



# 2005 Minerals Yearbook

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FRENCH GUIANA, GUYANA, AND SURINAME

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# THE MINERAL INDUSTRIES OF FRENCH GUIANA, GUYANA, AND SURINAME

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## FRENCH GUIANA

French Guiana (Guyane), which is located on the northern coast of South America, is bordered by Brazil to the south and southeast, Suriname to the west, and the Atlantic Ocean to the north. French Guiana has a total area of 91,000 square kilometers (km<sup>2</sup>) and had an estimated population of 195,500 in 2005 (U.S. Central Intelligence Agency, 2005§<sup>1</sup>). French Guiana has been an overseas department of France since 1946, and its economy was closely tied to that of France through imports and subsidies. The mineral sector was also administered by France. Such goods as chemicals, food, fuels, machinery, and transport equipment were imported from France. Gold was the main mineral exported from French Guiana (U.S. Central Intelligence Agency, 2005§; 2006§).

The leading industries in the country were aerospace (mainly at the French space center in Kourou), fishing, and forestry (U.S. Central Intelligence Agency, 2005§). French Guiana's main mineral industries included cement, clays, columbite and tantalite, gold, sand, and crushed stone. In 2005, the mining sector was affected by a 29.5% decrease in gold production (table 1).

In recent years, the mineral industry has been focused on gold and petroleum exploration. Gold exploration was conducted by Golden Star Resources Ltd. of the United States and Cambior Inc. of Canada. Golden Star Resources held 100% interests in the Bon Espoir and the Paul Isnard gold properties, which are located to the west of French Guiana's capital of Cayenne (Golden Star Resources Ltd., 2005§). Cambior held a 100% interest in the Camp Caiman gold property. During 2004, the French Government had granted Cambior a 30-km<sup>2</sup> mining concession for the Camp Caiman project that was valid for a period of 25 years. In mid-2005, Cambior completed a feasibility study of the potential development of Camp Caiman, and in the last quarter of 2005, the company filed a permit application for the construction of a mine at Camp Caiman. As of December 2005, the inferred resource was estimated to be 7,745 kilograms at a grade of 2.1 grams per metric ton of gold (Mining Journal, 2005; Cambior Inc., 2006a§).

Hardman Resources Ltd. of Australia was the principal petroleum exploration company in French Guiana during 2005. Hardman held 97.5% interest in an exclusive exploration license offshore French Guiana. During 2005, Hardman initiated a new round of two-dimensional (2D) and three-dimensional (3D) seismic data acquisition; Hardman was expected to select and define prospects with potential hydrocarbon systems by early 2006 (Hardman Resources Ltd., 2006§).

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<sup>1</sup>References that include a section mark (§) are found in the Internet References Cited sections.

## Outlook

During 2006, gold exploration and investment activities in French Guiana will likely continue at projects begun in 2005. Cambior planned to start construction at Camp Caiman by mid-2006 and anticipated that commercial production could begin in late 2007 (Cambior Inc., 2006a§, b§).

In 2006, Hardman's petroleum exploration projects are expected to progress based on developments achieved in 2005.

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## GUYANA

Guyana is the fourth smallest country in South America after French Guiana, Suriname, and Uruguay. It is located in northern South America and bordered by the Atlantic Ocean to the north, Brazil to the south, Suriname to the east, and Venezuela to the west. Guyana has a total area of 214,970 km<sup>2</sup> and had an estimated population of 751,200 in 2005 (U.S. Central Intelligence Agency, 2005§; World Bank Group, 2006§).

In 2005, the gross domestic product (GDP) based on purchasing power parity was estimated to be \$3.49 billion; the estimated GDP per capita based on purchasing power parity was \$4,612 (International Monetary Fund, 2006§).

Guyana was one of the main bauxite producers in the world. Other minerals produced in Guyana included clay, diamond, gold, and sand and gravel. In 2005, the value of exports was estimated to be about \$587 million; exports included such goods as bauxite and alumina, gold, food products, and timber. Guyana's export partners included Canada and the United States

(18.9% each), the United Kingdom (11.7%), Portugal (8.1%), Jamaica (5.3%), Trinidad and Tobago (4.2%), and others (32.9%). Imports were valued at about \$680 million and included such products as food, machinery, manufactures, and petroleum. Guyana's import partners included the United States (26.7%), Trinidad and Tobago (23.9%), Cuba (6.6%), the United Kingdom (5%), China (4.1%), and others (33.7%) (U.S. Central Intelligence Agency, 2006§).

## Commodity Review

### Metals

**Bauxite and Alumina.**—In 2005, bauxite production decreased by 6.7% compared with that of 2004 (table 1). In its first year of production during 2005, Omai Bauxite Mining Inc. (OBMI) reported total sales of \$36.9 million at its Linden Mining Enterprise Ltd. (Linmine). OBMI was owned by Cambior (70%) and the Government of Guyana (30%). OBMI's target for production sales in 2006 was about \$63 million (Cambior Inc., 2006§).

**Gold.**—In 2005, gold production in Guyana decreased by 0.4% compared with that of 2004 (table 1). Cambior officially ceased its Omai Gold mine operations in September 2005 owing to the depletion of reserves. During 2005, the mine processed the low-grade ore stockpiled from the early years of the mine's operation for a total production of 99,500 troy ounces [3,095 kilograms (kg)] of gold. The Omai Gold mine produced more than 3.7 million troy ounces (115,081 kg) of gold during its lifetime (Cambior Inc., 2006, p. 4, 18).

Guyana Goldfields Inc. held 100% interest in the Aurora Mine and the Peters Mine (Guyana Goldfields, 2006a§, b§). Sacre-Coeur Minerals Ltd. held four gold permits at the Kartuni regional block, the Lower Puruni regional block (Million Mountain), the Northwest regional block, and the Oko regional block (Sacre-Coeur Minerals Ltd., 2006b§). Vanessa Ventures Ltd. held 100% interest in the Marudi Mountain gold project, which is divided into the following four zones: the Marudi Ridge zone, the Mazoa zone, the Paint Mountain Ridge zone, and the Peace Creek-Toucan Hill zone (Vanessa Ventures Ltd., 2005a, p. 5-6).

### Industrial Minerals

**Diamond.**—During 2005, two Canadian-based companies were actively prospecting for diamond in Guyana: Sacre-Coeur and Vanessa Ventures. Sacre-Coeur held prospecting permits for the Kurupung and the Potaro-Kuribrong regional blocks (which are located in north-central Guyana), and a claim-permit and claim-license in the Mahdia-Issano regional block (which is located in northwestern Guyana) (Sacre-Coeur Minerals Ltd., 2006a§).

Vanessa Ventures held interest in the Maple Creek and the Potaro projects. In 2004, the construction of the Maple Creek diamond and gold mine was completed; in addition, the property was under the final preproduction inspection phase by the Executive Branch of the Government of Guyana and the Ministry of Mines. During 2005, the sampling work in the

Maple Creek property was suspended; the project was placed on temporary care and maintenance status owing to the company's decision to evaluate additional exploration and development areas (Vanessa Ventures Ltd., 2005b, p. 7).

## Outlook

Production in the mining sector will likely continue to be dominated by the production of bauxite. OBMI expects its Linmine assets to produce 300,000 metric tons (t) of high-alumina refractory bauxite in 2006. Gold exploration activities in Guyana are likely to continue as a result of several gold exploration projects that progressed during 2005.

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## SURINAME

Suriname, which is located on the northern coast of South America, is bordered by the Atlantic Ocean to the north, Brazil to the south, French Guiana to the east, and Guyana to the west. Suriname has a total land area of 163,270 km<sup>2</sup> and had an estimated population of 449,200 in 2005 (World Bank Group, 2006§).

In 2005, Suriname's GDP based on purchasing power parity was estimated to be \$2.9 billion; the estimated GDP per capita based on purchasing power parity was \$5,683 (International Monetary Fund, 2006§).

The mineral industry of Suriname included refined alumina; mined bauxite and gold; quarried clays and sand and gravel; and cement and petroleum. In recent years, mineral production has been focused on alumina, bauxite, and petroleum. In 2005, the production of alumina decreased by 4.7% compared with that of 2004; bauxite production increased by 17.4%; petroleum products and crude petroleum increased by 8% and 6.8%, respectively (table 1).

In 2004 (the latest year for which data were available), the country's exports included such goods as alumina, crude oil, food products, and lumber and were valued at about \$881 million. Suriname's export partners in 2005 included Norway (23.5%), the United States (16.5%), Canada (16.1%), Belgium (9.7%), France (7.9%), the United Arab Emirates (7.3%), and others (19%). Imports in 2004 were valued at about \$750 million and included such products as equipment, food, and petroleum. Suriname's import partners in 2005 included the United States (29.3%), the Netherlands (17.5%), Trinidad and Tobago (12.7%), China (6.5%), Japan (5.2%), and others (28.8%) (U.S. Central Intelligence Agency, 2006§).

Production at Cambior's Rosebel gold mine, which is located 100 km south of Suriname's capital of Paramaribo, was begun in February 2004. During 2005, production at the mine increased by about 25% to 10,619 kg from the 8,513 kg produced in 2004 (table 1). The projected gold production at the mine in 2006 was approximately 335,000 troy ounces (10,420 kg) of gold (at an estimated mine operating cost of \$240 per troy ounce), which is a decrease of 2% compared with 2005 production. The projected decrease was owing to an expected reduction in output caused by the failure of one of the mine's tank foundations in November 2005. The Rosebel Mine was owned by Rosebel Gold Mines N.V., which was a joint venture of Cambior (95%) and the Government of Suriname (5%) (Mining Journal, 2006; Cambior Inc., 2006§).

## Outlook

During 2006, the alumina industry in Suriname is expected to grow given the 2005 completion of the 250,000-metric-ton-per-

year (t/yr) expansion of the Paranam refinery. The expansion increased the total capacity of the refinery to 2.2 million metric tons per year (Alcoa Inc., 2005§).

For 2006, the crude petroleum production in Suriname is expected to continue to increase. The national oil company of Suriname, Staatsolie Maatschappij Suriname N.V., estimates an annual production of 4.44 million barrels for 2006, which represents an increase of about 1.4% compared with 2005 production of 4.38 million barrels (Staatsolie Maatschappij Suriname N.V., 2006, p. 18).

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TABLE 1  
FRENCH GUIANA, GUYANA, AND SURINAME: PRODUCTION OF MINERAL COMMODITIES<sup>1</sup>

(Thousand metric tons unless otherwise specified)

Country and commodity		2001	2002	2003	2004	2005 <sup>e</sup>
FRENCH GUIANA <sup>c</sup>						
Cement	metric tons	58,000	62,000	62,000	62,000	62,000
Clays	do.	5,000	5,000	5,000	5,000	5,000
Columbite and tantalite	kilograms	1,500	1,500	1,500	1,500	1,500
Gold, mine output, Au content <sup>2</sup>	do.	4,062 <sup>3</sup>	3,290 <sup>3</sup>	3,296 <sup>3</sup>	2,773 <sup>r,3</sup>	1,955 <sup>3</sup>
Sand		1,500	1,500	1,500	1,500	1,500
Stone, crushed		1,500	1,500	1,500	1,500	1,500
GUYANA <sup>4</sup>						
Bauxite, dry equivalent, gross weight		1,950	1,690	1,846 <sup>r,5</sup>	1,506 <sup>r,5</sup>	1,405 <sup>3,5</sup>
Clay <sup>5</sup>	metric tons	NA	NA	NA	3,000	12,000 <sup>3</sup>
Diamond	carats	178,698 <sup>5</sup>	248,436	412,537 <sup>r</sup>	444,940 <sup>r,5</sup>	340,000 <sup>e</sup>
Gold, mine output, Au content	kilograms	14,186	13,581	11,707 <sup>r,5</sup>	11,148 <sup>r,5</sup>	11,102 <sup>3,5</sup>
Sand	metric tons	240,083	186,327 <sup>r,5</sup>	253,674 <sup>r,5</sup>	142,092 <sup>r,5</sup>	573,150 <sup>3,5</sup>
Stone, crushed	do.	117,814	54,746 <sup>r,5</sup>	154,093 <sup>r,5</sup>	285,583 <sup>r,5</sup>	315,964 <sup>3,5</sup>
SURINAME <sup>c</sup>						
Aluminum:						
Bauxite, gross weight		4,394 <sup>3</sup>	4,002 <sup>3</sup>	4,215 <sup>3,6</sup>	4,052 <sup>3,6</sup>	4,757 <sup>3,6</sup>
Alumina		1,900 <sup>3</sup>	1,900	2,004 <sup>3,7</sup>	2,039 <sup>3,6</sup>	1,944 <sup>3,7</sup>
Cement, hydraulic		65 <sup>3</sup>	65	65	65	65
Clays, common		20	20	20	20	20
Gold, mine output, Au content	kilograms	300	300	300	8,513 <sup>2,3</sup>	10,619 <sup>3,8</sup>
Petroleum:						
Crude <sup>9</sup>	thousand 42-gallon barrels	4,700 <sup>3</sup>	4,500 <sup>3</sup>	4,300 <sup>3</sup>	4,100 <sup>3</sup>	4,380 <sup>3</sup>
Products	do.	2,550 <sup>3</sup>	2,700	2,600 <sup>9</sup>	2,500 <sup>3,9</sup>	2,700 <sup>3,9</sup>
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

<sup>e</sup>Estimated; estimated data are rounded to no more than three significant digits. <sup>r</sup>Revised. NA Not available.

<sup>1</sup>Table includes data available through November 29, 2006.

<sup>2</sup>Source: Direction Regionale de l'Industrie, de La Recherche et de l' Environnement and Bureau de Recherches Géologiques et Minières.

<sup>3</sup>Reported figure.

<sup>4</sup>In addition to the commodities listed, Guyana's Government also reported laterite production, in metric tons: 2004--44; and 2005--zero; and loam production, in metric tons: 2004--3,000; and 2005--4,000.

<sup>5</sup>Source: Guyana Geology and Mines Commission.

<sup>6</sup>Source: World Bureau of Metal Statistics.

<sup>7</sup>Source: BHP Billiton Group.

<sup>8</sup>Source: Cambior Inc.

<sup>9</sup>Source: Staatsolie Maatschappij Suriname N.V.

TABLE 2  
GUYANA AND SURINAME: STRUCTURE OF THE MINERAL INDUSTRIES IN 2005

(Thousand metric tons unless otherwise specified)

Country and commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity	
<b>GUYANA</b>				
Alumina	Bauxite Industry Development Co. Ltd. (BIDCO)	Alumina refinery at Linden (presently closed)	300	
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%) [Bauxite Industry Development Co. Ltd. (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	
Do.	Omai Bauxite Mining Inc. (Cambior Inc., 70%, and Government of Guyana, 30%)	Omai Bauxite Mine and Processing Plant located close to Linden on the Demerara River about 100 kilometers south of Guyana's capital city of Georgetown	300	
Gold	kilograms	Omai Gold Mines Ltd. (Cambior Inc., 95%, and Government of Guyana, 5%)	Omai Mine, Mazaruni-Potaro District; shut down in third quarter of 2005 owing to depletion of mine	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
<b>SURINAME</b>				
Alumina		Suriname Aluminum Co. (Suralco) (Alcoa, Inc., 55%, and BHP Billiton plc, 45%)	Refinery at Paranam	2,200
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	kilograms	Rosebel Gold Mines N.V. (Cambior, Inc., 95%, and Government of Suriname, 5%)	Brokopondo District, 100 kilometers south of Paramaribo	10,500
Petroleum		Staatsolie Maatschappij Suriname NV (Government, 100%)	Tambaredjo, District of Saramacca	5,000
Petroleum products		do.	do.	2,600

NA Not available.

