

## GHANA

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The objective of the 2002 budget was to consolidate further the gains in 2001 and achieve a continued reduction in inflation and strengthen economic growth. The budget sought to: strengthen the tax base; allocate resources towards priority areas identified in the Ghana Poverty Reduction Strategy (GPRS); and reduce the burden of domestic debt. Notable progress was made in 2002 in the following areas:

- domestic revenue was mobilised;
- overall expenditure ceiling was respected;
- The Bank of Ghana strengthened its gross international reserve position from the equivalent of 1.5 months of imports cover at the end of 2001 to 2 months of imports at the end of 2002;
- year-on-year inflation which fell to 21.3% continued to fall, to 15.2% at end 2002.

GDP grew by 4.5% in 2002, compared with the real growth of 4.2% achieved in 2001. This was accounted for by 4.4% growth in the agricultural sector and 4.7% growth for services and industry.

Total exports receipts (fob) were estimated at US\$2.06 billion, slightly higher than the target of US\$2.04 billion. This achievement was on account of favourable international prices for Ghana's major exports.

Receipts from cocoa exports amounted to US\$463.4 million, marginally falling short of the target of US\$469 million exported for the year 2001. The average price per tonne for cocoa beans went up from US\$1,021 in 2001 to US\$1,266 in 2002. The volume of cocoa beans exported in the year, however, fell from 310,476 t to 305,000 t. The lower volume was attributed to smuggling and the outset of Black Pod and Capsid diseases during the 2001/2002 crop season.

The demand for imports in the country was curtailed by the faster depreciating rate of the cedi relative to the US dollar. Non-oil imports were US\$2,197 million in 2002, compared to US\$2,452 million in 2001.

As a result of the above developments, the trade balance recorded a deficit of US\$641.2 million which was equivalent to 11.2% of GDP as against a projected deficit of US\$821.6 million (14% of GDP). The trade deficit in 2001 was equivalent to 20.6% of GDP.

During the year under review, the rate of depreciation of the cedi increased both in the interbank market and the foreign exchange bureau markets as compared with 2001. The cedi depreciated by 13.2% from C7,322 to the US dollar at the end of 2001 to C8,438 to the US dollar at the end of 2002 on the interbank market. This compares with 3.7% depreciation in 2001. On the forex

bureau market, the rate of depreciation was 15.7%. The rate of depreciation increased because of shortfalls in donor assistance and increased speculation on the part of market participants.

SOFRECO of France submitted the final report on the Sysmin project which has been accepted by government. The project is to assist the mining sector institutions in carrying out projects aimed at stimulating private investment in the mining sector in an environmentally sustainable manner. The components identified under the project include:

- Institutional reinforcement and capacity building of mining sector institutions;
- Geological data provision (geological mapping and airborne geophysical survey over the Voltaian);
- Environmental impact assessment to address effects of large-scale mining and future mine closures;
- Mercury abatement; and
- Western corridor infrastructure studies (feasibility studies on the Takoradi port and railway connecting lines).

Project implementation will start in 2004.

### **Gold mining**

Despite the fact that the thrust of current policy has been to diversify the mineral production base of the country to include industrial minerals and also to add value to what is produced, gold exploration and mining continues to be the main focus for mining companies in Ghana.

During the year under review, 30 reconnaissance/prospecting licences were granted to local and foreign companies which represents a 200% increase over that of the previous year. This increase is attributed to the renewed interest in exploration activities following the gold price increase. Valid exploration licences stood at 125.

Mining leases were granted to Talos (Gh) Ltd, Narawa and Ashanti Goldfields Co. Ltd after having submitted acceptable feasibility reports and Environmental Impact Statements on their proposed projects to government.

In 2002, Newmont Mining Corp. of the US, finalised negotiations for the takeover of Normandy Ghana Ltd's mining assets in Ghana. These include a mining lease over an area of 281 km<sup>2</sup> and a prospecting licence that has reached the feasibility stage. The company intends to make an initial investment of US\$450 million in the two properties.

Approval has been given to five of the 17 companies that were permitted, by the government, to conduct exploration in productive Forest Reserves to mine, after they had identified economic deposits and had applied for mining leases. These companies are Ashanti Goldfields, Birim Goldfields, Red Back Mining NL (Chirano project), Newmont Ghana Gold and Satellite Goldfields. The government has therefore put in place safeguards to enable this to happen and to use this as a test case. Mining practices, environmental

friendliness and community relations will be monitored to determine whether further mining in forests areas will be allowed.

A review of the legal and fiscal regimes with the aim of ensuring international competitiveness and commensurate returns to all stakeholders was completed during the year under review. The draft laws have been sent to Cabinet for onward transmission to Parliament. Indications are that these laws will be passed by the middle of 2003.

**Ashanti Goldfields Co.**

Obuasi's gold production increased by 1.6% to 537,219 oz (16,710 kg). This was produced from underground and tailings retreatment operations as well as from a small open-pit deposit on the Homase concession located approximately 16 km to the north. Cash operating costs were US\$198/oz, compared with US\$192/oz in 2001. The higher cost resulted from the mining and processing of a higher tonnage of lower-grade material.

Underground mining operations produced 2.42 Mt, 3% lower than the 2.51 Mt hoisted in 2001. The grade for the year at 7.48 g/t was 5% lower than the 7.90 g/t achieved in 2001 as a result of production from lower-grade bulk mining blocks.

Surface mining operations started again with the development of the Homase concession open pit during the year. A total of 368,000 t at 2.71 g/t were mined. Mining is being undertaken by the company itself, and haulage of ore from Homase to Obuasi is being carried out by contractors.

A total of 4.63 Mt were processed, compared with 4.06 Mt in 2001, the increase resulting from the re-commissioning of the Oxide Treatment Plant (OTP) to process ores from Homase, and greater throughput at the tailings treatment plant.

During the year, a review of the in-house scoping study of Obuasi Deep was undertaken by SRK Consultants of South Africa. This included a review of the mineral resource and reserve potential down to a depth of 3,000 m, alternative production rates, infrastructure options, and operating and capital cost projections.

Gold production by Iduapriem/Teberebie fell by 9.7% to 185,199 oz (5,760 kg) in 2002. The cash operating costs increased to US\$232/oz from US\$214/oz in 2001 due to the lower gold production.

Gold production from the carbon-in-leach (CIL) plant reduced to 147,726 oz from 158,103 oz in 2001, the reduction was largely due to lower throughput and metallurgical recovery. Lower throughput and recovery were as a result of a fire which extensively damaged the elution circuit and led to the silting up of three leach tanks.

At the end of the year, the CIL plant expansion, from 2.8 Mt/y to 4.5 Mt/y was at an advanced stage, with the second SAG mill and all major equipment

installed. It is expected that the full capacity of the expansion will be achieved by the end of the first quarter 2003. Additional drilling and re-engineering of the various pits increased ore reserves from 2.1 Moz to 2.7 Moz.

Heap-leach gold production was 37,473 oz, compared with 47,027 oz in 2001. The lower-heap leach gold production was due to the reduction in stacked tonnage following the cessation of crushing and staking operations at the Iduapriem heap-leach plant in 2001.

At Bibiani, gold production fell by 4.2% to 242,432 oz (7,541 kg) in 2002. The cash operating cost was US\$180/oz, compared with US\$170 oz the previous year. The reduction in gold production was due to harder ore resulting in lower plant throughput and lower metallurgical recovery. This also in turn resulted in a higher cash operating cost per ounce produced. Costs were also impacted by a water shortage.

During the year the evaluation of trackless underground mining operation to exploit extensions of the open-pit resources at depth was completed. The report concluded that the first phase of extending the mine should be via a ramp access system developed from within the main pit to enable extraction of delineated mineral resources within approximately 100 m of the base of the ultimate pit and to provide access for exploratory drilling that will target the deeper levels.

Mining of the Mpasetia deposit, located to the north east of the Bibiani concession, as well as contract haulage of the ore to the Bibiani processing plant commenced during the year. Bibiani was awarded the NOSA four-star integrated rating and received ISO 14001 accreditation.

In 2002, Siguiri (Guinea) produced a total of 269,292 oz at a cash cost of US\$230/oz compared with 283,199 oz at US\$220/oz in 2001. Production and cash costs were impacted by lower-than-targeted gold production from the stacked material during the year and higher mined tonnages. A feasibility study to provide for the processing of predominantly saprolite (SAP) ores through a carbon-in-pulp (CIP) processing plant was completed. The capacity of the CIP facility is 9.0 Mt/y and will produce approximately 300,000 oz/y of gold. The CIP plant will consist of a primary crusher followed by a scrubber where the plus 10 mm fraction will be separated and re-directed to the heap-leach agglomeration plant. This processing plant is expected to cost approximately US\$32 million.

At Freda-Rebecca mine in Zimbabwe production in 2002 was 98,255 oz at a cash operating cost of US\$214/oz, compared with 102,654 oz at US\$222/oz in 2001. Processed tonnage for the year was 1.16 Mt at 3.22 g/t, compared with 1.12 Mt at 3.30 g/t in 2001. Plant recovery in 2002 was 82% compared with 86% the previous year. Processing throughput and recovery were affected by a series of mechanical problems on the SAG mills and the leach tank agitator gearboxes during the year. A major plant maintenance programme was also undertaken. The shortage of foreign exchange, fixed

exchange rate and high inflation in Zimbabwe continued to pose problems for the management team particularly in respect of procurement activities.

The Geita mine in Tanzania produced a record total of 579,043 oz at a cash operating cost of US\$163/oz, compared with 545,562 oz at US\$143/oz in 2001. A total of 4.98 Mt were processed at a grade of 3.92 g/t with a metallurgical recovery of 92% compared with 4.58 Mt at 3.91 g/t and a recovery of 93% in 2001. During the year an upgrade of the crushing and leach tank sections of the processing plant was completed. The capacity of the plant will increase to between 5.5 Mt and 6.0 Mt/y.

Ashanti's exploration activities continued to be focused on and around its existing mining operations. A total of US\$17.6 million was spent on exploration at its mine sites and greenfields projects and resulted in the generation of an additional 4.0 Moz of reserves and 5.4 Moz of measured and indicated resources before mining depletion.

### **Resolute Amansie**

The company's production fell by 5.6% to 102,455 oz (3,187 kg) in 2002. The company's production has been decreasing since 2000 as a result of the depletion of the main ore resource at Obotan and the satellite deposit at Abore producing lower than expected head grades.

A number of measured and indicated resources remain on the Obotan concession but these are not economically exploitable at the current gold price. Potential remains for a small tonnage underground operation to be established on the Nkran 'deeps' if grade continuity can be demonstrated and sufficient ounces per vertical metre can be defined.

The company intended to rehabilitate the Obotan site and place the processing plant on care and maintenance at the end of 2002. The directors continue to access the range of options available for the future use of the Obotan plant, which includes the potential to relocate it to the Chirano project, owned by Red Back Mining NL of Australia.

### **Gold Fields (Gh) Ltd.**

The company's production at the Tarkwa mine increased by 3.8% to 523,489 oz (16,283 kg) in 2002. The Tarkwa mine has a number of open pits and two heap-leach plants. The Tarkwa heap-leaching operations achieved a steady state during the year levelling off at just over 1.2 Mt/mth.

Gold Fields completed negotiations for the acquisition of Damang mine, which hitherto was owned by Rangers NL (Abosso Goldfields) of Australia in January 2002. The Damang mine produced 306,836 oz (9,544 kg) at a total cash cost of US\$200/oz.

The company's major strategic initiatives in Ghana include the preparation of a feasibility study on the addition of a milling and CIP/CIL plant and alternative mining configurations at Tarkwa. At Damang, the exploration of a number of conglomerate-and hydrothermal-style targets will be undertaken. From an

operational perspective, optimisation of the heap-leaching facilities, both in terms of throughput and gold recovery, will remain a key focus area during 2003.

### **Small-scale gold mining**

As usual, routine extension services in appropriate mining and processing techniques were delivered to small-scale gold miners during the year under review. In addition to the extension service delivery, 17 training sessions and durbars were organised to create awareness in small-scale gold mining communities on mercury pollution.

Production by small-scale gold miners fell by 13.3% to 160,879 oz (5,004 kg).

In April 2002, the Honourable Minister of Mines signed a Project Document with the United Nations Industrial Development Organisation (UNIDO) for the continuation of the second phase of the project; 'Assistance in Assessing and Reducing Mercury Pollution Emanating from Artisanal Gold Mining in Ghana'.

This project, which is funded by the French Government, was launched in July 2002 when sociologists carried out a demographic survey of the selected site, Japa in the Western Region. There were 267 galamsey and non-galamsey residents who volunteered to donate blood, urine and hair samples for medicinal analysis to determine whether they have been exposed to mercury, and at what levels. In September, experts from France joined their Ghanaian counterparts to undertake the biological sampling. In all, 170 volunteers donated samples.

The environmental sampling was also undertaken in October 2002. The samples are currently being analysed at the Université de Montpellier, France.

### **Bogoso Gold Ltd (BGL)**

BGL's Bogoso/Prestea mine is located in south-west Ghana approximately 200 km west of the capital Accra. Golden Star Resources Ltd of the US acquired 70% of BGL in 1999 and later, in June 2001, increased its interest to 90%. The company also acquired a 90% interest in the surface mining rights (to a depth of 150 m) of the adjoining 129 km<sup>2</sup> Prestea property which had been acquired by BGL. Prestea Gold Resources (PGR) a company formed by the workforce of the former Prestea Goldfields Ltd was granted a mining lease for the underground mine below this level. In March 2002, BGL reached an agreement with PGR to form a joint venture to be managed by BGL for the assessment and future operations of the Prestea underground mine.

Total mineral reserves at Bogoso/Prestea contained within the US\$275/oz optimised pit shell, as at May 31, 2002, totalled 20.64 Mt at an average grade of 3.15 g/t, representing 2.09 Moz of contained gold.

BGL's production increased by 43% to 124,393 oz (3,869 kg).



### **Golden Star Resources**

Golden Star Resources acquired a 90% interest in the 57 km<sup>2</sup> Wassa concession (which used to be owned by Satellite Goldfields in 2002) by acquiring 90% of Wexford Goldfields Ltd. The project is located in the south-central region of Ghana, approximately 150 km west of the capital of Accra. The project was developed in 1998 at a capital cost of US\$43.3 million as a conventional open-pit operation followed by heap leaching. Gold production started in January 1999 with a projected annual production rate of 95,000 oz at forecast cash costs of US\$161/oz with a mine life of six years. Gold recoveries from the heap leach were slower and lower than expected, resulting in a negative impact on the project's production, cash costs and cash-flow.

In 2001, the secured lenders to the project enforced their security over the project and sold the project to Golden Star. The company intends to carry out exploration and feasibility studies for the potential redevelopment of the mine most likely as a conventional milling and carbon-in-leach (CIL) operation.

In the event that the feasibility study is positive a development decision will be made in early 2003. Production will then start at the rate of 120,000 oz/y by the end of 2003.

### **Satellite Goldfields**

Golden Star resources Ltd took over Satellite's Wassa mine in 2002. Before the takeover the company produced 4,276 oz. (133 kg).

### **Bonte Gold Mines Ltd**

This is the only company currently mining alluvial gold in the country. The company's production fell by 29% to 46,055 oz (1,432 kg). The poor production during the year was the result of processing low-grade terrace ores because of the inaccessibility of waterlogged higher-grade material and decreased operating time during the plant commissioning.

The company completed installation and optimisation of the Bonte process plant upgrade. Equipment to measure accurately the amount of ore passing through the plant was installed in September. Metallurgical test data collected during September and October demonstrate that the new Knelson/Cyclone recovery system is trapping the fine-grained, flat gold particles the old sluice system was not able to capture and was losing less than 10% of total gold. This state-of-art facility is performing as designed, increasing gold recovery by a significant 15%.

### **Diamonds**

Total diamond production fell by almost 18% to 963,493 ct. This comprised of 791,908 ct from small-scale and medium-sized mines and 171,585 ct from Ghana Consolidated Diamonds Ltd (GCD), the only large-scale diamond mining company in Ghana. The divestiture of the company's Akwatia mine has not been successful and the government is still looking for a strategic investor to take over the mine.

**Bauxite**

Ghana Bauxite Co. is the only company mining bauxite in the country at Awaso. The company's production for 2002 increased by 0.8% to 683,654 Mt. The production trend continues to be positive, having increased from 341,121 t in 1998. The use of dump trucks to haul ore from the mine site to the port at Takoradi, and improvement in the Western rail line, brought about the increase.

**Manganese**

Ghana Manganese Co. is the only company mining manganese in Ghana. The company's mine at Nsuta produced 1.14 Mt in 2002. This represents an increase of 28% over that of the previous year. The performance of the company depends to a large extent on the efficiency of the railway system.

**Gold Output (kg)**

	2000	2001	2002
Ashanti Goldfields			
Obuasi	19,937	16,437	16,710
Ayanfuri	1,132	358	-
Iduapriem	5,191	6,380	-
Bibiani	8,514	7,871	7,541
Teberebie/GAG	839	-	5,761
<b>Ashanti Total</b>	<b>35,613</b>	<b>31,046</b>	<b>30,012</b>
Teberebie	917	-	-
Bogoso Gold Ltd.	3,380	2,7010	3,869
Small-scale mines	4,531	5,773	5,004
Bonte Gold Mines	2,119	2,031	1,433
Gold Fields (Ghana)	11,271	15,685	16,283
Prestea Sankofa	371	257	70
Resolute Amansie	4,174	3,385	3,187
Abosso Goldfields	10,276	9,411	9,544
Midras Mining Ltd	79	-	-
Ghana Consolidated Diamond	11	42	4
Prestea Gold Resources Ltd	742	390	-
Satellite Goldfields Ltd	3,039	2,171	133
<b>TOTAL</b>	<b>76,522</b>	<b>72,901</b>	<b>69,537</b>

**Other Minerals**

	2000	2001	2002
GCD Diamonds (ct)	191,460	196,600	171,585
Small & Medium diamond mines (ct)	686,551	973,032	791,907
<b>Diamond Total (ct)</b>	<b>878,011</b>	<b>1,169,632</b>	<b>963,492</b>
Bauxite (t)	503,825	687,445	683,653
Manganese (t)	895,339	813,329	1,135,828