Thomson Reuters, 2010).

## Production

In 2009, New Caledonia produced about 78,000 metric tons (t) of nickel from 4.9 million metric tons (Mt) of saprolite ore and about 14,500 t of nickel from 1.5 Mt of laterite ore for a total of about 92,500 t of nickel and 6.4 Mt of ore compared with 102,700 t of nickel and 6.2 Mt of ore, respectively, in 2008. In 2009, 38,000 t of ferronickel and 13,900 t of nickel matte were produced compared with 37,500 t of ferronickel and 13,600 t of nickel matte, respectively, in 2008 (Direction de l'Industrie, des Mines et de l'Energie, 2010).

## Structure of the Mineral Industry

Table 2 is a list of major mineral industry facilities. At the end of March 2008, Sumitomo Metal Mining Co. of Japan owned 25.5% of the Figesbal cobalt and nickel mine in Noumea. The company reported mineral reserves of 1.5 Mt of nickel metal for the deposit, and the company's share was 386,000 t. Figesbal (also known as Ballande) was an active producing nickel and cobalt mine in 2008. The majority shareholder was Groupe Ballande Figesbal, which was a private company based in New Caledonia (Sumitomo Metal Mining Co., 2008, p. 26).

Gladstone Pacific Nickel Ltd. of Australia (49%) had signed a joint-venture agreement with New Caledonia's Société Minière Georges Montagnat SA (SMGM) (51%) in 2007 for the Ouinne property (also known as Tontouta) in Petit-Borindi. By mid-2009, the joint-venture company, which was called Ouinne SAS, had developed a preliminary mining plan and an initial design for the ore-handling facilities (Gladstone Pacific Nickel Ltd., 2008, p. 12; 2009, p. 6-7).

## Mineral Trade

In 2009, New Caledonian nickel product exports decreased slightly to 52,182 t, or by 1.9% compared with exports in 2008. The amount of ferronickel exported decreased to 36,986 t, or by 4.1% (nickel content), and nickel matte exports increased to 14,196 t, or by 4.0%, in 2009. Three-quarters of the sales of the country's nickel products were received by France (30%, mostly matte), China (18%), Taiwan (15%), and Japan (12%); all except France were countries that had refinery operations in which Vale held significant ownership. The company held a 67% interest in Vale Inco Japan Ltd. in Matsuzaka, which produced intermediate and finished nickel products; a 49.9% interest in Taiwan Nickel Refining Corp. in Taiwan; a 98% interest in Vale Inco New Nickel Materials Co. (Dalian) Ltd. in China; and a 25% interest in Korea Nickel Corp. in the Republic of Korea. Dalian had been expected to start receiving nickel oxide from the Goro Mine in late 2009 (Vale, S.A., 2008, p. 33-34; Institut de la Statistique et des Études Économique, 2010, p. 41-44).

## Commodity Review

### Metals

**Nickel and Cobalt.**—In January, Eramet S.A. of France signed a joint-venture agreement with the government of South Province, New Caledonia, to explore and develop the Creek Pernod and the Prony Bay nickel deposits. The Government of South Province granted a 3-year exploration permit, with the option to extend the permit for a maximum of 9 years, and Eramet had been expected to complete a feasibility study at the property. By July, however, Vale Inco Group filed proceedings with the Noumea administrative court to revoke the exploration rights granted to Eramet. By the end of 2009, Eramet's exploration rights had been cancelled and the company reported that it was appealing the judgment. Eramet stated that it was appealing the decision of the Administrative Court in order to obtain the exploration permit that was needed to ensure the company's future for the very long term in New Caledonia. Exploration rights for the Prony deposit had been contested in the past, primarily around 2002, and it seemed that there had been little or no work completed at the property since that time. The Prony deposit reportedly could be capable of producing as much as 20% of the world's nickel demand, and it was likely that both companies were trying to acquire rights to the property for strategic purposes (Eramet S.A., 2009; 2010a, b).

In April 2009, commissioning of the sulfuric acid plant at Vale's Goro nickel project had been halted after about 2,500 liters of acid spilled into a local waterway. The company reported that some larger quantity of the acid had leaked from an expansion joint in the piping around the plant but that it had been captured in a containment area. Thousands of fish were reported to have died in the area as a result of the contamination.

Initial production had been expected from the facility in January 2010, and Vale expected production to reach 20,000 t of nickel sometime in 2010; by February 2010, however, the operation had not yet commenced production. The company anticipated ramping up to full production capacity of 60,000 metric tons per year (t/yr) of nickel and more than 5,000 t/yr of cobalt by 2013. Proven and probable reserves for the Goro nickel deposit were estimated to be 124.3 Mt grading 1.45% nickel and 0.11% cobalt (Vale S.A., 2008, p. 35; Welch, 2009; Wookey, 2009).

In August 2009, Xstrata plc of Switzerland reported that construction of the Koniambo cobalt and nickel project in Kone, which was jointly owned by Xstrata (49%) and Société Minière du Sud Pacifique (51%), was expected to be 50% complete by yearend; commissioning was scheduled for 2012. Production was expected to commence in the first half of 2012 and would reach full annual production of 60,000 t of nickel in ferronickel within 2 years. Proven and probable reserve estimates at Koniambo included 62.5 Mt grading 2.4% nickel with inferred resources of 82.7 Mt grading 2.5% nickel (Xstrata plc, 2009a, p. 67; 2009b).

In 2009, Société Le Nickel (SLN), which was a subsidiary of the Eramet Group of France, operated five mines in New Caledonia, including the Kouaoua, the Nepoui, the Poum, the Thio, and the Tiebaghi Mine. The Group also produced ferronickel and nickel matte at the Doniambo metallurgical plant. Nickel output at Doniambo was 52,100 t in 2009 (Eramet S.A., 2010b).

The joint-venture company Ouinne SAS commenced a resource definition drill program in January 2008. By June 2009, Gladstone had completed more than 8,500 meters of diamond drilling and estimated an initial ore resource of 40 Mt. The company also reported that additional mineralized areas adjacent to the Ouinne had increased the potential target resource to 70 Mt grading 1.35% nickel (Gladstone Pacific Nickel Ltd., 2008, p. 12; 2009, p. 5).

## Outlook

By the end of 2009, nickel prices on the London Metal Exchange had risen modestly to about the same levels as in early 2006 and late 2008, a period of time that bracketed the boom in international nickel prices. Nickel prices were expected to continue their modest growth into 2010. Nickel mine production volumes increased every month in 2009, and given the recovering international market prices, production and exports were expected to continue at a modest pace. Vale's Goro processing plant is

expected to ramp up to 60,000 t/yr of nickel and 4,000 t/yr of cobalt in 2010, and other projects, such as Koniambo and Ouinne, are expected to begin production in the relatively near term. The country is likely to become a more significant player in the international nickel market, as deposits of nickel laterite found in New Caledonia and other tropical areas become the primary ore for nickel mining, as opposed to the high nickel sulfide deposits that are currently the primary source of those ores.

## References Cited

- Direction de l'Industrie, des Mines et de l'Energie, 2010, Productions et exportations minières & métallurgiques de la Nouvelle-Calédonie: Noumea, New Caledonia, Direction de l'Industrie, des Mines et de l'Energie April 1, 3 p.
- Eramet S.A., 2009, Partnership with the South Province of New Caledonia for development of the world-class nickel deposits of Prony and Creek Pernod: Eramet S.A. press release, January 20, 2 p.
- Eramet S.A., 2010a, 2009 results: Noumea, New Caledonia, Eramet S.A., March 8, 107 p.
- Eramet S.A., 2010b, 2009 results—A year marked by the global crisis, but with an improvement in results in the 2nd half: Eramet S.A. press release, February 18, 11 p.
- Gladstone Pacific Nickel Ltd., 2008, Annual report 2008: Gladstone Pacific Nickel Ltd., October 31, 21 p.
- Gladstone Pacific Nickel Ltd., 2009, Annual report 2009: Gladstone Pacific Nickel Ltd., October 6, 76 p.
- Institut de la Statistique et des Études Économique, 2010, 2009 Bilan Economique et Social: Noumea, New Caledonia, Institut de la Statistique et des Études Économique, p. 51.
- Kuck, P.H., 2010, Nickel: U.S. Geological Survey Mineral Commodity Summaries 2010, p. 108-09.
- Sumitomo Metal Mining Co., 2008, Annual report 2008: Tokyo, Japan, Sumitomo Metal Mining Co., 90 p.
- Thomson Reuters, 2010, Goro nickel plant still not up and running—Vale: Thomson Reuters, February 10. (Accessed July 7, 2010, at <http://www.reuters.com/assets/print?aid=USN1017154020100210>.)
- Vale Nouvelle-Calédonie, S.A.S., 2008, Goro nickel newsletter—The Goro plateau—Geology and water management: Vale Nouvelle-Calédonie, S.A.S., 6 p. (Accessed July 7, 2010, at <http://www.vale.nc/pages-eng/pdfnewsletter/newsletter8.pdf>.)
- Vale S.A., 2008, Form 20-F—2008: U.S. Securities and Exchange Commission, 233 p. (Accessed July 7, 2010, at <http://www.vale.com/en-us/investidores/relatorios-anuais-e-de-sustentabilidade/2008/Pages/default.aspx>.)
- Welch, Katherine, 2009, Vale halts Goro development following acid spill: Mining Journal, April 10, 1 p.
- Wookey, Jethro, 2009, Vale's Goro Ni mine will set the tone for Sherritt's Amabovy: London, United Kingdom, Metal Bulletin, no. 9122, November 2, p. 8.
- Xstrata plc, 2009a, 2008 annual report: Zug, Switzerland, Xstrata plc, 210 p.
- Xstrata plc, 2009b, Xstrata nickel ore reserves & mineral resources: Xstrata plc, 2 p. (Accessed July 7, 2010, at [http://www.xstrata.com/assets/pdf/x\\_reserves\\_resources\\_nickel\\_200910.pdf](http://www.xstrata.com/assets/pdf/x_reserves_resources_nickel_200910.pdf).)

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

(Metric tons unless otherwise specified)

Commodity <sup>2</sup>	2005	2006	2007	2008	2009
Cement	119,302	133,074	121,818 <sup>r</sup>	137,108 <sup>r</sup>	138,114
Nickel:					
Ore:					
Gross weight thousand metric tons	6,445	6,179	7,575	6,172	6,400
Co content	1,769	1,629 <sup>r</sup>	1,620 <sup>r</sup>	869 <sup>r</sup>	1,000
Ni content	111,939	102,986	125,211	102,700	92,500
Ferronickel:					
Gross weight	155,800	162,000	145,000	124,900	114,897
Ni content	46,738	48,723	44,954	37,500	38,299
Nickel matte:					
Gross weight	18,100	19,300	19,500	18,000	19,000 <sup>e</sup>
Ni content	12,838	13,655	14,842	13,600	13,902

<sup>e</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 June 30, 2010.

<sup>2</sup>In addition to the commodities listed, crude (unspecified) and crushed stone, construction sand, and silica sand for metallurgical use are produced, but available information is inadequate to make reliable estimates of output.

TABLE 2  
NEW CALEDONIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2009

(Metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity <sup>e</sup>
Cement	Société des Ciments de Numbo	Noumea	150
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	2,000
Do.	Société Minière du Sud Pacifique (majority owned by the government of Northern Province, New Caledonia)	Boakaine, Ouaco, Poum, and Poya mining centers	1,000
Do.	Groupe Ballande Figesbal, 74.5%, and Sumitomo Metal Mining Co., 25.5%	Figesbal, Noumea	NA
Nickel:			
In ore and concentrate, Ni content	Société Le Nickel (SLN)	Kouaoua, Nepoui-Kopeto, Poum Thio, and Tiebaghi mining centers	61,500
Do.	Société Minière du Sud Pacifique, including Nickel Mining Corp., and Nouméa Nickel	Baokaine, Ouaco, Kouaoua, Poum, Poya, and Nakety mining centers	35,800
Do.	Société de la Tontouta (Ballande Group)	Moneo and Nakety mining centers	16,000
Do.	Other small nickel mining companies, which include Société Minière George Montagnat SA (SMGM), GEMINI S.A.	Moneo and Nakety-Bogota, and Tontouta mining centers	7,300
Do.	Sumitomo Metal Mining Co., 25.5%	Figesbal, Noumea	NA
In ferronickel, Ni content	Société Métallurgique le Nickel-Société Le Nickel (SLN)	Doniambo, Noumea	60,000
In nickel matte, Ni content	do.	do.	15,000

<sup>e</sup>Estimated. Do., do. Ditto. NA Not available.