ZAMBIA

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Despite significant progress with privatisation and budgetary reform, Zambia's economic growth remains below the 5%-7% level required to effect a meaningful reduction in poverty. Copper and cobalt prices recovered substantially at the end of 2003, contributing to an air of optimism about the future growth of the mining sector that has not been felt since the larger mining companies were privatised in early 2000.

Zambia remains one of Sub-Saharan Africa's most highly urbanised countries. Almost half of the country's 10.3 million people are concentrated in a few urban zones along the lines of road and rail, and particularly in, and close to, the mining towns of the Copperbelt. Unemployment and underemployment continue to be serious problems for the economy. *Per capita* annual incomes are now at about one-half of their levels when the country gained independence in 1964, and at US$302, place the country among the world's poorest nations. Social indicators continue to decline, particularly in measurement of life expectancy at birth (35 years) and maternal and infant mortality (95 per 1,000 live births). The high rate of population growth in recent years has made it difficult for *per capita* income to increase. The country's rate of economic growth cannot support rapid population growth, or the strain that HIV/AIDS-related issues place on public sector resources.

The current government, under President Levy Mwanawasa, has so far been very aggressive in tackling corruption and promises more in the way of economic reform including further privatisation. Telecommunications, electricity and transport parastatals still need to be privatised before the economy can compete regionally and internationally. Zambia has also yet to address the issue of reducing the size of the public sector, which still accounts for 44% of formal employment, and needs improvement of social sector delivery systems.

With the continued low levels of metal prices during the early part of the year, agriculture became a priority sector for the government. Zambia has the potential for significantly increasing its agricultural output; currently, less than 20% of its arable land is cultivated. In the past, the agricultural sector has suffered from low producer prices, difficulties in availability and distribution of credit and inputs, and a shortage of foreign exchange. Among the measures announced during 2003 were the sourcing of 'cheap foreign currency' for long-term agriculture sector financing, zero-rated taxation on imported farming equipment and the maintenance of low power tariffs to the sector. After the severe food shortages of 2002, Zambia more than doubled its maize harvest in 2003 and exported significant quantities of this crop to Zimbabwe, Namibia, Botswana and the Democratic Republic of the Congo.

For the mining sector, it was yet another period of transformation and consolidation. Negotiations appear to be moving very slowly with regard to introducing a suitable strategic equity partner to replace Anglo American plc as the major technical shareholder in Konkola Copper Mines plc (KCM). Anglo further confirmed its apparent lack of interest in Zambia's mineral potential by relinquishing most of its exploration tenements and closing its exploration office on the Copperbelt in November. During the year, Avmin also completed the sale of its Chambishi cobalt and acid plant to J&W Holdings of Switzerland. This sale left Zambia with no thoroughbred mining houses holding substantial share ownership of the mining and metallurgical assets formerly belonging to Zambia Consolidated Copper Mines Ltd (ZCCM).

Nevertheless, levels of copper production (Table 1) continued to increase in line with the trend set since privatisation, and the industry looks well positioned to benefit from expected higher copper and (possibly) cobalt prices over the next few years. First Quantum Minerals (FQM) and Mopani Copper Mines (MCM) continue to pursue aggressive investment programmes in the country. FQM's Bwana Mkubwa plant has been expanded to a throughput of more than 35,000 t/y. Construction of its Kansanshi mine and plant has also commenced, and should reach design throughput of 120,000 t/y of contained copper sometime in 2005. MCM is investing in a number of oxide copper projects at several of its properties, including an in-situ leaching project at Mufulira and heap leaching at Nkana, and has achieved significant production increases at its underground mining operations in Kitwe and Mufulira. MCM's production for 2004 is forecast to be 160,000 t, which, if achieved in conjunction with sustained higher copper prices, would be a very good year for its shareholders.

Konkola Copper Mines (KCM)

For the 2003 financial year, KCM was some 17% below budgeted metal production, producing 187,500 t of copper from its tailings leach, open-pit and underground mining operations. Cathode production was constrained by a one-month shutdown of the company's Nkana smelter, which contributed to a significant shortage of acid feeding the Nchanga tailings leach plant. The shortage was exacerbated by maintenance work at the Bwana Mkubwa acid plant (a major acid supplier to KCM) and a general shortage of acid in the region.

Underground mining operations at Konkola continued to under-perform due, in the main, to the planning and operating problems that faced the transitional management team that followed privatisation of the company in March 2000. Anglo brought much needed finance to KCM, however, Anglo was on a steep learning curve of its own during its brief tenure on the Copperbelt, and may not have been able to address all of the complex relationships between geometry, ground conditions and mining methods at Konkola. The optimisation of a mining and backfilling strategy for Konkola remains a critical pre-requisite if further development of the Konkola resource is to be seriously contemplated.

The life of the Nchanga open pit has been extended by at least four years, possibly longer, depending on the copper price. The mine will not now close before 2008. The pit is currently being extended to the northeast. A smaller satellite pit was also started during the year and a considerable amount of exploration and delineation drilling is currently in progress around known near-surface deposits. There appears to be good potential for the discovery of additional, economic open-pit resources at Nchanga.

In August 2004, Vedanta Resources plc announced the completion of a formal agreement to buy a controlling stake in KCM. In May 2003, Vedanta's subsidiary, Sterlite Group had been chosen by KCM's shareholders as the preferred bidder to take over as the lead investor in KCM. Vedanta is paying US$48.2 million for a 51% shareholding in KCM.

Mopani Copper Mines (MCM)
During the year, MCM produced 134,800 t of copper and 2,040 t of cobalt. Copper production from internal sources was supplemented by the purchase of some 18,000 t of copper in high- grade oxide concentrate bought from the Democratic Republic of the Congo.

Production of copper in ore from the Mufulira mine was consistently above target during the year, whereas production from the Nkana mining operations in Kitwe was below target due to delays in achieving planned production rates early in the year at Mindola Deep and the Nkana Synclinorium areas. The company, however, made a small operating profit for the year, the first since privatisation in March 2000.

MCM's management continued with efforts to reduce cash operating costs and to focus production on lower-cost sources of ore. Trials continued with in situ leaching of high-grade oxide ore at Mufulira, and with planning to heap-leach oxide material at Nkana.

At Mufulira, US$12.6 million will be spent on the construction of a full-scale in situ leach/SX-EW facility that is expected to add 18,000 t/y of cathode copper at a cash cost of US$0.40 c/lb. Plant commissioning is scheduled for September 2004.

In Kitwe, a pilot-scale heap-leach trial will be completed in mid 2004, which should produce 6 t/d of cathode copper. If this pilot plant is successful, MCM has identified at least 9 Mt of material in surface oxide caps suitable for full-scale heap leaching.

The Mufulira smelter will be rebuilt during 2004 and 2005, and a new gas collection facility and acid plant will be added at a total cost of US$95 million. Sulphuric acid production will be 750- 1,000 t/d. Some of this acid will be used in MCM's new oxide leach operations, with the balance sold to other users in the region.

First Quantum Minerals (FQM)

Expansion of the Bwana Mkubwa leach SX-EW plant was completed during the year and for calendar 2003 the plant produced 29,513 t of copper, a 148% increase over 2002. Unit operating costs were higher, owing to lower acid credits associated with increased acid consumption in the leach plant, higher ore transport costs and increased reagent usage. Nevertheless, Bwana Mkubwa remains one of the lowest-cost copper producers in Zambia, with on site cash costs (including acid credits) of US$0.44 c/lb.

All the ore treated at Bwana Mkubwa came from the Lonshi open pit across the border in the Democratic Republic of the Congo. Some 711,229 t of ore were mined at Lonshi at a grade of 4.8% acid soluble copper and a 6.3:1 waste to ore stripping ratio. The Lonshi pit has sufficient resources to support current levels of production for the next 6-7 years. During 2004, further exploration drilling will be undertaken at Lonshi South, with the objective of increasing mineable reserves and resources.

At the end of the year, First Quantum completed a US$224 million financing package for the Phase One construction of a mine and plant at Kansanshi in northwestern Zambia. Site work started at Kansanshi in September and plant commissioning is scheduled to start in the last quarter of 2004.

Chibuluma mines

The Chibuluma West mine hoisted 258,000 t of ore at a grade of 2.5% total copper and 0.1% cobalt. Finished copper attributable to Chibuluma West was significantly down on the previous year at 5,300 t. The Chibuluma West mine is nearing its end of life and will cease operation in late 2004.

All the ore from Chibuluma West was trucked to the Chibuluma South concentrator. Concentrates were smelted at the group's O'Okiep smelter in South Africa for part of the year, and at MCM's Mufulira smelter.

No mining was carried out at the Chibuluma South mine during the year, although International Development Corp of South Africa approved finance for development of the Chibuluma South underground mine in September. Mining of an access portal and ramp down from the existing open pit is planned to start early in 2004.

NFC Africa Mining

The Chambishi underground mine owned by NFC Africa, a subsidiary of China Non-ferrous Metals Corp, produced some 8,500 t of copper in concentrate during the year. Underground operations are hampered by unfavourable geometry and poor ground conditions, which are causing high dilution and low recovery of ore. Most of the concentrates produced to date have been treated outside Zambia, although it is understood that NFC is in discussion with Glencore International AG with regard to possible future treatment of concentrates at MCM's Mufulira smelter.

Chambishi Metals

Chambishi Metals became a subsidiary of J&W Holdings of Switzerland during the year. The COSAC circuit producing cobalt from slag was commissioned to full design capacity during the second half of 2003 and, with the significant increase in the cobalt price towards the end of the year, this plant has become one of J&W's more profitable acquisitions.

The cobalt roast-leach-electrowin (RLE) plant was short of cobalt concentrate feed during 2003 and ran for most of the year on a blend of cobalt concentrates from Nchanga and pyrite concentrate from Nampundwe. The circuit is currently operating mainly on pyrite concentrate with intermittent deliveries of cobalt concentrate from KCM.

At the end of the year, J&W secured the right to operate the Baluba mine in Luanshya, which should become a long-term supplier of cobalt concentrate to the Chambishi RLE plant. However, it is not anticipated that Baluba will be producing cobalt concentrate in significant quantities until the latter part of 2004. The Luanshya mine was permanently closed in April 2004.

Other activity

Exploration activity was once again low key. Anglo American closed its exploration office in Kitwe in November 2003. Avmin Exploration (now part of African Rainbow Minerals) focussed its exploration effort in the Democratic Republic of Congo, although it plans to carry out a small airborne geophysical programme near to Kabwe in 2004 to prospect for lead-zinc deposits.

First Quantum and BHP Billiton continued work on their joint venture near Mwinilunga, and a number of junior explorers are planning work in 2004. With metal prices heading upwards, attention is returning to the Copperbelt, with particular emphasis on high-grade deposits across the border in the DRC.

Table following page.

Table 1: Zambia copper and cobalt production (t)						
	2001		**2002**		**2003**	
	Cu	**Co**	**Cu**	**Co**	**Cu**	**Co**
KCM	196,805	2,400	222,010	2,039	187,500	1,150
Mopani	83,161	1,779	94,339	1,843	134,800	2,040
Chibuluma Mines	8,639	100	7,373	77	5,300	-
Chambishi Underground	-	-	-	-	8,500	-
Bwana Mkubwa Mining	9,662	-	11,878	-	29,513	-
Chambishi Metals[1]	428	355	785	2,344	3,350	3,600
Totals	**298,695**	**4,634**	**336,385**	**6,303**	**368,963**	**6,790**

[1] = Own account