

DOMINICAN REPUBLIC

By Gerald M. Ellis

Between 1991 and 2002 the presidents and heads of state of the 19 Latin American republics, plus Spain and Portugal, have held regular annual meetings where the principal theme usually has been the need to make efforts to promote economic and social progress. Last year, the Dominican Republic was host to the 12th annual meeting, held in Bavaro Beach on November 15 and 16. At its conclusion, a joint declaration contained 26 points, which bound all the member countries to commit themselves to strive towards progress and economic development.

At the time of the meeting, in Santo Domingo, the Dominican Republic was assured by the president of the Andean Development and Trade Promotion Corp. (CAF) based in Caracas, Venezuela, that efforts would be made for the entry of the country into the organisation. CAF operates in Venezuela, Brazil, Colombia, Chile, Bolivia, Argentina, Uruguay, Panama, Costa Rica, Trinidad & Tobago, Ecuador, Peru and Spain, and has some 22 banks as minority shareholders. CAF affords credit opportunities as well as technical assistance and is backed by holdings of US\$2.2 billion. It runs a programme of financial assistance of over US\$3.5 billion, helping in areas of capital market development as well as increasing investment and commercial ties with South America. CAF is the principal source of financing for the Andean countries.

During 2002, the Ministry of Industry and Commerce, the Directorate General of Mines and the Mining Development Council worked on various activities that were assigned to the country at the last Conference of the Mining Ministries. Dominican mining legislation was being reviewed for a possible reform by experts, financed by the EU.

Fiscal reserves

The Government of the Dominican Republic entrusted to the Council for Mineral Development, the Mining Corporative Unit and the General Directorate of Mines, the task of privatising the Fiscal Reserves through international bidding. The Fiscal Reserves include: the Pueblo Viejo Sulphide Zone (containing some 25 Moz of gold in 550 Mt of ore with grades of 2 g/t Au and 13 g/t Ag; the Ampliacion Pueblo Viejo (Pueblo Viejo Extension) covering some 5,400 ha; the Neita Fiscal Reserve near the Haitian border containing some 25,221 mining hectares; the Sabaneta Fiscal Reserve of 55,720 ha in Dajabon and Santiago Rodriguez; and La Cuaba Fiscal Reserve in Villa Altagracia, with 4,857 ha.

Mining industry

The major international mining companies operating or exploring in the Dominican Republic are Falconbridge Dominicana (Falconbridge Ltd), MIM Holdings and Placer Dome. Other mining companies include: Globe Star Mining (formerly TGW or The Great White Corp.), Unigold Inc., Energold

Mining Ltd, Impact Minerals International, MinMet plc and Main Grove Pty Ltd/International Mining Ventures Pty Ltd.

In the non-metallic sector the major firms are Cementos Mejicanos (Cemex) and IDEAL Dominicana (IDEAL Basic Industries). There are also many Dominican companies engaged in quarrying, processing and export to local and foreign markets of such products as marble, limestone, gypsum, clays and dimension stone.

Falconbridge Dominicana

Falconbridge Dominicana mines a series of nickel laterite deposits in the Bonao area of central DR where there are six surface lateritic deposits at Loma Fraser, Loma Caribe, Loma Peguera, Loma Larga, Loma Taino and Loma Guardarraya, all located some 80-90 km north of Santo Domingo. Mining, milling and smelting resumed full-scale operations in March 2002, following a partial shut-down from late October 2001, until January 2002.

Mine production for the year 2002 amounted to 3.04 Mt (dry), with an average grade of 1.23% Ni. Nickel production amounted to 23,303 t contained in ferronickel. Ferronickel output was below target owing to various adverse operating factors and events, as well as the scheduled general shutdown in response to low nickel prices. Output of nickel contained in ferronickel was 51.4 Mlb, or 5.5% below the budgeted production of 54.4 Mlb. Other events affecting output included: a ten-day delay in the start-up of the electric furnaces in February 2002, due to a transformer failure; an oil spill in April (seven days); unscheduled power-plant shutdowns; and, at year end, an interruption of the company's fuel supply from PDVSA due to the Venezuelan general strike. (This led to a declaration of *force majeure* by PDVSA and a restriction of output by Falconbridge Dominicana to 70% of capacity for 30 days.)

The company's capital investments totalled US\$14.3 million, mainly for heavy mine equipment replacement, improvements in plant environmental conditions and the continuation of the implementation of major technological projects, such as the Smart Predictive Line Controller (SPLC) and the replacement of burners in the No.1 unit at the power plant.

After providing for depreciation and taxes, the company realised net earnings of US\$5.54 million in 2002. The tax provision was US\$675,022 and total tax paid during the year amounted to US\$4.12 million. The average price received for nickel contained in ferronickel shipped was US\$3.17/lb, compared with US\$2.80/lb in 2001. Shipments were destined for the US (29%), Europe (40%), Korea (19%) and Japan (12%). The total amount of nickel exported was 22,966 t (US\$50.6/Mlb).

At the end of 2002, proven and probable mineral reserves, calculated on a diluted basis, totalled 64.1 Mt, at a grade of 1.15% Ni. Indicated resources totalled 13.8 Mt at 1.53 % Ni (undiluted), and inferred mineral resources amounted to 6.4 Mt at 1.41% Ni (undiluted).

As of January 1, 2003, Sergio Chavez took over as president and general manager.

Placer Dome

On March 25, 2002, the government signed a covenant with Placer Dome, for the exploration and exploitation of the Pueblo Viejo Sulphide Zone deposits. This was later ratified by Congress. Through Placer Dome Dominicana, the Canadian company plans to invest US\$336 million over a three-year period to undertake tests aimed at confirming ore reserves, metallurgical processes, environmental measures, and other phases of activity that will ensure an operating period of 25 years, with rights of renewal for two periods for a total of 75 years. The rights also include a surface area of over 3,211 ha, the tailings dam at Las Lagunas, the installation of a tailings dam at Mejita, and the limestone deposits at Hatillo. The project will employ some 1,000 men during the construction phase, and 400 people in the second phase.

The government should receive up to 3.2% of gross revenues from sales, taxes of 25% on income, additional benefits on gold prices above US\$270/oz and other corporate taxes such as transfer of capital. The company will also create a fund for protecting the environment. The commitment by Placer Dome Dominicana to mine the sulphide ore and protect the environment is viewed as a success for both the company and the State. Placer Dome initiated feasibility studies in 2002 and based on the projected financing it expects to produce 400,000 oz/y of gold, in addition to silver and zinc.

MIM Exploration

MIM Exploration Ltd has maintained an active minerals exploration programme in the Dominican Republic over several regions in the western, central and eastern areas such as at Agua Santa, Lovaton, Los Cumani I and II.

On March 25, when President Mejia announced the signing of the covenant with Placer Dome, he also announced the signing with MIM on the Pueblo Viejo Extension, to explore for economic deposits of gold and associated minerals in the areas surrounding the Pueblo Viejo deposits.

During 2002, MIM Exploration Ltd undertook exploration on the Fiscal Reserve. It reported that results from trenching a soil gold anomaly approximately 20 km north of the Pueblo Viejo mine indicated significant, near-surface gold. Over the 154 m-long trench averages of 1.6 g/t Au and 0.2% Cu were encountered, including 26 m at 5.2 g/t Au and 0.4% Cu. Plans to test this anomaly by drilling were under way.

MIM Exploration is also seeking a potential partnership on targets at Loma El Mate and Loma Hueca.

Unigold Resources

This Canadian firm is exploring for gold, silver and associated minerals in the Sabaneta and Neita Fiscal Reserves in the provinces of Santiago Rodriguez,

Dajabon and Elias Pina. The permits are for three years, with two one-year extensions.

Unigold is registered in Montreal and has more than 20 years' experience in exploration in North America, Latin America and Africa. The company has a budget of up to US\$10 million to explore the fiscal reserves. The Neita Fiscal Reserve was previously explored and drilled by BRGM of France under an EU economic co-operation programme financed by Sysmin. The Sabaneta Fiscal Reserve was previously studied as a joint geological co-operation programme by the Dominican Directorate General of Mines and BGR of Germany. Unigold will have exploitation rights extending for 75 years for gold, silver, copper and zinc.

The company's geologists began work at Neita by compiling data, geological mapping, soil sampling and trenching prior to diamond drilling, which is to be undertaken in 2003. In addition to exploration at Neita and Sabaneta, Inigold has been negotiating with a private Dominican company to acquire a 100% interest in the 25,000 ha Rosso concession, which is continuous on the southern boundary of Neita and on the western boundary of Sabaneta. It covers the extension of the geologically favourable Cretaceous volcanic belt which extends northwesterwards through the Dominican Republic and includes Pueblo Viejo.

The Rosso gold showing is believed to be on an extension of the structure hosting the Candelones gold deposit located on the Neita Fiscal Reserve. Gold mineralisation was intersected by shallow drill holes at Rosso in the 1980s.

Neita, near the Haitian border, is close to the Milot gold property in Haiti where, years ago, the Haitian Ministry of Mines and United Nations geologists undertook a 44-hole drilling programme and revealed the presence of ore averaging 2.25 g/t Au. A reserve of 1 Mt averaging 2.74 g/t Au had been recommended as a first phase of mining. A 74% gold recovery had been reported by Western Testing Laboratories in Sparks, Nevada, where cyanide leaching tests were carried out. Of the 44 drill holes, 19 of them showed homogeneous gold values from surface down to depths ranging between 17 m and 64 m.

Globe Star Mining

Globe Star Mining Corp. (TGW) came to the Dominican Republic some years ago from Québec and has established its reputation for an active minerals exploration campaign. In the past two years it has been active in the development of the Cerro Maimon copper deposit, acquired from Falconbridge in April 2002 for US\$350,000. subject to a 2% royalty. Cerro Maimon is a volcanogenic massive sulphide deposit discovered by Falconbridge in 1978 during a very active minerals exploration campaign on its Quisqueya No.1 concession (site of the nickel laterite deposits). Falconbridge defined 4 Mt at 4% Cu. Other properties were also acquired by TGW related to the Maimon formation as Falconbridge carries out a substantial divestment exercise.

Cerro Maimon is the most advanced and has now reached the feasibility study stage. In September 2002, TGW announced the preliminary results from the oxide portion of its 28-hole drill programme. A private US group is earning a 50% net working interest by investing the first US\$2.65 million and funding 50% of further expenditures. Mineralisation was encountered over a 575 m strike length within a weathered profile from surface to around 25-30 m depth. Results indicated showed that a profitable oxide leaching operation can be contemplated to provide capital for development of the much larger underlying high-grade sulphide deposit. The oxide intersections ranged up to 8.2 m at 5.6 g/t Au and 612 g/t Ag, and 7.3 m at 7.0 g/t Au and 143.6 g/t Ag. The oxide material outcrops as a prominent ridge overlying the enriched and primary massive sulphide, previously estimated by Falconbridge to contain a measured resource of 3.36 Mt averaging 3.93% Cu, 1.93% Zn, 0.56 g/t Au and 47.32 g/t Ag, using a 1% Cu cut-off grade. Further drilling of the oxide zone has yielded 41.2 m at 3.8 g/t Au from surface, 16.7 m at 2.1 g/t Au and 168 g/t Ag, 12.3 m at 3.1 g/t Au and 262 g/t Au, and 7.8 m at 7.7 g/t Au. Recoveries of 91% for gold (maximum 98.7%) and 75% for silver (maximum 97.5%) have been obtained.

Late in 2002, TGW announced a 200% increase in gold grades in the massive sulphides at Cerro de Maimon. The new drilling results included: 9.3 m at 14.0% Cu, 0.9% Zn, 2.8 g/t Au and 150 g/t Ag; 11.1 m at 7.8% Cu, 0.2% Zn, 1.0 g/t Au and 27 g/t Ag; 16.4 m at 7.8% Cu, 2.9% Zn, 1.8 g/t Au and 70 g/t Ag; 13.3 m at 5.2% Cu, 4.9% Zn, 2.9 g/t Au and 145 g/t Ag; and 6 m at 6.5% Cu, 5.2% Zn, 3.3 g/t Au and 174 g/t Ag.

Of the new 28-hole drilling programme, all holes intersected either the oxide or sulphide mineralisation, and half intersected the sulphides. The programme concentrated on the upper copper-rich portions of the massive sulphide, which fall within the proposed open pit. Investigation of the underground portion of the project will be the subject of future drilling campaigns. It is anticipated that studies will call for much of the deposit to be mined by open pit followed by an underground operation and inclusion of material from TGW's regional resource base, such as the inferred resource at Loma Pesada (1.0 Mt at 2.2% Cu).

TGW has since estimated that 47,500 oz of gold and over 1.1 Moz of silver are recoverable from the oxide cap. Recoveries of 93% for gold and 90% for silver have been obtained by the consultants Resource Development Inc.

Elsewhere, Globestar Mining Corp. was negotiating at year end with Everton Resources for an option to Everston of the TGW Bayaguana group of properties comprising Managua, Rincon Abajo, Trinidad, Cerro Kiosko, Dona Amanda and Dona Loretta in the Los Ranchos belt, which also hosts the Pueblo Viejo gold deposits. These properties were originally explored by Falconbridge and show precious and base metals potential.

Energold Mining

Energold Mining Ltd is a Vancouver-based minerals exploration company that has been active in the Dominican Republic for about eight years. It is also

active in South America. This company owns Kluane International Drilling Co. and also owns 46% of Impact Minerals International. Under an agreement with Energold and Impact, Minmet plc can earn up to 51% of certain properties.

In June 2002, MinMet reported that Impact had discovered higher gold grades over 5 m in a 600 m trench over the Dos Brazos Zone 1 in El Brujo concession, confirming the gold-rich nature of the porphyry mineralisation.

Future planned work called for trenching of the Catalina Zone, a molybdenum-in-soil anomaly, with coincident gold and copper, as well as further mapping and sampling at Las Cayas, northwest of Dos Brazos Zone 1, where rock float samples have returned gold values between 24.1 g/t and 2.0 g/t within an area of 800 by 400 m.

Previously, MinMet had advised that soil geochemistry, trenching and geological mapping at El Brujo had identified porphyry gold-copper mineralisation with additional, possibly -related, gold replacement targets. The porphyry gold-copper mineralisation within a 9 km by 2 km soil geochemistry grid is located within the Dos Brasos Zone 1, a discrete 800 m x 900 gold-copper molybdenum soil geochemical anomaly. It has an associated, distinctive, outer zinc anomaly, characteristic of porphyry-style mineralisation. The discovery is the first exposed porphyry gold-copper mineralisation recorded in the Los Ranchos Formation which hosts the world-class Pueblo Viejo Au-Ag-Zn deposit.

Main Grove

Not much is known of Main Grove Pty Ltd in the Dominican Republic except that it visited the country and the Directorate General of Mines, and applied for La Cuaba Fiscal Reserve in the Villa Altagracia area of the country. An exploration programme should be underway during 2003. The area has been explored by Rosario Dominicana in the past, by the Directorate General of Mines and by Mitsubishi but results were uneconomic.

Industrial minerals

Industrial minerals occupy a very important position in the minerals sector of the Dominican Republic. The Mexican firm, Cemex, is one of the leading cement manufacturers in the world and is one of the leading foreign investors in the country, conducting a number of exploration and exploitation activities. This also includes gypsum mining near Barahona, as well as manufacturing and marketing of cement.

IDEAL Dominicana, a subsidiary of IDEAL Basic Industries of the US, quarries limestone at the Cabo Rojo concessions. The limestone is used locally and is also exported to Caribbean countries. IDEAL is on call permanently to mine bauxite should the occasion arise; bauxite mining by Alcoa Inc. ceased some years ago, leaving more than 10 Mt of bauxite in place.

Cementos Cibao, a local firm, is another leading cement manufacturer in the country. A number of local firms are engaged in quarrying marble, travertine

and limestone for calcium products and dimension stone. Coralline limestone has become a very attractive ornamental stone. Shale, clay, silica, sand, gravel, igneous rock, sand and gravel and stone slabs for construction are all exploited. The mining and quarrying activities employ hundreds of people, but the hand-picking of limestone boulders engages thousands. In the nearby city of San Cristobal there are 5,000 men gathering this material to sell or ship to lime plants.

Many varieties of marble are quarried in the Samana Peninsula such as white, green, pink, red and black.

Semi-precious stones such as amber, are extracted from open pits in Santiago, Puerto Plata and El Valle.

The non-metallic industries, excepting the cement manufacturers and chemically pure limestone exporters, represent annual investments in the range of about DP300 million.

Energy sector

Hydrocarbon exploration continues in the northeastern part of the country where Petrolera Once Once, a Dominican-US firm, has been exploring since 1991. This company, with a concession in the Eastern Cibao block, has conducted geological and seismic activities and has drilled several wells. During 2002, the company drilled a series of wells in the Villa Riva area where a possible natural gas deposit could be present. A five-well drilling project was under way, with the fourth well initiated at year-end. So far only signs of gas have been evident.

The joint venture between Murfin Drilling Co. of Kansas, and Maleno Oil Co. of the Dominican Republic has conducted seismic surveying and is planning three wells in the Azua-Bani basin, where oil seeps have been evident for decades, and in the Enriquillo Basin where a deep-lying prospect could be present. Exxon and Superior Oil drilled many years ago in the Enriquillo basin. Mobil Oil drilled in the Azua-Bani basin in 1995.

Directorate General of Mines

The Directorate General of Mines has been working on mapping projects with assistance, and with a grant from the US Government for strengthening the technical capacity of national staff. The Dominican Government submitted a proposal to Congress for the creation of a Ministry or Secretariat of Mines and Energy.