

FRENCH GUIANA, GUYANA, AND SURINAME

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FRENCH GUIANA

In 2002, French Guiana's mining sector continued to be dominated by gold mining. Gold has been mined in French Guiana since 1853. The value of production has been estimated to be about 4% of the country's total gross domestic product (GDP) of almost \$900 million (Mining Journal, 2002). As of July 2002, the population of French Guiana was estimated to be about 182,000 (U.S. Central Intelligence Agency, 2003¹). Although mining did not constitute one of the leading industries, the mining sector remained active. Efforts were focused on further developing the country's gold resources and on the exploration of petroleum. As an overseas department of France, French Guiana's economy is closely tied to that of the motherland. The country's mining laws are based on French laws, and chemicals, fuels, machinery, and transport equipment are mainly imported from France. In 2002, in addition to gold, French Guiana also produced cement, clays, columbium (niobium) and tantalum, crushed stone, and construction sand. Alluvial deposits were the main sources of columbium, gold, and tantalum. The country depended on imports to support the construction sector. Sand and stone were mined and consumed domestically. Sand was dredged from the Mahury and the Maroni Rivers, which are located in the western part of the country. French Guiana also hosts diamonds and silica sand. Deposits of bauxite and kaolin have been estimated to be about 42 million metric tons (Mt) and 40 Mt, respectively (Mining Journal, 2002).

The granting of mining titles in French Guiana is administered by the Direction Régionale de l'Industrie, de la Recherche et de l'Environnement (DRIRE), which is part of the Ministère de l'Economie, des Finances et de l'Industrie. Exploration in French Guiana can be conducted by acquiring an Autorisation de Recherche Minière (ARM) for areas that comprise 3 square kilometers (km²) for a maximum of 4 months or for areas that comprise 20 km² for a maximum of 6 months with two renewals. Within an ARM is a convention for an exploration permit that allows artisanal miners to explore within areas for which other parties hold mining titles. If the artisanal miner is successful in prospecting, then his application for an exploitation permit generally will supersede the existing mining title. Exploration can also be conducted by obtaining a Permis Exclusif de Recherche (PER), which is granted for up to 5 years for areas that comprise more than 50 km². The permit can be renewed twice for up to 5 years each time. Mineral concessions are initially granted for up to 50 years and can be extended for a period not to exceed 25 years. The types of mining permits are a Permis d'Exploitation, which is granted for a period of up

to 5 years and is renewable twice for up to 5 years each, and an Autorisation d'Exploitation, which is granted to artisanal miners for areas not to exceed 1 km² for up to 4 years and is renewable only once for 4 years (DRIRE, 2003).

In recent years, French Guiana has been the focus of ongoing gold and petroleum exploration. Gold exploration was conducted at 15 properties in the country in 2002. Ariane Gold Corporation of Canada explored for gold at the Camp Caiman, the Cipanama, and the Mataroni properties in the northeastern part of the country. Through its subsidiary CBJ-France SARL (CBJ), Ariane secured ownership of the Camp Caiman gold project in August 2002 by acquiring Asarco Guyane Française (AGF). Camp Caiman, which is located in northeastern French Guiana, hosts two major mineralized zones, namely C-88 and Scout. Hope Bay Gold Corp. of Canada (HBG) had acquired CBJ (then a wholly owned subsidiary of Cambior Inc. of Canada) in 2001. In February 2002, HBG signed an agreement with ASARCO Incorporated to purchase AGF and created a new public company under the name of Ariane Gold Corporation to develop its existing French Guianese assets and the acquired AGF assets. In September 2002, Ariane began a \$2.8 million drilling program to define and infill the saprolite resources of the C-88 and the Scout zones. At yearend, efforts were still focused on additional metallurgical test work to improve recovery (Resource Information Unit, 2003, p. 88). Ariane's concessions were located within the Guiana Shield, which is the major continental craton that covers parts of Brazil, French Guiana, Guyana, Suriname, and Venezuela and contains greenstone-hosted gold deposits. Resources at Camp Caiman consist of oxide mineralization within saprolitic zones and sulfide mineralization in the unweathered rock. Indicated oxide resources at Camp Caiman have been estimated to be about 3.6 Mt with a gold grade of 2.74 grams per metric ton (g/t), and indicated sulfide resources have been estimated to be about 4.6 Mt with a gold grade of 3.42 g/t. Inferred oxide resources have been estimated to be 6.5 Mt with a gold grade of 1.74 g/t, and inferred sulfide resources have been estimated to be 9.0 Mt with a gold grade of 2.35 g/t. Although Ariane owned other mineral properties in French Guiana, no significant work was carried out at these properties in 2002; the properties included Crique Véoux, Maripa, Maripa Sud-Est, Sainte Marie, and Tortue. Completion of the first phase of the drilling program at Camp Caiman was scheduled for March 2003 (Ariane Gold Corp., 2003, p. 5-8). The initial operation at Camp Caiman was expected to produce about 3,000 kilograms per year (kg/yr) (reported as 100,000 troy ounces per year) of gold (CSMA Consultants Ltd., 2003[§]). Future exploration activities at Camp Caiman will include metallurgical studies on the sulfide resources to determine the economic viability of the deposit (Ariane Gold Corp., 2002).

¹References that include a section mark (§) are found in the Internet References Cited section.

In May 2002, Cambior sold its 50% interest in the Dorlin and the Yaou properties to Golden Star Resources Ltd. (GSRL) of Denver, Colorado. Through its 73%-owned company Guyanor Ressources S.A. of France, GSRL also owned the Paul Isnard property. All three properties were in an exploration stage and remained on a care-and-maintenance basis during 2002. The Dorlin and the Yaou properties, which are located to the southwest of Cayenne, were operated through a PER and covered areas of 84 km² and 52 km², respectively. Measured and indicated mineral resources at Dorlin and Yaou have been estimated to be 6.9 Mt at a grade of 2.1 g/t gold. The Paul Isnard PER, which was granted in 1999, covered an area of 283 km². The exploration permit expired in 2002, and an application for a renewal was under review by the Ministère de l'Industrie. The Paul Isnard property is located to the west of Cayenne, and inferred mineral resources have been estimated to be 6.2 Mt at a grade of 2.8 g/t gold. In August 2002, Guyanor announced the sale of its 100% interest in Société des Mines de St-Elie SARL, which held the mining rights to the St. Elie gold property, to Compagnie Minière Espérance S.A. The closing transaction was subject to approval by the Ministère de l'Industrie (Guyanor Ressources S.A., 2003).

In 2002, through its wholly owned subsidiary Planet Oil Limited, Hardman Resources Ltd. of Australia signed a contract to shoot 7,500 kilometers (km) of two-dimensional seismic across its French Guiana offshore permit. Hardman has held a 95% equity on the exclusive exploration license offshore French Guiana since 2001. It expected to upgrade the permit area to attract larger oil companies to farm in and fund the drilling phase of exploration (Hardman Resources Ltd., 2002).

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GUYANA

Low world commodity prices, problems in the bauxite industry, the possibility of exhaustion of the Omai gold mine resources, and border disputes with Suriname and Venezuela,

which included a recently revived 19th century claim to more than one-half of Guyana's territory by Venezuela, have hindered the development of Guyana's mineral industry in recent years. A cooperation agreement signed in 2002 between Guyana and Suriname to exploit their offshore resources jointly seems to be a key step forward in easing the discord in the oil-rich area. Bauxite, diamond, and gold, which ranked among the largest components of the country's exports in 2000, continued to be Guyana's main mineral commodities (Resource Information Unit, 2003, p. 90).

Guyana's leading industries were bauxite, gold, rice milling, sugar, textiles and timber. The main mineral commodities produced were bauxite, diamonds, and gold. The country's GDP based on purchasing power parity was estimated to be \$2.7 billion in 2002. As of August 2002, Guyana's population was estimated to be about 700,000 (U.S. Central Intelligence Agency, 2003§).

The investment regime in Guyana was still undeveloped in 2002, and the Government tended towards caution in approving investments. The utilities sector and other Government-owned industries were highly regulated. Laws that were concerned with the use of resources, mining, and the formation of private companies and capital markets were being revised. Under Guyana's constitution, foreigners have the right to own property or land in the country (O'Driscoll, Feulner, and O'Grady, 2003, p. 215 -217). To attract foreign investment in the mining sector, the Government was considering drafting a new mining code in early 2003. The Guyana Geology and Mines Commission (GGMC) was responsible for managing the mineral industry and for promoting foreign investment and participation in mineral development in the country. Bauxite Industry Development Co. Ltd. (BIDCO), the GGMC, and the Guyana Natural Resources Agency were responsible for the management of mining concessions for bauxite, diamonds and gold, and petroleum, respectively. Royalties from the mining of bauxite and other minerals, with the exception of sand and quarriable stones, were 1.5% of production or gross revenues, and those for diamonds, gold, precious metals, and precious stones, 5%. Withholding tax was 6.25%; corporate tax, 35%; and consumption tax on fuel, 10%. Equipment and process materials, which included spare parts used for development, exploration, and mining licensees or their contractors, were duty free. All conditions were to be maintained for up to 15 years from the start of production or the life of the deposit, whichever is shorter; then the general rules for duties, income tax, and withholding tax will apply (Resource Information Unit, 2003, p. 91).

Guyana's high-grade bauxite has been recognized as an industry standard for many years. The country's three main bauxite complexes are the Aroaima Mine, which was operated by Aroaima Mining Company; the East Montgomery Mine, which was operated by Linden Mining Enterprise (Linmine); and the Kwakwani Mine, which was operated by Berbice Mining Enterprise (Bermine). All three companies were Government owned (Mbendi, 2003a§). Anticipating a crisis once gold resources have been exhausted, the Government has focused on the development of the bauxite industry. Bauxite was still Government controlled, and a lack of interest in investing in Guyana has stalled the Government's attempts to privatize the bauxite industry. The Government has tried for

several years to sell its stake in Bermine and Linmine without any success. Lack of investment, overstaffing, marketing and technical problems, and lack of consistency in supply are some of the reasons that have impeded privatization. In addition, global customers of refractory bauxite have switched to Brazilian and Chinese material, which is costs less and is readily available. Despite having large proven reserves of all bauxite grades, production at Linmine has fallen steadily since 1997 and continued to do so in 2002 as a result of, among other things, problems with its two rotary kilns. At Linmine, suggested equipment replacement and upgrades would require major capital investments. Flooding, power outages that have resulted in inconsistent bauxite feed to the kilns' refractory; and the impassibility of the Demarara River channel by vessels larger than 6,000 deadweight tons were some of the problems that have affected the industry. By yearend, dredging of the Demarara remained incomplete, and the mine had just suffered an explosion at its power substation (Industrial Minerals, 2003).

The majority of Guyana's bauxite was processed by Sherwin Alumina Co. of Texas; the country was, however, considering re-entering the alumina refining business. In 2003, the Government of Guyana and Russian Aluminum (Rusal), which was a privately owned Russian company, were discussing the option of developing an alumina plant in Guyana (Metal Bulletin, 2003). In 2002, the Government of Guyana continued with its plan to privatize the Aroaima bauxite mine. In 2001, Alcoa Inc. of the United States had sold its 50% interest in Aroaima for \$1 (citing high operating costs) to the Guyanese Government, which became the sole owner. The mine had been due to produce 2 Mt in 2002, but output was cut back to 1.4 Mt (Caribbean Update, 2002a).

In 2002, Berbice and Aroaima Co. (ABC) merged their administrative functions with a formal legal merger under which ABC will manage and operate Bermine; the merger will be completed by early 2003 (Industrial Minerals, 2002). Bermine stopped producing refractory- and abrasive-grade bauxite in 1999 when its 130,000-metric-ton-per-year-(t/yr) calciner became idle. As of March 2003, the company had no intention of restarting abrasive bauxite and refractory production. ABC and Bermine produced about 1.2 million metric tons per year (Mt/yr) of metallurgical-grade bauxite and 250,000 t/yr of chemical-grade bauxite (Industrial Minerals, 2003).

The Maple Creek alluvial diamond mine, which is located in central Guyana, began commercial production in July 2002. The rate of production was about 1,000 cubic meters per day and was expected to increase to about 4,000 cubic meters per day during the following 2 to 3 months. The property encompasses the Potaro and the Uewang River drainages, which had produced significant quantities of diamonds in the past. The mine was Guyana's only commercial alluvial diamond operation and was expected to produce between 35,000 and 45,000 carats per year during its estimated 10-year life. About 156 kg/yr (reported as 5,000 troy ounces per year) of gold was expected to be recovered as a byproduct. The companies that operated the property were Rohanni and Associates (40%), which was a Qatar-based diamond and investment group, and Vanessa Ventures Ltd. of Canada (60%). Vanessa wholly owned the Potaro claims, which is a proven diamond-rich property in the Potaro diamond and gold district 200 km southwest

of Georgetown, central Guyana. Potaro, which hosted the Maple Creek Mine, was under exploration in 2002 (Resource Information Unit, 2003, p. 92).

Diamond production more than doubled to 178,698 carats in 2001 from 81,706 carats in 2000. The Government attributed the increase to the cracking of a Brazilian smuggling ring (Szczesniak, 2002). In 2002, diamond production increased by about 39% to 248,436 carats. Nearly all diamonds produced came from alluvial operations. The country's diamond resources have been estimated to be about 2 million carats, although the diamond-bearing potential of the 14 identified kimberlites was still unknown (Mbendi, 2003b§). In 2002, diamond exploration was conducted by Guyanor Ressources S.A. (a subsidiary of GSRL and Rio Tinto Plc). Guyanor completed the bulk sampling of the Dachine ultramafic body to assess its diamond potential. Rio Tinto was considering withdrawing from the joint venture because of the poor results of the sampling (Mbendi, 2003b§).

Gold was one of the country's major income earners in 2002. Gold production was dominated by the Omai gold mine, which is located about 160 km south of Georgetown. As of December 2001, proven reserves at Omai were estimated to be about 22.6 Mt at a grade of 1.3 g/t gold for a total of 29,361 kilograms (kg) (reported as 944,000 troy ounces) of gold, and probable reserves were estimated to be 69,000 metric tons (t) at a grade of 1.4 g/t gold for a total of about 93 kg (reported as 3,000 troy ounces) of gold. In 2002, production at the Omai Mine was about 9,900 kg (reported as 319,600 troy ounces) of gold, or about 1,000 kg (reported as 34,100 troy ounces) more than was projected for the year (Cambior Inc., 2003). The increase in performance was attributed to additional high-grade ore from the Wenot pit, which was one of the two deposits that compose the mine, and to reduced volumes of low-grade stockpile as mill feed. Lower gold production and higher cash costs were expected in 2003 because of the lower grade milled that resulted from the processing of the remaining low-grade soft rock stockpile and the depletion of the higher grade ore in the Wenot pit. Reserves at Omai were expected to become depleted by 2005 (Resource Information Unit, 2003, p. 93).

Canadian-based Guyana Goldfields Inc., which had a 100% interest in the Aurora and the Peters properties, was in the process of acquiring a mining permit for the Peters property. The company planned to build a 1,000-metric-ton-per-day vat and heap-leach operation at Peters and expected the mining permits to be in place by the end of the first quarter of 2003. A geochemical study completed in June 2002 indicated that gold recoveries should be in the 80%-to-85% range. The company completed three exploration campaigns at the Aurora property, which included reconnaissance geologic mapping and prospecting, geochemical surveys, trenching, and shallow drilling. Results indicated the presence of at least nine mineralized zones. Drilling at Aurora was scheduled to begin in the second quarter of 2003 (Guyana Goldfields Inc., 2002). In April 2002, Vanessa signed a joint-venture agreement with Jamshidi & Associates to explore, develop, and mine gold resources at Marudi Mountain. Through its 100% owned subsidiary Romanex Exploration Ltd., Vanessa held a prospecting license to operate in the area (Caribbean Update, 2002b).

Another company operating in Guyana was United States-based South American Minerals Inc. The company had an alluvial placer gold dredging operation in the Konawaruk River. The company began operations in 1999 and had produced about 89 kg (reported as 2,850 troy ounces) of gold during the first half of 2000 (South American Minerals Inc., 2003). In May 2002, the company announced that its wholly owned subsidiary North American Resources Ltd. had produced 39 kg (reported as 1,243 troy ounces) during the first 4 months of the year compared with about 30 kg (reported as 964 troy ounces) for the same period in 2001 (Resource Information Unit, 2003).

Other gold-bearing properties include Aurora, which is located within the Cuyani River in northwest Guyana; Georgetown West, which is located about 70 km southwest of Georgetown; Marudi Mountain, which is in southwestern Guyana; and Peters, which is located within the Puruni River. Measured and indicated gold resources at Marudi Mountain were estimated to be 320,000 t of ore at a grade of 2.94 g/t gold, and inferred gold resources were estimated to be about 2,084 kg (reported as 67,000 troy ounces) at a grade of 2.45 g/t gold (Resource Information Unit, 2003, p. 92). The Omai gold mine was owned by Cambior Inc. (95%) and the Guyanese Government (5%).

Although economic concentrations of occurrences of platinum/palladium have not yet been found, the geochemical surveys that had been conducted in Guyana in 1989 had returned highly anomalous palladium values in weathered soils within the Guyana Shield and suggested possible platinum/palladium-bearing deposits. As a result, Guyana Goldfields Inc. acquired the following properties in February 2002 for exploration: Badidku Mountain and Tantom Hills in southern Guyana and Ireng, Stone Creek, and Upper Takatu in central Guyana (Resource Information Unit, 2003, p. 93).

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SURINAME

Suriname continued to rank among the world's top 10 leaders in the production of bauxite in 2002. Bauxite mining and alumina production were the largest industries. In 2002, the country's gross domestic product (based on purchasing power parity) was estimated to be \$1.5 billion. The bauxite industry accounted for more than 70% of export earnings and 15% of the GDP. In 2002, exports were valued at \$445 million. Other minerals produced in the country were cement, clay, gold, petroleum, sand and gravel, and broken and crushed stone. Gold production in Suriname was mainly from small-scale localized alluvial deposits. The Sara Kreek gold district is the country's largest gold-producing area. Suriname's population was estimated to be about 435,000 in 2002 (U.S. Central Intelligence Agency, 2003§).

Concessions and licenses were negotiated directly with the Surinamese Government through the appropriate ministries, which deal with investors on an ad hoc basis. Efforts to liberalize the economy and new investment and minerals codes and mining and petroleum laws were awaiting Government approval and have attracted foreign investment to the mining sector (O'Driscoll, Feulner, and O'Grady, 2003, p. 373–374). Suriname's top corporate tax rate was 36%. In 2002, the Governments of Guyana and Suriname signed a cooperative agreement, which included the joint exploitation of their marine resources. In 2000, Suriname had expelled an oil exploration rig from Guyana's waters by force of arms by claiming that the operation was in Surinamese territory. The agreement was seen as a key step forward in easing the discord between the two countries (Caribbean Update, 2002a).

Bauxite exploration remained the focus of mining activities. BHP Billiton's Billiton Maatschappij Suriname NV (76%), which operated the Accaribo Mine and the Lelydorp III deposit, and Suriname Aluminum Company Llc. (Suralco) (a subsidiary of Alcoa) (24%) carried out a feasibility study of a Government-owned identified resource in the Bakhuis Mountains. Alcoa and BHP Billiton also planned to explore for bauxite in western Suriname during the year (Resource Information Unit, 2003, p. 123). Alcoa World Alumina & Chemicals (AWAC), which was a global alliance between Alcoa (60%) and Alumina Limited (40%), operated the Coermotibo Mine, which is located about 200 km from the Paranam refinery, through Suralco. Alcoa also had interests in the following bauxite properties in eastern Suriname: Brownsberg, Kaimangrasi, Klaverbald, Lely Mountains, and Nassau (U.S. Securities Exchange Commission, 2003, p. 4).

Suralco (55%) and BHP Billiton (45%) planned to expand capacity by 250,000 t/yr at their joint-venture Paranam alumina refinery. The companies signed a letter of intent in October 2002 to continue mining and refining in eastern Suriname beyond the existing term of the joint-venture agreement, which will end in 2006. The expansion was expected to be finished by 2005, and capacity was expected to reach 2.2 Mt/yr of alumina. Bauxite was trucked from the Accaribo Mine and transported 15 km by road to the Paranam refinery. In 2002, the refinery had a capacity of 1.9 Mt/yr (Alcoa Inc., 2003; U.S. Securities and Exchange Commission, 2003, p. 6).

As of June 2002, proven and probable reserves at Accaribo were 11.4 Mt at a grade of 52.5% alumina within resources of 28.3 Mt at a grade of 58.6% alumina. Operations at Accaribo were expected to continue at current (2002) mining rates until 2007 when reserves were expected to be depleted. Bauxite ore from Moengo was transported 200 km by barge to the Paranam refinery. At current (2002) mining rates, resources and reserves were expected to be depleted by 2015 (Resource Information Unit, 2003, p.123). Pechiney of France was examining the possibility of mining bauxite in the Bakhuysebergte area in western Suriname, but as of 2002, no studies had been completed (Hakrinbank N.V., 2003§).

Suriname Wylap Development Corporation operated the Sara Kreek gold mine. Canarc Resource Corporation of Canada held an 80% interest in Benzdorp; the 1,380-km² area was considered one of Suriname's largest mineral properties. In October 2002, Canarc signed an amending agreement with Grasshopper Aluminium Company NV (Grassalco) (a wholly owned Government company) to facilitate renewed work at Benzdorp. Canarc planned a grid-trenching program on the property's gold prospects to define targets for drilling better. The drilling program was scheduled to begin in early 2003 (Resource Information Unit, 2003, p.123).

In 2002, Cambior Inc. of Canada, through its wholly owned subsidiary Rosebel Gold Mines N.V., began the construction of its Rosebel Mine in Suriname. The company planned to invest \$90 million, one-half of which would come from internally generated cash and the remaining one-half would be financed through loans, to develop the mine (Caribbean Update, 2002b). Cambior expected to bring the Rosebel Project into commercial production during the first quarter of 2004. Rosebel will produce an estimated 8,400 kg of gold in its first year of operation (Cambior Inc., 2003, p. 3).

Vensur N.V. was Suriname's leading cement plant. In 2002, the company announced its intention to increase production by 60,000 t/yr and to export its product to Guyana. The company planned to install a new grinding plant in 2003 (Le Développement, 2003).

Staatsolie Maatschappij Suriname N.V. (Staatsolie), which was the state-owned oil company, reported that crude petroleum production declined by about 4% to 4.5 million barrels per year in 2002 compared with that of 2001. During the year, 596 wells were in production. Of the total petroleum produced, 2.7 million barrels (Mbbbl) were processed at the company's own refinery, 1.1 Mbbbl were sold to the bauxite-alumina industry, 557,000 barrels (bbl) were exported, and 42,000 bbl were used for domestic consumption. Various exploration projects were started during the year. A geochemical survey performed in 2001 in the Nickerie area indicated slight occurrences of petroleum. The second stage of the survey began in October 2002 and was expected to conclude no later than 2006. Three exploration projects were started in 2002—a geochemical survey in the Nickerie area (northwestern Suriname), an exploration drilling program at Calcutta, Saramacca (northern Suriname), and an appraisal drilling program at the Western boundary of the Tambaredjo field in Saramacca (Staatsolie Maatschappij Suriname N.V., 2002§).

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TABLE 1
FRENCH GUIANA, GUYANA, AND SURINAME: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Country and commodity		1998	1999	2000	2001	2002 ^e
FRENCH GUIANA ^{e, 2}						
Cement		88,200 ^r	88,000 ^r	88,000 ^r	58,000 ^r	62,000
Clays		5,000	5,000	5,000	5,000	5,000
Columbite and tantalite	kilograms	1,100	1,100	1,100	1,500	1,500
Gold, mine output, Au content	do.	2,673 ³	2,819 ³	3,469 ^{r, 3}	3,971 ^{r, 3}	2,971 ^{p, 3}
Sand	thousand tons	1,500	1,500	1,500	1,500	1,500
Stone, crushed	do.	1,500	1,500	1,500	1,500	1,500
GUYANA						
Bauxite, dry equivalent, gross weight	thousand tons	2,267	2,359 ⁴	2,471 ⁴	1,950 ^r	1,690 ³
Diamond	carats	50,000	45,440 ⁴	81,706 ⁴	178,698 ⁴	248,436 ³
Gold, refined	kilograms	12,960	12,905	13,510	14,186 ^r	13,581 ³
Sand		NA	211,300 ⁴	262,000 ⁴	240,083 ^r	180,672 ³
Stone, crushed ^e		136,000	129,000 ⁴	120,000 ⁴	117,814 ^r	49,356 ³
SURINAME ^e						
Aluminum:						
Bauxite, gross weight	thousand tons	3,931 ³	3,715 ³	3,610 ³	4,394 ^{r, 3}	4,002 ³
Alumina	do.	1,600	1,600	1,800	1,900 ³	1,900
Metal, primary	do.	29	6	--	--	--
Cement, hydraulic	do.	60	60	60	65 ^r	65
Clays, common	do.	20	20	20	20	20
Gold, mine output, Au content	kilograms	300	300	300	300	300
Petroleum, crude ⁵	42-gallon barrels	3,832,000 ³	4,400,000 ³	4,500,000 ³	4,700,000 ^{r, 3}	4,500,000 ³
Petroleum products	do.	--	--	--	2,550,000 ³	2,700,000
Sand and gravel:						
Gravel	thousand tons	35	35	35	35	35
Sand, common	do.	160	160	160	160	160
Stone, crushed and broken	do.	50	50	50	50	50

^eEstimated; estimated data are rounded to no more than three significant digits. ^pPreliminary. ^rRevised. NA Not available. -- Zero.

¹Includes data available through July 30, 2003.

²Source: Direction Regionale De l' Industrie, De La Recherche Et De l' Environment, Guyane.

³Reported figure.

⁴Source: Guyana Geology and Mines Commission.

⁵Source: Staatsolie Maatschappij Suriname N.V.

TABLE 2
GUYANA AND SURINAME: STRUCTURE OF THE MINERAL INDUSTRIES IN 2002

(Thousand metric tons, unless otherwise specified)

Country and commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
<u>GUYANA</u>			
<u>Bauxite and alumina:</u>			
Bauxite	Bauxite Industry Development Co. Ltd. (BIDCO) (Government, 100%)	Kara Kara, Northeast Dorabece, and East Montgomery Mines, MacKenzie, Linden, West Demerara District	3,500
Do.	do.	Block 2 Manaka, North, South mines, Kwakwani, East Berbice District	1,500
Do.	do.	Processing plant at Linden	900
Do.	do.	Processing plant at Everton, East Berbice District	700
Do.	C.A. Dayco (private, Venezuela, 100%) (BIDCO contract)	Kwakani area	500
Do.	Green Mining Inc. (Green Construction Co., United States, 100%) (Guymine contract)	Dacouria Mine, Linden	NA
Do.	Aroaima Bauxite Co. (Government, 100%)	Aroaima, East Berbice District	2,000
Alumina	BIDCO	Alumina refinery at Linden (presently closed)	300
Gold	kilograms Omai Gold Mines Ltd. (Cambior Inc., Canada, 95%, Government of Guyana, 5%)	Omai Mine, Mazaruni-Potaro District	300
Gravel	Baracara Quarries (private)	Quarry near Bartica, Mazaruni-Potaro District	100
Silica sand	Minerals and Technology Ltd. (Minerals and Chemicals of Texas, United States)	Sand Hills, Demerara River, West Demerara District	300
Stone	Mazaruni Granite Products Inc. of Guyana (private)	Mazaruni River	3,650
<u>SURINAME</u>			
Alumina	Suriname Aluminum Co. (Suralco) [Alcoa, Inc. (55%) and BHP Billiton plc (45%)]	Refinery at Paranam	1,925
Aluminum	Suralco (55%) and BHP Billiton plc (45%)	Smelter at Paranam	50
Bauxite	do.	Mines at Accaribo, Coermotibo, and Lelydorp III, District of Marowijne	4,000
Do.	Suralco (76%) and BHP Billiton plc (24%)	Accaribo Mine, District of Para	1,000
Cement	Vensur N.V. (private, 100%)	Paramaribo, District of Para	60
Gold	No major operating companies	South and east Suriname	NA
Petroleum	Staatsolie Maatschappij Suriname NV (Government, 100%)	Tambaredjo, District of Saramacca	5,000
Petroleum products	do.	do.	2,600
NA Not available.			