

SURINAME

By Peter W. Harben & J. M. Harris

Peter W. Harben Inc., New Mexico 88011, USA (www.peterharben.com)

Slightly larger than the State of Georgia in the US, Suriname is a country in northern South America sharing common borders with Brazil, French Guiana and Guyana. The region forms part of the Guiana Shield, a geological entity containing greenstone belts that have become the focus of exploration interest as a result of the 12 Moz Las Cristinas gold discovery by Placer Dome in Venezuela, as well as commercial production by Cambior at the 4 Moz Omai gold deposit in Guyana. In addition, these lower Proterozoic greenstone belts are prolific for high-grade, shear-hosted gold deposits elsewhere in the world, such as the 50 Moz Ashanti mine in Ghana. Also in the area, ecotourism and its related concerns have played increasing roles in the country that has given permanent protection to the 1.6 Mha of untouched tropical forests in its dense interior. Suriname has had a continuing problem with garimpeiros, often illegal and Brazilian gold miners, who may constitute some 10% of the population who also create environmental concerns. Suriname and Brazil are planning to co-operate on a survey of the situation.

The traditional base of Suriname's economy has been bauxite mining and refining. Overall, the bauxite industry accounts for more than 15% of the country's GDP and 70% of its export earnings. Alcoa Inc.'s Suriname Aluminum Co.'s (Suralco) Coermotibo mine produces 2 Mt/y and is expected to double output within the next decade. A joint venture of Suralco (76%) and Billiton Maatschappij Suriname NV (BMSNV) of the Netherlands (24%) produces 1 Mt/year of bauxite at the Accaribo mine in the Para District, about 15 km from the refinery and 35 km south of the capital Paramaribo. However, after its reserves become depleted, bauxite production will switch to the nearby Lelydorp III deposit which has reserves of 19.5 Mt at a grade of about 53% Al₂O₃ and will produce 2 Mt/y of ore. Reserves are estimated to be adequate to maintain operations until 2006. However, in 2002 the Paranam bauxite refinery and aluminium smelter, jointly owned by BMSNV and Suralco, was closed. Operated by Suralco, the plant produced 1.6 Mt/y of alumina.

In January 2003, the Government of Suriname signed agreements for bauxite exploration and exploitation rights for bauxite. The first was to allow Alcoa LLC to increase the capacity of its bauxite refinery; the second was jointly with Alcoa (55%) and BHP Billiton (45%) for permission for new bauxite mining and refining operations. Bakhuys, 300 km southwest of Paramaribo, is estimated to hold 80-630 Mt of bauxite. The two companies had initially proposed individual plans to mine bauxite; the agreement also states that the companies will jointly exploit bauxite from two other areas where reserves are expected to last until 2032. Suralco has a concession in eastern Suriname and Billiton has a concession in central Suriname. The exploration phase will cost US\$16 million (SG\$34.7 billion) and will last 22-25 months during which time BHP Billiton will try to prove reserves of at least 180 Mt of bauxite, the minimum amount for the refinery to be feasible. Alcoa will conduct the

feasibility studies for the aluminium melting plant and the hydroelectric dam. Alcoa and BHP Billiton have also agreed to invest US\$70 million (SG152 billion) in the expansion of the existing bauxite refinery at the Suralco plant.

Recent government policies have aimed at developing activity in the private sector and attracting foreign investment, especially in the mineral resources sector. 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 re-investment, and guarantees the repatriation of capital and profits. The benefits include a royalty rate reduction to 2.25%, nominal licence 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 pre-production costs can be written off during the first five years of operations.

In early 2003 Cambior Inc. received all the necessary permits and subscribed to the political risk insurance required to begin officially the construction and development of the Rosebel gold project, approximately 80 km south of Paramaribo, based on an estimated capital cost of US\$95 million. Starting in the first quarter of 2004, Rosebel will produce 270,000 oz of gold in its first year of operation at a mine operating cost of US\$157/oz. Previously, the company filed a reserves report on the property indicating that probable mineral reserves, calculated at a gold price of US\$300/oz, stand at 25.2 Mt at an average grade of 1.7 g Au/t, representing 1.3 Moz of gold contained. Cambior has entered into an agreement with Golden Star Resources Ltd to acquire its 50% interest in the Gross Rosebel property for a cash consideration of US\$80 million and to complete additional transactions regarding Omai Gold Mines Ltd in Guyana, the Yaou and Dorlin properties in French Guiana and other exploration properties in the Guiana Shield. The company expects to benefit from the strong synergy with these projects and reduce capital expenditures through the transfer of available equipment from the Omai mine. After discussions with the government, Cambior will close its transaction with Golden Star and intends to complete a final feasibility study by mid-year as well as prepare for construction by the end of the year.

Canarc Resources Corp.'s Sara Kreek mine, the only legally operating gold mine in Suriname, averages 10,000 oz/y of gold from the small, open-pit placer operation. A second high-grade, open-pit lode mine is amenable to production in the near term. The gold prospects at Sara Kreek exhibit shear-hosted or porphyry-type mineralisation related to quartz-carbonate veins or stockworks within volcano-sedimentary greenstone belts intruded by tonalite-diorites along major crustal breaks within the Guiana Shield. Deposit potential here exceeds 1 Moz. The Sara Kreek property produced over 500,000 oz of gold historically and has the potential for additional discoveries up to the 1 Moz plus range. The mine is located in east central Suriname, 160 km south of Paramaribo. One Exploitation Concession measures 17 km x 19 km, totalling 22,500 ha. Canarc owns a 100% interest (subject to a 20% net profits interest or 1.5 to 5.5% net smelter royalty) in the subsurface mineral rights, as well as an 80% interest (reverting to 50% after payback of investment) in the

surface mineral rights. A local partner, Suriname Wylap Development Corp., currently operates the small placer mine on the property.

Canarc Resources Corp. reports excellent gold recoveries from the saprolite mineralisation in the JQA prospect area of the Benzdorp property. An 80% recovery rate was achieved from saprolite ore using simple gravity and flotation methods without crushing or grinding, and indicating very low costs on an ounce per tonne basis. Although additional gold recoveries are still possible through optimisation of the gravity and flotation circuits, Process Research Associates Ltd. (PRI) recommends a test programme of grinding the soft and clay-rich saprolite ore. Reconnaissance prospecting and sampling on the Benzdorp property are intended to try and extend the known belt of gold mineralisation north and south of the JQA prospect.