

## SIERRA LEONE

*By Usman Boie Kamara, B.Sc. ARSM, M.Sc, DIC, FIMM (Deputy Director of Mines) and Mohamed Bundu Mansaray B.Sc., Dip. Eng. Geol. (Acting Director of Geological Survey)*

Sierra Leone has benefited immensely from the climate of peace and stability which has pervaded the whole country since 2003. This has prevailed despite the rumblings in neighbouring Liberia, and favourable investor perceptions continue to grow. The peace process in Liberia is gaining momentum and this, coupled with elections in neighbouring Guinea, is also helping to stabilise the country.

In Freetown, the Truth and Reconciliation Commission (TRC) completed its hearings and its report is awaited as a pointer to the way forward in Sierra Leone in a manner that will avert future conflicts.

The Special Court established by the United Nations and Sierra Leone started its sittings after the indictment of several people including Foday Sankoh, the former leader of the rebel movement, and Charles Taylor, former President of Liberia, who is now in exile in Nigeria. Foday Sankoh died before being brought to trial. Others are, however, facing the court.

The phased and judicious withdrawal of UN forces in Sierra Leone continued, with the government's authority being established and strengthened throughout the length and breadth of the country. Initial jitters and concerns along the border with Liberia were quickly smothered by the effective deployment of Sierra Leone armed forces and UN peacekeepers. The building of permanent garrisons and quarters for military personnel has further strengthened peace and stability, and the UN decision to keep a residual force of 4,500 in Sierra Leone until June 2005 has been welcomed by all.

### **Mineral sector**

The gradual return to normality has resulted in much greater exploration activity and investor interest in the minerals sector. The artisanal mining of gold and diamond has continued, a major boost being the recommencement of kimberlite mining operations at Koidu in Kono District.

The Kimberley Process Certification Scheme (KPCS), of which Sierra Leone is a founder member since 2001, continued to impact positively on the diamond-mining sector. Exports increased, as evidenced by the number of certificates issued during the year compared with the past three years. There were 378 Certificates of Origin issued during 2003, with over 90% of exports going to Belgium.

## Mining Annual Review 2004

Diamond exports for the year amounted to 506,723.37 ct valued at US\$76 million. This represents an increase of 82% in value over the 2002 figures of 351,859 ct valued at US\$42 million. With the undoubted success of the KPCS in reducing smuggling, and the start of production of the Koidu kimberlite mine, diamond exports are expected to exceed US\$100 million in 2004.

Dr Jan Ketelaar, the diamond consultant appointed by the UK Department for International Development to work with the Sierra Government, has continued to engage various sectors to improve the conditions in the diamond sector.

The scheme initiated by the government to plough back some of the revenues derived from diamond exports to the Chiefdoms where diamonds are mined – the Diamond Area Community Development Fund (DACDF) – is being scrutinised and improved. This is to ensure that the impact on the lives of individuals and the community is improved.

Undoubtedly, the formal mining sector offers the greatest prospect of significant improvement in the country's economy. In this respect the following is an update on this sector.

The EU approved a €25 million grant to Sierra Leone which will be passed on to Sierra Rutile Ltd as a loan. This, in addition to the US\$25 million loan from OPIC and US\$14 million from SRL's shareholders, completes the financial package due for the restarting of the rutile mines. The loan agreements are being finalised before actual drawdown commences.

Koidu Holdings SA has started mining kimberlite. The company carried out a baseline environmental audit of the mine area in March 2003 and by the end of the year had commissioned a 50 t/h plant to recover diamonds. The first shipment of 10,108 ct valued at US\$2.05 million, was made in February 2004. The mine is being developed with a view to achieving full capacity by 2005.

Efforts are being made both locally and internationally to revive the Baomahun gold project. Winston Mines Inc had discussions with three possible joint venture partners and has repaired the fragile relationship between the company and the host Chiefdoms. Cluff Gold Ltd has signed an agreement with Winston to undertake the exploration of the deposit to the feasibility stage.

Sierra Leone Diamond Co Ltd (SLDC), formerly Africa Diamond Holdings Ltd (ADH Ltd), initiated a high-resolution airborne magnetic survey, part of a systematic wide-ranging regional exploration programme.

Many companies have renewed their exploration licences after the expiry of the grace period.

Sierra Diamonds Ltd (SDL), a subsidiary of Mano River Resources Inc, has secured a regional licence covering 9,700 km<sup>2</sup> in southeastern Sierra Leone to undertake an aerial survey, with BHP Billiton as a likely partner.

### **Government initiatives**

The Government of Sierra Leone has given high priority to activities related to the reactivation and development of the mining sector as the main vehicle for post-war recovery and sustainable development. In view of this, the government has approved and published a Core Mineral Policy (CMP), intended to enable the private sector to take a lead in exploration, mine development, mineral beneficiation and marketing.

Most of the companies are making use of the CMP and the result has been a tremendous increase in exploration activities.

- Nineteen companies are currently prospecting and exploring for diamonds, both for kimberlite and alluvial deposits, and eleven are exploring for gold. No gold mine has been established yet but some of the companies are in their final phases of exploration.
- One company is carrying out due diligence leading to feasibility studies on the Rotifunk rutile deposits, which are a northwestern extension of the SRL deposits in the Gbangbama region.
- Four companies are exploring for bauxite, one of which has concluded feasibility studies and proved mineable reserves. It is hoped that mining operations will commence in the latter part of 2004.
- Two companies with about eight licences are exploring for dimension stones in the Freetown ultramafic complex and in granitic terrains in other parts of the country.
- Three companies have been granted Regional Exclusive Prospecting Licences (REPLs) to carry out high-resolution airborne geophysical surveys for precious minerals in the northeast, southeast and northwest of the country.
- One company has been granted an exploration licence to carry out feasibility studies on the Marampa iron-ore deposits. This company has now applied for a Mining Lease to commence the exploitation of these deposits. The same company is undertaking prospecting in other parts of the country for iron ore and bauxite.
- An exploration licence has been issued for ilmeneo-rutile.

Geologists of the Geological Survey Division have been assigned to various companies to monitor their activities, and at the same time are directly involved in the exploration activities of these companies. Exploration and re-evaluation results are submitted to the Geological Survey for record purposes and to build up the geological database.

New diamond deposits have been confirmed from persistent reports of diamond occurrences and artisanal mining activities in northwestern Sierra Leone. These deposits are yet to be studied in detail but seem to be in alignment with kimberlitic deposits in southwestern Guinea. Northwesterly-aligned lineament structures in northwestern Sierra Leone seem to match well and warrant an intensive exploration campaign.

### **Mining and exploration**

The mineral potential of Sierra Leone lies mainly in the Archaean granite-schist belt terrain of the Leonean Shield which makes up 70% of the country. Developments concerning the more important commodities are detailed below.

**Rutile:** Rutile mining began in 1967, exploiting mineral sands in the southeast of the country. Operations were suspended in 1995 but are on the verge of recommencing. The operating Company Sierra Rutile Ltd (SRL) is now owned 75% by MIL Investments of Jean Raymond Boule and 25% by Titanium Fields Resources Ltd. SRL stands to receive US\$25 million funding from US-based Overseas Private Investment Corp (OPIC) and €25 million from Sysmin, an EU mineral fund for developing countries. Both loans have been approved and legal documentation is being finalised prior to the funds being drawn. In addition, the sponsors are to put in an additional US\$12 million. Operations, initially, will be based on a single-dredge operation, to be increased eventually to two dredges. Because of the importance of the project to the country and to ensure the viability of the project, the government will acquire up to a maximum of 30% in the equity of SRL in lieu of deferred payments to government.

SRL expects to start refurbishment by the end of 2004 and to begin production at approximately 60,000 t/y of rutile and 8000 t/y of ilmenite in 2005. Annual production is expected to rise to 110,000 t of rutile and 15,000 t of ilmenite by 2006. At the end of 2007, SRL will recommence the construction of a second dredge which is already 50-60% completed. On completion, this will increase production by 2009 to 210,000 t/y of rutile and 45,000 t/y of ilmenite.

SRL has started prospecting for rutile in the Rotifunk area. Due diligence and additional sampling with a limited amount of drilling is under way.

**Diamonds:** Diamonds continue to play a major role in the mining sector in Sierra Leone, especially with the continued closure of the rutile and bauxite mines.

The most significant event during the year was the return of Koidu Holdings SA (formerly Branch Energy) to restart the Koidu kimberlite project. This was made possible by a JV agreement between Diamond Works Ltd, Branch Energy Ltd (Branch Energy) and Magma Diamond Resources Ltd (Magma).

Branch Energy is a wholly-owned subsidiary of Toronto Stock Exchange-listed company Diamond Works Ltd. Magma is a wholly-owned subsidiary of the privately-owned Benny Steinmetz Group Resources Ltd (BSGR).

A budget of US\$14.5 million was approved for the development of the Koidu kimberlite project in early 2003 and a project team mobilised to commence camp construction and infrastructure development on site. By March 2003, a baseline environmental audit of the mine area had been commissioned. In April 2003, work had begun on a preliminary geological model, which formed the basis of the initial drilling programme and, in May 2003, civil engineering work began on the construction of the plant. In November 2003, commissioning of the plant began and by December 2003 it was completed. The first parcel of diamonds weighing 10,108 ct and valued at around US\$2 million was exported on February 4 2004.

Conventional open-pit mining is currently being used at Koidu. Mining activities started in Pipe 1 and will continue on to Pipe 2.

The other known kimberlite bodies, at Tongo (45 km south of Koidu), are located in the area licensed to Rex Mining. They have become available owing to Rex failing to fulfill its work programme obligations. On termination of the lease agreement, the area was put up for tender to prospective applicants. Eleven tenders were received and Koidu Holdings SA emerged as the winner of the tender. Koidu Holdings' work programme intends to determine whether the deposits are viable within one year from date of the issue of the licence.

Sierra Leone Diamond Co Ltd (SLDC), formerly Africa Diamond Holdings Ltd (ADH), has been very active, both operationally and corporately. The company has moved its corporate headquarters to Bermuda, and has established an office in London. This move, along with a significant acceleration of all its Sierra Leone exploration programmes and infrastructure projects, was made possible by Timis Diamond Corp's initial investment commitment of over US\$15 million. SLDC holds 14,500 km<sup>2</sup> of ground comprising 12 exclusive prospecting and exploration licences. The company continued with its high-resolution airborne magnetic (HRAM) survey over the northeast and northwest quadrants of the country.

SLDC has developed a country-wide infrastructure to support its large-scale multi-million dollar exploration programme. This includes airplane hangar facilities in Freetown, residential facilities and corporate offices in Freetown, exploration headquarters in Bo, Southern Region, with forward bases at Sumbuya (South), Makeni (North), Kabala (North), Kamakwie (North) and Yengema (East). SLDC's diamond-indicator laboratory currently has capacity

to process 3,000 samples per year and can be easily upgraded to 10,000 samples per year.

Two-twin engine Navajo survey aircraft, one Scout helicopter, two 10 t/h trial-mining plants, two 5 t/h sampling plants, dredges and other vehicles are amongst the current stock of equipment and machinery.

The backbone of the company's programme is the HRAM survey currently being flown on 100 m line spacing at an impressive drape (distance from ground) of 50 m. Through a systematic, wide-ranging, regional exploration programme, SLDC hopes to develop a geological database for Sierra Leone.

African Diamonds plc currently has three exclusive concessions comprising one Exploration Licence and two Exclusive Prospecting Licences, all in Kono District in the Eastern Region. During the year, progress consistent with the company's approved work programme was achieved in all three licences. The Company's greatest efforts and resources were, however, focused in the Exploration Licence area. Over 80% of the surface area of No.3 Pipe has been exposed and six, probably seven, dyke zones have been established. Their definition along strike is continuing, and it is expected that all or most of the dyke zones recognised in the exploration licence will extend into one of the EPLs. Additionally, two other dyke zones have been identified within this EPL. In the other EPL, heavy mineral concentrates have been collected from 50 locations in the Tankoro, Gbense and Fiama Chiefdoms, with the majority coming from sites east of the prominent northwesterly-striking Moinde fault. The samples have been processed and are currently with overseas laboratories for kimberlite indicator mineral identification.

Mano River Resources Inc continued with its exploration programmes and its subsidiary, Sierra Diamonds Ltd, acquired a regional licence covering the southeastern part of the country, where it will conduct an airborne magnetic survey, similar to that carried out by SLDC in the northeast. This will be complemented by a ground geochemical and diamond indicator mineral survey. Discussions are ongoing with BHP Billiton for a joint venture in the exploration campaign for this licence.

Africa Gold and Diamond Co has started operations in Sando Chiefdom, Kono District, using a 200 t/h plant to treat tailings from the old No.7 plant at Tefeya. The company has constructed a bridge across the Bafi River, considerably shortening the distance from Koidu to the plant site. This has made a positive and welcome contribution to the community needs.

**Gold:** Interest in the Baomahun gold project owned by Winston Mines Inc (WMI) was rekindled with three proposals being made to the owners for a joint venture. In 2004, Cluff Gold Ltd agreed terms with WMI pursuant to which the company may earn a 60% interest in Baomahun by funding the project to the completion of a full feasibility study or to a maximum of US\$5.0 million.

Mano River, through Golden Leo, is exploring in the south Pampana and Yirisen area, where there are believed to be significant gold resources. Drilling commenced early in 2004. Elsewhere, the Nimini Hills greenstone belt has good potential to host significant gold deposits. At Komahun, an area measuring some 400 m by 100 m contains significant gold mineralisation and drilling has returned assay values of up to 34 g/t Au. The Geological Survey has delineated a number of geochemical anomalies that appear to be associated with a major shear zone along the eastern flank of the hills. Golden Leo is exploring the area along strike from the licence area held by Nimini Mining Ltd.

**Bauxite:** Sierra Minerals Holdings Ltd (SMHL) completed the feasibility study on the old Sieromco deposits over which it held an exploration licence. Subsequently, it has submitted an application and been granted a ten-year Mining Lease in line with the provisions of the Mines and Minerals Act, 1996. The company hopes to start operations very soon as only US\$20 million is required for development of the mine.

**Dimension Stone:** Matrix International has been granted a one-year Mining Lease. This will enable the company to overcome land disputes which engulfed its predecessor, Olympus Mining Co Ltd. The company is mobilising equipment and personnel to start operations. Swalford, the other company involved in quarrying dimension stone, has yet to begin its operations.

**Platinum:** Licences cover the Freetown Peninsular layered igneous complex, a target for platinum group metals but, as yet, nobody is on the ground.

**Petroleum:** Repsol, which owned two of the four blocks awarded in the bid round in April 2002, has begun operations on its blocks. The other two companies, Oranto and #8 Investment have yet to begin work.