

THE MINERAL INDUSTRY OF

SURINAME

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In 1997, Suriname depended on bauxite, the main source of alumina and aluminum, for almost 70% of its exports earnings and about 15% of its gross domestic product (GDP) of \$300 million¹ (U.S. Embassy, Paramaribo, Suriname, 1997, p. 3). Bauxite mining, refining, and smelting were the principal industrial activities of the country, which ranked among the top 10 bauxite world producers with a production of some 4 million metric tons per year (Mt/yr). Reserves have been estimated to be 575 million metric tons (Mt). Mining in general accounted for about 4% of the GDP. During the period from 1993 through 1996, Suriname accounted for 8% of U.S. alumina imports and ranked third behind Australia (70%) and Jamaica (9%) (Plunkert, 1998, p. 28).

In recent years, the Government's policies have been aimed at attracting foreign investment and encouraging the formation of the private sector through joint-venture opportunities, especially in the natural resources sector and in particular in the mining sector with a strong bauxite industry and promising gold and diamond exploration prospects.

According to the Vice President of the Republic of Suriname, the Government operated on a balanced budget, Government regulations decreased substantially, the corporate income tax rate was reduced to 38% from 50% in 1994, and tariff rates for imports, in general, decreased significantly through a sliding scale mechanism. The Government has approved a Standard Mineral Agreement (SMA), which allows production and sale of minerals at world market prices without restriction, access to foreign exchange at open market rates, provisions for a tax deduction on reinvestment, and guarantees for the repatriation of capital and profits. SMA's benefits included a royalty rate of 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 (Radhakishun, 1997, p. 2-4).

Under Suriname's current mining law, four types of mining titles, which cover diamond, gold, and other minerals can be issued. They were reconnaissance rights for up to 200,000 hectares (ha) for a maximum of 3 years; exploration rights for up to 40,000 ha for a maximum of 7 years; exploitation rights for up to 10,000 ha for 25 years; and small mining rights for alluvial or shallow mining (Ministry of Natural Resources, 1997, p. 4). Multiple applications may allow a corporation to hold a larger area, following successful prospecting or exploration, for purposes of additional exploration or mine development. Exploration and production titles can be transferred to other qualified parties having the ability to obtain environmentally sound modern mining technology and to establish a competitive mineral industry.

¹Where necessary, values have been converted from Surinamese florin (Sf) to U.S. dollars at the rate of Sf1.7850=US\$1.00.

Bauxite and alumina continued to dominate the industry's annual output. Gold produced by small placer miners south and east of the South Benzdorp area was sold to the Government. Gold, petroleum, and sand production were expected to increase in the near term. (*See table 1.*)

Suriname's privately owned multinational companies mined bauxite and processed alumina and aluminum. The Paranam plant, a joint-venture owned by Suriname Aluminum Co. (Suralco) (55%), a subsidiary of the Aluminum Co. of America (Alcoa) of the United States, and NV Billiton Maatschappij Suriname NV (BMS)(45%) of the Netherlands, is a medium-sized bauxite refinery and aluminum smelter 25 kilometers (km) south of Paramaribo. Paranam produced about 1.6 Mt/yr of alumina, and its smelter produced 32,000 metric tons (t) of aluminum. Suralco's bauxite mineable reserves at the Moengo mines were being depleted, and will be largely replaced by the Coermotibo Mine, which can produce about 2 Mt/yr of bauxite into the next decade.

Acaribo Mine, a joint-venture of Suralco (76%) and BMS (24%), produced 1 Mt/yr of bauxite; its mineable reserves, however, were expected to be depleted soon, then bauxite production will come from the Lelydorp III deposit, which has reserves of 19.5 Mt grading about 53% Al₂O₃ and will produce 2 Mt/yr of ore until 2006. A \$1.4 million feasibility study was being conducted on the Bakkuis bauxite project in southwestern Suriname by BMS and Alcoa; its current resources were estimated to be from 300 to 400 Mt (Mining Journal, 1996, p. 7).

Gold concessions were negotiated with Grasshopper Aluminum Company N.V. (Grassalco), a state-owned mining company. The Gross Rosebel gold property, 80 km south of Paramaribo, was the most advanced gold exploration and development in the country. In October 1997, Golden Star Resources Ltd. (GSRL) of the United States (50%) and Cambior Inc. of Canada (50%), announced Gross Rosebel's updated proven and probable reserves amounting to 49 Mt grading 1.6 grams of gold per ton (Golden Star Resources Ltd., 1997). The Gross Rosebel feasibility studies continued. Tax issues, Government approvals, foreign investment insurance, and the relocation of Nieuw Koffiekamp (a small village on the concession), however, still must be resolved. The expected gold production is about 8 metric tons per year (t/yr). The initial target for the feasibility study contemplated mining reserves that contain 62.2 t of gold and use a plant with a milling production capacity of from 12,000 to 16,000 t per day of ore (Cambior Inc., 1997a).

During 1997, GSRL continued gold exploration in other areas of the Guiana Shield, mainly on the following exploration properties: Headley, Sara Kreek, Saramacca, South Benzdorp, Tapanahony, Tempati, and Thunder Mountain. Gold mineralization occurs in the Precambrian Paramaka Formation of Suriname. Gold placers were worked by garimpeiros (small-scale independent miners) in the Benzdorp area; their estimated gold production could amount to 0.3

t/yr. The Surinamese Government, however, indicated that the country's unrecorded gold production was estimated to be about 1.0 t/y (Ministry of Natural Resources, 1997, p. 3).

Reportedly, Canarc Resources of Canada (Canarc) acquired an 80% interest in the Sara Kreek concession covering 22,500 ha in east-central Suriname about 150 km north of Paramaribo. Canarc and its Surinamese partner, Wylap Development Co., conducted feasibility studies for a large surface gold mine at Sara Kreek, where placer gold production was already underway. Gold Vessel Resources (GVR), a subsidiary of Saint Genevieve Resources of Canada, signed an agreement with Surinamese interests to participate in three gold properties. Two of them comprised 20,000 ha in the Sipalvini District, where small-scale gold mining was being conducted. GVR and its partner Margo Mining Co. applied for permits to explore 65,000 ha on properties held by GSRL near Gross Rosebel. GVR also applied for five permits to explore a 259-square-kilometer area near the western border with Guyana.

The state-owned oil company, Staatsolie Maatschappij Suriname N.V. (Staatsolie), was completing a refinery for heavy-vacuum gas oil, diesel, and asphalt (Ministry of Natural Resources, 1997, p. 3). Staatsolie reported that about 5,000 barrels per day (bbl/d) of heavy, sweet crude oil are produced from the Tambaredjo and the Borneo fields west of Paramaribo (Mining Journal, 1996, p. 10). The company was expected to increase crude oil output at Tambaredjo to 7,500 bbl/d by 2000. Some 40% of the crude was exported and most of the remainder was used in the bauxite, alumina, and aluminum industries. Staatsolie continued with the construction of a 55-km pipeline from the Catharina Sophia field at Tambaredjo to the Suriname River export terminal at Tout Lui Faut, 5 km south of Paramaribo. The Tout Lui Faut Canal was proposed as the site of the Staatsolie refinery. Staatsolie reported that the Tambaredjo and the Borneo fields have proven reserves of 25 million barrels (Mbbbl), with an additional 40 Mbbbl as probable reserves (Harben, 1997).

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

Because mineral rights are vested in the State, exploration rights will continue to be granted by the Government. Although the primary mineral produced is bauxite; deposits of other minerals, such as, gold, nickel, platinum, and tin may attract further exploration. There are also a number of future prospects for dimension stone, kaolin, silica, and diamond. Exploration for gold and diamond intensified with the signing of the Gross Rosebel agreement between Grassalco and GSRL in 1995. Gross Rosebel's capital investment will be about \$120 million for the mine construction during the 1997-98 period (Cambior, 1997b). The prospects for the Surinamese economy improved because of its strong bauxite-alumina-aluminum industries and the Government's commitment to creating an environment that will attract private investment. Also, the Government continued to be interested in the development of nontraditional exports to increase foreign currency earnings. Foreign investors, particularly from Canada and the United States, were giving closer attention to the gold deposits and diamond prospects in Suriname's extension of the Guyana Shield.

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- Staatsolie Maatschappij Suriname NV
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TABLE 1
SURINAME: ESTIMATED PRODUCTION OF MINERAL COMMODITIES 1/

(Thousand metric tons unless otherwise specified)

Commodity	1993	1994	1995	1996	1997	
Aluminum:						
Bauxite, gross weight	3,421 r/ 2/	3,772 r/ 2/	3,530 r/ 2/	4,000 2/	4,000	
Alumina	1,507 r/ 2/	1,497 r/ 2/	1,589 r/ 2/	1,600 2/	1,600	
Metal, primary	30 r/ 2/	27 r/ 2/	28 r/ 2/	32 2/	32	
Cement, hydraulic	50	50	50	50	50	
Clays, common	20	20	20	20	20	
Gold, mine output, Au content	kilograms	300	300	300	300	
Petroleum, crude	thousand 42-gallon barrels	1,500	1,500	1,500	1,825 2/	2,000
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.

1/ Includes data available through April 1998.

2/ Reported figure.

TABLE 2
SURINAME: STRUCTURE OF THE MINERAL INDUSTRY IN 1997

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Alumina	Suriname Aluminum Co. (Suralco) [Alcoa, USA, 55%; and NV Billiton Maatschappij Suriname NV (BMS), 45%]	Refinery at Paranam, District of Para	2,000
Aluminum	Suralco, (100%)	Smelter at Paranam, District of Para	50
Bauxite	do.	Mines at Coermotibo and Accaribo, District of Marowijne	2,000
	Suralco, 76%; BMS, 24%	Accaribo Mine, District of Para	1,500
Cement	Vensur N.V. (private, 100%)	Paramaribo, District of Para	1,000
Gold	No major operating companies	South and east Suriname	60
Petroleum	Staatsolie Maatschappij Suriname NV (Government, 100%)	Tambaredjo, District of Saramacca	NA
			1,825

NA Not available.