BOLIVIA

By David Fox

The mining industry in Bolivia fared slightly better in 2002 than in 2001; the prospects for 2003 are unclear. 2002 saw a resumption of development work at the major zinc-silver-lead deposit at San Cristóbal but a gradual decline in gold production from Kori Kollo as resources became depleted. The industry was marred by political uncertainties at home and weak metal prices abroad.

Mining in Bolivia operates in a difficult environment. Bolivia is large by European standards, covering some one million km^2, and empty – the population in 2002 of about 8.6 million was less than the number living in, for example, metropolitan Buenos Aires. The country is landlocked and isolated from the Pacific by the Atacama Desert of Peru and Chile. The western half of the country lies astride the Andes at their highest and broadest and this is the home of the traditional mining regions; the eastern lowlands which have attracted some recent mining developments are part of Amazonia and remain pioneer territory beyond the reach of all except the minimum of facilities.

Much of the country contributes little to a national economy which is small and poor. The *per capita* income of the average Bolivian is marginally below US$1,000 - a quarter of that of his Brazilian neighbour; 59% of all Bolivians (and 95% of rural Bolivians) live in poverty; 13% of adults are illiterate; and infant mortality runs at 58 per thousand births. Almost half the population are Aymara- or Quechua-speaking Indians. Accurate statistics are difficult to collect but all indicators contribute to a picture of deprivation; limited government resources and hard-won international assistance can only ameliorate but not transform an unenviable condition. Mining companies working in Bolivia incur many of the economic and social costs normally met by public authorities; they are remote from their markets and investment capital is difficult to attract.

A political history of revolution and military coups has been superseded in the past twenty years by one of constitutional government. 2002 saw the election of a new president (the officeholder is debarred from succeeding himself). The president at the beginning of the year was Jorge Quiroga Ramïrez who as vice-president replaced the ailing Hugo Banzer Suárez in 2001; Banzer died in May. Mr Quiroga represented a modern type of Bolivian politician – young (42), technocratic, educated in the US, experience as a former minister of finance – and he continued the broad policies Bolivian governments have followed during the past two decades. These policies have been ones of encouraging private and international investment through the modernisation of the government apparatus and the dismantling of state participation in production in (but not regulation of) the economy. However, Mr Quiroga proved to be a lame-duck president backed by a coalition of disparate interests; the implementation of policies had to await the result of the general election held at the end of June. The election produced no overall winner with 80% of the votes split fairly evenly between the four leading candidates. This led to a protracted period of horse-trading amongst the presidential hopefuls before Gonzalo Sánchez de Lozada of the Movimiento Nacionalista Revolucionario (MNR) was elected by Congress. Although he was the front runner in the general election he only attracted 22.5% of the popular vote.

Sánchez de Lozada is 72 and the most successful mining entrepreneur in Bolivia: his family company Cia. Minera del Sur (Comsur) has survived and prospered during the past difficult 40 years. He has a wide experience of government. He was the architect of fundamental economic reforms as Minister of Planning under Víctor Paz Estenssoro in the late-1980s which, with the help of the IMF, rescued Bolivia from financial chaos: his market-orientated policies have set the pattern for all subsequent governments. He succeeded Paz Estensorro as leader of the MNR and was elected President of Bolivia for the first time in 1993.

All recent presidents have had to govern through an uncomfortable coalition of sometimes seemingly incompatible bed-fellows. Sánchez de Lozada is no exception: to ensure election in 2002 he was obliged to form a cabinet in which only eight members were from the MNR, two were independents (including Carlos Mesa the Vice-president), one a member of the Unidad Cívica Solidaridad (UCS) and seven were members of Jaime Paz Zamora's Movimiento de la Izquierda Revolucionaria (MIR); Paz Zamora, an ex-President (1989-1993), has proved an opportunist supporter and rival in the past.

The general election revealed widespread disillusionment with the traditional political parties and gave a distinctly audible voice to the representatives of the indigenous Indians. For example, the Movimiento al Socialismo (MAS) under Evo Morales polled a surprising 20.9% of the votes: Evo Morales is leader of the militant coca workers who have led opposition to the operation of the free market and to co-operation with the US on drug eradication programmes. During the past 12 months that opposition has taken the form of organised street protests, road blockages (a disruptive process in a country with few highways), and aggressive support for striking miners, peasants and others.

Popular dissatisfaction with the orthodox policies of the governing establishment rumbled on during 2002 and has become more serious. In early 2003 members of the Bolivian Federation of Mineworkers (FSTMB) came out on strike against the government, members of the peasant union (CSUTCB) decided to throw in their lot with the coca growers, and in February 7,000 police officers, normally a loyal arm of the government, walked off the job following rejection of a 40% pay claim; and on February 17 a (fairly ineffectual) general strike was called. The riots which followed were the worst for more than a decade - 33 died and 200 were reportedly injured, dozens of buildings were gutted. The government was torn between responding to genuine grievances and meeting the IMF demands to cut public expenditure and increase taxes (including income tax). The President resisted the call from the trade union congress (COB) to resign but took the opportunity of recasting his cabinet, reducing the number of ministers to 13.

The political and popular opposition will inevitably oblige President Sánchez de Lozada to pay more attention to the social consequences of economic policies but will not deflect their overall import. Much will depend upon the willingness of overseas creditors and suppliers of aid to support Bolivia's brittle economy: it is difficult for the majority of Bolivians to appreciate the benefits of financial rectitude and of continued austerity.

The government's economic policy is business-friendly and designed to attract private investment, making no distinction between domestic and overseas sources. Corruption is a problem but is being tackled. Tax and royalty payments on profits and production are transparent and the boliviano is freely convertible: much of the commercial economy is dollarised, a trade-weighted exchange rate has kept inflation down (to 2-3%) and maintained currency stability. The current account deficit grew under the last government (to about 5.4% of GDP in 2002); there is a negative trading balance (US$233 million in 2001). External debt is equivalent to over 70% (71.5% in 2000) of GDP, and debt-servicing in 2000 absorbed 39.1% of earnings from the export of goods and services.

Minerals (See tables 1 and 2) continue to make a significant contribution to Bolivia's national economy. In 2001, mining generated 4.4% and hydrocarbons 5.4% of the country's GDP; these figures compare with 14.2% for agriculture and 16.5% for manufacturing. Their contribution to Bolivia's trade is more striking: exports of metallic minerals were worth US$334 million and hydrocarbons US$289 million in 2001, or almost half (46%) the total value of all exports. Five years earlier the fraction was about the same (1997: 45.4%) but the relative contributions of metals and hydrocarbons was very different (1997: metals US$480.9 million, hydrocarbons US$97.8 million). The decline in the input of mining has continued - it was down by over 3% during the first nine months of 2002, compared with the same period in 2001.

The disappointing performance of mining in the past few years partly reflects a direct response to low international metal prices, partly the relatively limited mining investment, and partly some local disputes which have interrupted production. Zinc prices rose a little but stayed below the level of early 2001; the gold price improved but needed to improve more to encourage further investment. Foreign direct investment in mining between 1996 and 2001 averaged US$53milion a year but in 2001 was only US$30.6 million; an optimistic forecast in May of US$200 million worth of mining investment in 2002 proved far from the mark although there was more than in the previous year.

Government assistance to specific elements of the mining sector in 2002 partly arose from untoward circumstances, and revived a production role for the venerable state mining corporation, Comibol. In May, the liquidation of Allied Deals/RBG Resources following the disclosure of large sums missing from the company's books, led to the sale by the receivers (for a reported initial payment of US$6 million) of the Vinto tin smelter and Huanuni tin mine. They were acquired by Empresa Minera Colquiri, a joint venture company owned by Comsur (51%) and Commonwealth Development Corp. Capital Partners (CDC) of the UK. Although there were some initial delays in renegotiating contracts to continue the supply of tin concentrates to Vinto, the transition went fairly smoothly and annual production was expected to run at between 10,000 t and 13,000 t.

The transfer of Huanuni proved much more contentious since Comibol retains rights guaranteed by the Constitution to all former state-owned mines and has powers, strengthened in July in one of the last acts of the outgoing government (which was no friend of the incoming president) to intervene where management contracts are altered or in dispute. In November 2002, it was announced that Comibol was seeking a new partner to run Huanuni under a shared royalty agreement, claiming that under Comibol's management the mine had reversed the US$200,000 monthly loss during RBG's tenure into a profit of US$200,000.

In January, a Comibol investigation suggested that RBG had failed to invest a promised US$10.25 million in the mine, agreed when it took over the mine, and had deliberately run it below capacity to avoid paying royalties. The mine has several problems. The first is that demand for tin is fairly flat, the second is that it needs expensive deepening to realise its potential, the third is that the miners are violently opposed to any private operation of the mine (anticipating further compulsory redundancies), and the fourth is that a significant part of the surface reaches of the concession is allocated to mining co-operatives with designs on extending their access to the deposit and whose members are traditionally militant.

While the future of the mine remains undecided, opposing forces have been marshalled. In December 2002, the 2,000 members and dependants of the Posokoni co-operative demanded access to reserves below level 120, the preserve of the Huanuni operators. In January this year, the miners' union called a 24-hour strike in protest against the government's intention to look for a private partner to run the mine. Local miners were in the van of the February riots and in early March following the demonstrations the President signed a decree allocating US$6 million to protect the jobs of some of the 50,000 members of mining co-operatives in the country. In the meantime, Huanuni continues, with interruptions, to feed Vinto with about 300 t/mth of its refined tin production.

The government is having trouble seeking a partner to develop El Mutún iron reserves in the remote southeast of the country. The government believes that there are some 40,000 Mt of reserves in three zones awaiting exploitation and that some US$300 million would have to be invested to start mining and to build a steel or pig-iron plant to serve the mine. There have been several attempts to interest UK, Finnish, Argentine and Brazilian groups, and original terms (which included building a steel mill within the first ten years of operation) have been relaxed. But no adequate bids had been received by late November and the attempted sale was suspended.

The more positive developments of 2002 were in the private sector, particularly concerning the San Cristóbal major zinc-silver-lead deposit in the southern Altiplano being examined by Andean Silver Corp., a local subsidiary of Apex Silver Mines (www.apexsilver.com). Drilling began in 1996 and the company details investments of some US$94.9 million made up to the end of 2002 developing proven and probable reserves of 470 Moz of silver and 9 billion lbs of zinc accessible by open pit. The company has exploratory rights over an area of 186,000 ha. The company's proposals for a US$450 million project to create one of the world's largest and lowest-cost producers of silver and zinc have been recently scaled down to concentrate initially on some of the richer deposits unearthed. Apex has increased drilling work at nearby Pulacayo where the sheet vein structures are dense enough to make bulk mining feasible; Pulacayo was once the world's largest underground silver mines. Apex has also been expanding its holdings in the adjacent Paca concession. Pan-American Silver, under a short-term toll-milling agreement with EMUSA, has continued limited operations at San Vicente and produced about 1.1 Moz of silver in 2002.

Another traditional mining area is being exploited by Golden Eagle International (www.geii.com) at Cangalli in the Tipuani gold-mining district in Yungas east of La Paz. For a long time this was Bolivia's most important alluvial gold region and is home to Bolivia's most successful mining co-operatives. Golden Eagle has rights over some 74,000 ha in the Tipuani region (and 125,000 ha in the Pre-Cambrian Shield in eastern Bolivia). The company introduced conical-subsidence block caving to the Cangalli mine in late September 2002 and in the first six months of operations produced over 2,175 oz of gold. It plans to process 2,000 t/d of gold-bearing ore at its new Cueva Playa plant and cut costs to US$75/oz or less. Good results have been achieved in spite of torrential rains in November which washed away the road and some of the working terraces.

Less good news for Bolivia is the imminent mining out of the Kori Kollo gold workings north of Oruro owned by E.M. Inti Raymi in which Newmont Mining Corp. (www.newmont.com) has an 88% holding. The company introduced open-pit mining and heap leaching to Bolivia in 1985, and became the first major mining investor in Bolivia for decades; it has been responsible for 75% of Bolivia's gold production during the past fifteen years. But by the end of 2002 it had proven reserves of only 8 Mt containing 180,000 oz of gold, and its proven and probable reserves had dropped from 610,000 oz to 540, 000 oz during the course of the year. Interestingly, these figures included new reserves totalling 300,000 oz at the undeveloped Kori Chaca deposit 40 km southeast of Kori Kollo where a feasibility study is under way. If worthwhile, a satellite heap-leach operation would be created and the ore trucked back to Kori Kollo extending the life of the facilities by another two years. Kori Kollo had sales of 305,600 oz of silver in 2001 but only about 250,000 oz in 2002.

Zinc is the most valuable of the metals now mined in Bolivia and the ex-Comibol mine at Porco operated by Comsur is the leading producer. Comsur was poised to take over Colquiri following the demise of RBG, hoping to supply minerals to Vinto, but conflict with the political interests of the incoming

President prevented this. Comsur has an interest in the Don Mario gold-silver-copper prospect in the Pre-Cambrian lowlands of eastern Bolivia operated by the Canadian corporation Orvana Minerals. Comsur moved equipment from another property, a joint venture with Rio Tinto the Puquio del Norte gold deposit 100 km southeast of the Golden Eagle landholdings in eastern Bolivia, to Don Mario in early 2003. It is planning to spend US$40 million to build a leaching plant at Don Mario. Power is to be provided by linking it to the natural gas network by a 5 km pipeline; to date some US$15 million has been spent on capital and development costs. Orvana reported in early 2003 that the Don Mario project was on schedule and on budget. The processing plant, reservoir and lined tailings dam have been completed, and 6,700 t of ore stockpiled. Production should begin in the second quarter of 2003. The timing is important because rain must be collected during the March-April wet season to permit round-the-year operations.

Eaglecrest Explorations Ltd (www.eaglecrestexplorations.com) continues to explore its San Simón property near Paititi in northeast Bolivia and reported the discovery of a potentially significant new zone of gold mineralisation.

A subsidiary of the US company, Coeur d'Alene, E.M. Maniquiri, has completed a feasibility study of the San Bartolomé silver mine in Potosí with a view to developing reserves containing some 126 Moz of silver. This would require an investment of US$60-70 million and could lead to an annual output of 6-9 Moz of silver and the possibility of recovering 80% of the tin content of the ore.

Many of Bolivia's mineral deposits are complex and separation of commercial values from the ore depends upon increasingly sophisticated chemical and physical processes. As these are developed so new opportunities arise. For example, General Minerals Corp. is working on a high-temperature chlorination process which, it is claimed, will make the recovery of tin, tungsten and tantalum in some of Bolivia's ores commercially attractive and environmentally safer.

Environmental care is of increasing concern in Bolivia, as elsewhere. The escape of solid waste containing potassium cyanide from the hydrometallurgical plant (Plahipo) run by Comibol on the flanks of the Cerro Rico de Potosí is the subject of an investigation by a congressional committee. There is the possibility of modifications being made to the environmental regulations governing the mining sector following new regulations placed upon the petroleum sector.

At a United Nations conference on promoting sustainable development in mountain areas the unlikely news was reported that tiny Andorra was co-operating with Bolivia in the protection of vulnerable ecosystems and populations! Other international co-operative ventures reported during the past year include a revival of the meetings of the Chile-Bolivia mining chamber: in a recent survey Chile was credited with having the most attractive climate for mining investment in the world so there are lessons to be learnt by Bolivia (which ranked quite high on the list). In February 2003, the

Governments of Bolivia and Peru signed a bilateral mining convention to encourage joint investment projects and regulate mining activity in their border areas. Two months earlier discussions had begun to exploit the water resources of Potosí, a mineral asset which one does not associate with these arid highlands, for the mines of northern Chile.

It is difficult to predict anything more than a mixed outlook for the immediate prospects of mining in Bolivia. The political outlook is cloudy and the economy remains fragile. Support by the international financial agencies will be maintained but at the price of unpopular internal reforms. Investor confidence is unsettled and uncertainty hangs over the future trends in commodity prices. As new mining ventures come on stream others fade. The possibility of expanding the markets for Bolivia's natural gas - perhaps exporting natural gas to Mexico and the US - would act as a fillip to the mining industry, as well as a boost for the entire economy. Lower energy costs would advance the development of San Cristóbal, potentially Bolivia's next Potosí.

Table 1
Mineral Production ('000 t)

	1997	**2001**	**Jan-Sept 2001**	**Jan-Sept 2002**
Zinc	154.5	139.9	104.52	104.49
Gold (kg)	13,291	12,416	9,500	8,000
Silver (t)	387	434	311	340
Tin	14.4	12.4	8.90	9.97
Lead	18.6	9.1	6.91	7.34
Antimony	6.0	2.0	1.3	1.47
Wolfram	0.6	0.7	0.43	0.37
Nat. Gas (billion ft^3)	106	187		
(million m^3)			130.0	168.4

Source: Viceministerio de Minas y Metalurgia, EIU.

Table 2
Mineral Exports (US$ million)

	1997	**2001**	**Jan-Sept 2001**	**Jan-Sept 2002 (e)**
Zinc	200.0	120.6	93.1	79.8
Gold	110.5	86.2	64.8	68.1
Silver	59.5	52.7	41.4	47.6
Tin	81.0	56.0	45.8	43.1
Total Mining	**480.9**	**334.5**	**323.0**	**253.7**
Natural Gas	69.3	236.8	164.0	149.0
Petroleum	28.2	47.3	45.2	40.7

Source: Viceministerio de Mineria y Metalurgia, EIU, (e) estimate.

