### THE MINERAL INDUSTRY OF

# **SURINAME**

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In 2000, the World Bank ranked Suriname as the 17th richest country in the world in terms of natural resources. Suriname continued to be one of the world's leaders in the production of bauxite and was a growing producer of crude petroleum and gold. Geographically, Suriname is positioned within the Guiana Shield; this region in northern South America is well known for its untapped resources of copper, gold, iron ore, manganese, nickel, platinum, and uranium. At Jaarbuers 2000, which was Suriname's trade fair, the Suriname Government encouraged businesses to increase their investments to open up the mineral potential of the region (Mohammed, 2001).

A new government was put in place in 2000 as Suriname celebrated its 25th year of independence from the Netherlands. The Association of Surinamese Trade and Industry and the Association of Surinamese Manufacturers were encouraged by the Government's goals of stabilizing the exchange rate, closing the gap with the Government deficit, reducing inflation, and bringing down interest rates (Mohammed, 2001).

In recent years, the Government's policies have been aimed at maintaining an open-market economy to attract foreign investment and to reduce its role in an effort to allow the development of the private sector. This policy has involved privatization and joint-venture projects, especially in the mineral resources sector and in particular in the mining sector; the bauxite industry is strong, and diamond, gold, and kaolin exploration prospects are promising. Some of Suriname's substantial resources of bauxite, gold, and oil were prospected, explored, and developed successfully (Alibux, 1999).

The Government has approved a standard mineral agreement, which allows production and sale of minerals in the open market without restriction, access to foreign exchange at competitive rates, provisions for a tax deduction on reinvestment, and guarantees the repatriation of capital and profits. The benefits include a royalty rate reduction to 2.25%, nominal license fees for exploration and production, and exemptions for mineral rights holders from import duties on equipment used for mining, milling, and future expansions. Expenditures on prospecting, exploration, and other preproduction costs can be written off during the first 5 years of operations (Alibux and Mackenzie, 1998a; Alibux, 1999).

Suriname's aluminum industry suffered a setback when the Paranam plant, which was a medium-sized bauxite refinery and aluminum smelter, was closed; the plant was jointly owned by Billiton Maatschappij Suriname N.V. (BMSNV) of the Netherlands and Suriname Aluminum Co. (Suralco) (a subsidiary of the Alcoa Inc. of the United States). The French aluminum company Pechiney SA signed a preliminary deal on March 6, 2000, to build a \$700 million aluminum plant in western Suriname (Aluminum Association, March 7, 2000, Pechiney to build plant in Suriname, accessed May 10, 2001, at URL http://www.aluminum.org/dailya.cfm?docid=108).

Suralco's bauxite Coermotibo Mine produced 2 million metric tons per year (Mt/yr) and was expected to produce about 4 Mt/yr of bauxite into the next decade. The Accaribo Mine [a joint venture of Suralco (76%) and BMSNV (24%)] produced 1 Mt/yr of bauxite. After its reserves are depleted, which will be soon, bauxite production will come from the Lelydorp III deposit, which has reserves of 19.5 million metric tons (Mt) at a grade of about 53% Al<sub>2</sub>O<sub>3</sub> and will produce 2 Mt/yr of ore.

In 1999, a \$1.4 million feasibility study was conducted on the Bakhuis bauxite project in southwestern Suriname by BMSNV and Alcoa, which led to the discovery of additional resources estimated to be 400 Mt of bauxite ore. These resources are located in the remote western part of the country where adequate infrastructure is lacking. Adding to the resource base for bauxite was an increasing concern as identified reserves in 2000 were expected to be completely depleted within the next 10 years (Alibux and Mackenzie, 1998a; Harris, 1998; Alibux 1999).

The Government believed that unrecorded gold production from small-scale localized alluvial placer deposits in 2000 could be as high as 30,000 kg, although reported gold production was only about 300 kilograms (kg) by Canarc Resource Corp. of Canada (Mbendi Information Services, [2001], Suriname—Mining—Gold mining, accessed March 7, 2001, at URL http://www.mbendi.co.za/indy/ming/gold/sa/sr/p0005.htm). Many of the people mining these alluvial deposits were from Brazil. Nearly 40,000 Brazilians lived in Suriname with most coming into the country during the past several years in search of gold. Overall, more than 15,000 people were employed in the gold industry (CNN, August 9, 2000, Brazilian gold miners flood Suriname in search for gold, accessed May 10, 2001, at URL http://europe.cnn.com/2000/WORLD/americas/08/08/suriname.littlebrazil.ap).

Canarc announced that the proposed DP Gold Mine on the Sara Kreek Property would start full operations in September 2000. The reserves were estimated to be 490 kg (16,000 ounces) of gold contained in 65,000 metric tons of soft saprolite ore that grades 7.5 grams per metric ton (g/t) gold. The proposed open pit will be mined with a truck-and-shovel operation with an 8-to-1 waste-to-ore stripping ratio. Capital and operating costs were estimated to be \$650,000 and \$90 per ounce, respectively (Business Wire, February 7, 2000, Canarc approves optimization report on proposed DP Gold Mine, Sara Creek property, Republic of Suriname, accessed February 8, 2000, at URL

http://biz.yahoo.com/bw/000207/canarc\_res\_1.html). Canarc also was negotiating with the Government of Suriname to explore for and develop a large modern gold mine on the Benzdorp property in southeast Suriname.

The Gross Rosebel gold property, which is 80 kilometers (km) south of Paramaribo, was the most advanced gold

development in Suriname. Golden Star Resources Ltd. (GSRL) of the United States (50%) and Cambior Inc. of Canada (50%) announced that Gross Rosebel's updated reserves based on a \$300 per ounce gold price amounted to 49 Mt at a grade of 1.6 g/t gold. Savanna Resources Ltd. of Canada also explored for gold near Brokopondo Lake (Mohammed, 2001).

The state-owned mining company Grasshopper Aluminum Company NV was planning to export dimension stone in the near future. The granites on their 1,600-hectare concessions have excellent tile and block production potential (Alibux and Mackenzie, 1998a).

The state-owned oil company Staatsolie Maatschappij Suriname N.V. (Staatsolie) reported that 13,000 barrels per day (bbl/d) of crude oil was produced from the Tambaredjo fields, which were 22 km west of Paramaribo. Tambaredjo was estimated to contain net reserves of 153 million barrels (Mbbl). Staatsolie expected to increase crude oil output to about 20,000 bbl/d (Mohammed, 2001).

Koch Industries Inc. of Canada signed a 20-year productionsharing contract with Staatsolie. The partners intended to focus on heavy oil on their 140,000-acre tract in the Wayombo area of Suriname (Oil & Gas Journal, 2000). In the offshore areas, negotiations with a consortium led by Shell Exploration and Production of the United Kingdom were in the final stages (Alibux, 1999).

In 1998, the Tout Lui Faut Canal refinery, in which \$65 million has been invested, was operating at maximum capacity of 3.8 million barrels per day (Alibux and Mackenzie, 1998b; Alibux, 1999). Some 40% of the crude was exported, and most of the remainder was used in the bauxite, alumina, and aluminum industries. Staatsolie built a 55-km pipeline from the Catharina Sophia field at Tambaredjo to the Suriname River export terminal at Tout Lui Faut, which is 5 km south of Paramaribo.

In the near future, Suralco and BMSNV will continue to control the bauxite mining industry, with Cambior, Canarc, GSRL, and KWG Resources Inc. of Canada involved in gold exploration. Staatsolie will continue to be involved in the development and production of petroleum (table 2).

Because mineral rights in Suriname continue to be vested with the Government, exploration rights are granted by the state. The primary mineral produced was bauxite, but deposits of other minerals, such as gold, nickel, platinum, and tin, may attract further exploration. There are also a number of future prospects for diamond, dimension stone, kaolin, and silica. The prospects for the Surinamese economy also improved because of its strong bauxite-alumina-aluminum industries and the Government's commitment to creating an environment that will attract private investment. Foreign investors, particularly from Canada, the Netherlands, Norway, and the United States, were giving closer attention to the diamond prospects, gold deposits, and significant crude oil deposits in Suriname.

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#### **Major Sources of Information**

Geologisch Mijnbouwkundige Dienst

Kleine Waterstraat 2-6 Paramaribo, Suriname Telephone: (597) 476215

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Staatsolie Maatschappij Suriname N.V.

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 ${\bf TABLE~1}$  SURINAME: ESTIMATED PRODUCTION OF MINERAL COMMODITIES 1/2/

(Thousand metric tons unless otherwise specified)

Commodi	ty	1996	1997	1998	1999	2000
Aluminum:						
Bauxite, gross weight		3,695 3/	3,877 3/	4,000	3,600 r/	3,600
Alumina		1,600 3/	1,600	1,600	r/	
Metal, primary		32 3/	32	29 3/	6 r/	
Cement, hydraulic		60	60	65	65	65
Clays, common		20	20	20	20	20
Gold, mine output, Au content	kilograms	300	300	300	300	300 4/
Petroleum, crude thousa	and 42-gallon barrels	1,825 3/	2,000	3,832 3/	3,800 3/	4,400
Sand and gravel:						
Gravel		35	35	35	35	35
Sand, common		160	160	160	160	160
Stone, crushed and broken		50	50	50	50	50

r/ Revised. -- Zero.

 ${\it TABLE~2} \\ {\it SURINAME:}~ {\it STRUCTURE~OF~THE~MINERAL~INDUSTRY~IN~2000}$ 

(Thousand metric tons unless otherwise specified)

	Major operating companies	Location of main	Annual
Commodity	and major equity owners	facilities	capacity
Bauxite	Suriname Aluminum Co. (Suralco) [Aluminum Co. of	Mines at Accaribo, Coermotibo, and	4,000
	America (Alcoa), 55%; Billiton Maatschappij Suriname	Lelydorp III, District of Marowijne	
	N.V. (BMSNV), 45%]		
do.	Suralco, 76%; BMSNV, 24%	Accaribo Mine, District of Para	1,000
Cement	Vensur N.V. (private, 100%)	Paramaribo, District of Para	65
Gold	No major operating companies	South and east Suriname	NA
Petroleum	Staatsolie Maatschappij Suriname NV (Government, 100%)	Tambaredjo, District of Saramacca	4,400 1/

NA Not available.

<sup>1/</sup> Includes data available through June 2001.

<sup>2/</sup> Data are rounded to no more than three significant digits.

<sup>3/</sup> Reported figure.

<sup>4/</sup> Government estimates of unrecorded production are as high as 30,000 kilograms.

<sup>1/42-</sup>gallon barrels per year.