BOLIVIA

By David Fox

Improved metal prices in 2003 gave a modest stimulus to some sections of the mining industry but political unrest undermined confidence in making longer-term mining investment.

Bolivia is in many respects a challenging country for miners. The country is large – covering about 1 million km^2 – but the population of about 9 million is small. It is landlocked, with access to the Pacific ports in Chile and Peru dependent upon the consent of its larger neighbours. The western frontier of the country is separated from the coast by the barren waste of the Atacama Desert and reached at about 3,000 m in the high basin-and-range country of the desolate Altiplano. The Altiplano is overlooked to the east by the 5,000 m glacier-ridden peaks of the Andean Cordillera, at its continental widest in Bolivia.

In contrast, the eastern half of the country is part of the great never-ending sweep of the Amazonian lowlands, in the north still clothed in primeval forest and dissected by the meandering headwaters of the great rivers feeding into Brazil, and in the south by the amphibious seasonal swamplands of the Panatal. The tropical latitude of Bolivia combined with an extraordinarily diverse topography creates a range of mining scenarios relatively costly to exploit. Access is often difficult and expensive: deposits are remote at both the national and international scales.

The majority of Bolivians live in poverty, and Bolivia is internationally recognized as the poorest country on the continent. The average annual income of about US$900 per capita is the lowest in South America and less than a third of her neighbours. Although Spanish is the lingua franca, the indigenous languages of Aymara and Quechua are still spoken by perhaps a half of all Bolivians: the country's pre-Columbian Indian legacy is very evident and influential. Although the precise accuracy of such statistics may be challenged in a country where two-thirds of the population remains rural or retains rural ties and two-thirds of the labour force works outside the formal sector, the figures give a correct impression of a country still deeply imbedded in the Third World. Thus, nature and history have combined to bequeath Bolivia only a skeleton infrastructure: mines normally have to provide from their own pocket virtually all the ancillary support facilities which elsewhere might be expected to be provided by the State.

Political background

2003 saw 30 years of relative political stability in Bolivia broken by significant popular unrest which, in October, brought the premature downfall of the government: President Gonzalo Sánchez de Lozada resigned and was replaced by his erstwhile Vice-President, Carlos Mesa. Mr Sánchez de

Lozada has played a critical part in the recent political history of Bolivia: and he remains Bolivia's leading mining entrepreneur although now in voluntary exile in the US. He was the architect of the orthodox, market-based economic policies favoured by the International Monetary Fund introduced by the reformist government of the late-1980s, and which have continued in force ever since.

He remains the leader of the Movimiento Nacionalista Revolucionario (MNR). He was elected President in 1993 and finished his term in office; he was elected again in 2002 with a manifesto designed to consolidate the right-wing policies of the previous decades. He had overseen the privatisation of the nationalised mines of the Corporacion Minera de Bolivia (Comibol) and of the holdings of the state oil company, and promoted a degree of decentralisation of public social services. Under his tutelage much of the economy became dollarised, annual inflation reduced to 1-3%, annual current account deficits covered foreign reserves, and the total external debt was kept manageable. The IMF, the World Bank, and associated public financial institutions have given substantial support to all Bolivian governments during the past 25 years. However, external support has not been matched by domestic satisfaction, and left-wing and indigenous opposition to the government has grown.

In early 2003, members of the Bolivian Federation of Mineworkers (FSTMB) came out on strike against the government, joined by members of the peasant union (CSUTCB) including the coca growers; in February, some 7,000 police officers withdrew their labour following rejection of a 40% pay claim. A general strike was called reflecting general discontent over unemployment, tax reform, corruption, the coca eradication programme, and the continued prevalence of widespread poverty. 31 Bolivians were killed before a precarious order was restored. The government survived but was toppled in October following concerted moves by the opposition parties, the trade unions (the miners from Huanuni were prominent), and a variety of urban protest groups including most particularly those from El Alto, the huge working-class suburb above La Paz as populous now as the capital itself; 59 died in confrontations with the authorities. The President lost allies and credibility and eventually resigned: it is notable that the appointment of his successor on October 17 followed due constitutional procedures, a sign perhaps of a growing political maturity or reality.

President Carlos Mesa is an independent, an historian by profession, and has built a cabinet drawn from individuals owing allegiance to a variety of the traditional political parties or none. Alvar Ríos is the new Minister of Hydrocarbons and Mining, succeeding Jorge Berindoague of the MNR. The new president has tackled some of the issues articulated by the protestors. He has set up a commission to reform the Constitution, agreed a referendum on the export of natural gas, disassociated himself from the negotiations within the Andean Community on a proposed Free Trade Area of the Americas (FTAA), and withdrawn seemingly intrusive security legislation likely to disadvantage those working in the informal sector. He has not forfeited the support of the international lending agencies although the US is keeping a wary eye open on any moves to placate the coca growers. They are a significant political force: their leader, Evo Morales, polled almost as many votes as Mr Sánchez de Lozada in the last presidential election, and the Movimiento al Socialismo is strongly represented in Congress. Mr Morales has the loudest voice, speaking for an increasingly vociferous indigenous electorate.

The economy

In general, the new government is following similar economic policies to those of preceding governments and, despite rhetoric to the contrary, will try to maintain a climate friendly to business and to foreign investors. It will stand or fall on its ability to manage the public finances and boost income from exports and domestic taxes; the alleviation of poverty will largely depend upon funds made available by the international financial agencies and so depends upon satisfying their criteria of good financial management. The tasks are far from easy. The non-financial public-sector deficit rose to about 8% of GDP in 2003 following a decline in import duties and tax revenues; it may prove more difficult than anticipated to collect the new income from a revised tax code (largely agreed by the previous government and which includes new demands on the informal sector) but higher royalties on hydrocarbons should be easier to collect. It is probable that stand-by funds to reduce poverty will continue to be forthcoming from the IMF after the expiry of the current agreement inherited from 2003; the need was made clear by the release of an official study in December 2003 showing that 71% of Bolivians survive on less than US$2 a day.

Relatively low interest rates should continue to offer no disincentive to private investors; they are more likely to be deterred by continued political uncertainty. Over 90% of banking activities are dollarised and the degree to which control of the boliviano can influence economic policy is limited. Inflation at the end of 2003 was about 3.4%, a little higher than a year ago but manageable and unlikely to grow much in 2004. A crawling-peg exchange rate policy links the boliviano to the dollar and helps exports remain competitive. The current account deficit shrank to virtually nothing (2% of GDP) in 2003 thanks to overall higher commodity prices for exports and a decline in the value of imports, probably due to a slump in confidence amongst domestic manufacturers.

Bolivia's minerals – both metallic and energy - continue to hold a pivotal place in the Bolivian economy. In 2002 they accounted for 10% of GDP and in the first nine months of 2003 for fully 50% of the value of all her exports.

Metal mining

In 2003, Bolivia's miners enjoyed noteworthy increases in precious and non-ferrous metal prices which more than compensated for some reduction in overall production totals. Gold topped US$400 oz at year end, a rise of almost 25% from the start of the year, and silver shared a similar fillip. On the non-ferrous side the price of zinc remained fairly steady while that of tin – Bolivia's twentieth century staple – staged a long-overdue revival. Although official year-end production figures have not yet been released, those for 2002 and for the first half of 2003 give an indication of the general trends (see Tables 1 and 2).

Bolivia was unable to profit fully from the surge in the gold price in 2003 since this coincided with the final run-down of Kori Kollo, Bolivia's most productive gold operation and responsible for 75% of Bolivian gold production over the past twenty years. During 2003 mine output was estimated to be some 200,000 oz, produced at a cost of about US$200/oz. Kori Kollo was Bolivia's first open-pit gold mine and, when opened in 1985, was given a working life of about 15 years. Limited new reserves and improved heap leaching techniques extended the life of the pit and until recently there had been hopes that another deposit at Kori Chaca, 40 km away, would prove a useful additional supply of ore and add a further two years of life to the operations. Kori Chaca has reserves of about 230,000 oz of gold contained, and was offered for sale towards the end of the year.

Newmont Mining Corp holds an 88% interest in Kori Kollo with EM Inti Raymi holding the rest. Kori Kollo is situated 200 km south of La Paz on the arid Altiplano north of Oruro and the bleak Altiplano has little to tempt the modest workforce (of about 550) to stay once operations cease. But the housing and other social facilities provided by the company are good by Bolivian standards and will not go to waste.

The Inti Raymi Foundation funded by the company has installed greenhouses to grow cut flowers for sale and to grow plants to contribute to a running programme of re-vegetating part of the mined area; it has also put into place a feed lot for llama meat production which will outlast the demands of the mine and provide a sustainable income for those who remain. Although mining has effectively finished, milling of stockpiled material will continue into 2004 – but full closure will happen before the year ends.

There are a number of other gold mines reaping the benefits of higher gold prices although none the size of Kori Kollo. The Tipuani area in the Yungas east of La Paz, where alluvial gold has been worked for upwards of a century and continues to be extracted by mining co-operatives has attracted some external investment.

Golden Eagle International Inc began production of gold at Cangalli in September 2002 and during the first 17 months of operation produced 7,316 troy oz of gold (from 577,000 t of ore). The company doubled capacity in mid-2003 and gave reported production costs of about US$218 oz. The company expects to increase production ten-fold in 2004 and reduce costs to US$75/oz. It declared proven and probable reserves of 13,800/oz of gold in early 2004, two-thirds exploitable by open pit and one third underground. The company had additional proven and probable reserves of gold (84,000 oz) and copper at its Buen Futuro property in the Pre Cambrian Shield of Eastern

Bolivia. In total the company held mining concessions covering 75,400 ha (754 km^2) in Bolivia in 2003 but in February 2004 reduced its holding in the Tipuani valley by 100 km^2 to 200 km^2.

Franklin Mining Inc has been drawn to explore the possibilities of working the gold-containing terrace material of the Kaka River at Mayaya, the scene of South American Placers (SAPI) dredging operations 50 years ago.

The importance of a sensitive approach to the rural communities living in areas rich in minerals is being learnt. For example, Luzon Minerals Ltd is hoping to exploit the gold-bearing potential of the Amayapampa area which, according to feasibility studies conducted by Vista Gold Corp, could yield of 41,000 oz/y of gold over a 10-year mine life span at a cost of US$168/oz. Luzon is currently in negotiation with the local communities to win their agreement to proceed. Initial cash requirements are expected to be about US$26 million.

Eaglecrest Explorations Ltd continues to explore its San Simón property near Paititi in northeast Bolivia; the zone of gold mineralisation on a plateau rising 350 m above the forest has been known since colonial days. The Canadian company underwent complete reorganisation in 2003 and may be reconsidering its exploration strategy.

The major focus of mining exploration and development in 2003 was the San Cristóbal zinc-silver-lead deposit in the southern Altiplano southwest of Uyuni and 40 km from the Rio Grande railway station. This is being undertaken by Andean Silver Corp a local subsidiary of Apex Silver Mines Inc, and the company expects it will be amongst the world's largest- and lowest-cost producers of both silver and zinc. Drilling began in 1996 and the company is believed to have invested some US$100 million in the project to date (with a further US$40 million budgeted in March 2004) developing proven and probable contained reserves of 450 Moz of silver, 1.8 Mt of zinc, and associated lead by open-pit mining. The deposits are contained in disseminated form and in stockworks associated with ancient volcanics.

Apex anticipates operating costs of the order of US$1.95/oz of silver and US$0.26/lb of zinc with lower costs during the first five years of operation. At the end of 2003, Andean Silver estimated proven and probable reserves of 211 Mt averaging 66 g/t Ag, 1.63% Zn and 0.61% Pb at a silver price of US$4.62/oz, US$0.38/lb for zinc and US$0.22/lb for lead. These are remarkable figures. The company has exploration rights over an area of 160,000 ha in Bolivia covering 11 different properties of which Ubina and Buena Vista in Potosi Province, both silver-gold prospects, are the most important after San Cristóbal.

The major Bolivian mining company is Cia Minera del Sur (Comsur) which has been built up over the past half century by ex-President Sánchez de Lozada. The Rio Tinto group holds about 30% of the company's stock. During 2003, Comsur was awarded US$12.3 million from IFC funds towards a US$55 million investment programme to increase zinc production and reduce operating costs: the expectation was that the investment would generate additional employment for some 500 people and generate additional export earnings of US$30 million. During the previous ten years Comsur has won US$35 million of IMF support for various capital investments at Asientos (zinc) and at Bolivar (managing a joint-venture open pit with Comibol).

The company has experienced mixed blessings from the political links of its owner. In 1996 (during Mr Sánchez de Lozada's first Presidency) two dams at the company's Porco zinc mine ruptured and an estimated 235,000 t of tailings and toxic metallic effluent poured into the Pilcamayo River contaminating significant areas downstream: newspapers coined the evocative phrase 'el Chernobyl boliviano'. The subsequent enquiry by the Senate absolved the company of responsibility and the disaster was declared an accident. This ruling did not prevent the new prefect of Tarija, appointed after Mr Sánchez de Lozada's term came to an end, filing a regional damage claim for indemnification against the company. The legal process was halted once Sánchez de Lozada returned to office in 2002.

During 2003 another political attack was launched on the operations at a second mine in which Comsur holds an interest (although the President had formally detatched himself from the operations of the company while in office). This was at Don Mario, a gold-silver-copper mine with reserves calculated at 424,000 oz of silver in 2001, and is located in Pre-Cambrian structures of the lowland forests of Santa Cruz. It is expected to begin production in 2004 at an eventual annual rate of 60,000 oz and a cash operating cost of US$100/oz. Orvana Minerals Corp has a 3% royalty on the property and the World Bank, through the International Finance Corp, holds equity of about 11% – a stake which has proved significant.

In May 2003, a group of local Indians filed a petition to the IFC's Compliance Advisory Ombudsman's office claiming, successfully, that the company had complied with neither Bolivia's environmental legislation nor the World Bank's criteria governing the protection of indigenous peoples. (It had been declared in material compliance by the IFC as recently as November 2001).

It was claimed that the mine owners had taken advantage of its juxtaposition to the newish Cuiaba gas pipeline to constuct an unauthorised energy link: the building of the pipeline, which opened five years ago, had been bitterly opposed by the same indigenous communities that brought the petition. (This mixture of contentious issues, fired by political animosity, helped drive one of the nails into the President's coffin in October.)

The sensitivity of Comsur to domestic politics was further illustrated by the thwarting of the sale, by the liquidator of the assets of Allied Deals/RBG Resources, of the Vinto refinery and the Huanuni tin mine to Empresa Minera

Colquiri. Colquiri was a joint-venture company in which Comsur held 51% of the shares and the UK development agency CDC Group 49%.

Huanuni is the last significant remnant of the former nationalised state-mining corporation, Comibol, and the miners and the corporation feared the consequences of privatisation and did not co-operate with the prospective new owners whom they saw as the architects of the dismemberment of their once-proud industry. It is estimated that an investment of at least US$10 million is needed to deepen the mine to exploit new reserves. A condition of the transfer was that law and order would prevail at the mine, which did not. Huanuni is now back in the hands of the liquidator, Grant Thornton, and its future is now uncertain. It is no coincidence that one of the groups who rallied to the call to oust President Sánchez de Lozada in October was the militant miners of Huanuni.

One of the problems for any company deciding to invest in Huanuni is that the upper reaches – and most depleted – of the mineral deposit are in the hands of mining co-operatives. Some 2,000 members scavenge the workings of the old mine but their pickings are very slim. The temptation to invade the lower workings is strong and there is a powerful lobby demanding that more of the deposit be transferred to the co-operative. Mining co-operatives are a long-standing feature of Bolivian mining and they have been a favourite way of pacifying surplus miners made redundant when mines have exhausted their apparent commercial viability.

The gold co-operatives of Tipuani are the most successful and some have invested in modern, or at least not ancient, technology. But most other co-operatives employ only primitive hand-working methods reminiscent of earlier centuries. They vary in membership but probably give more than casual employment, but a very modest living to up to 50,000 – by far and away the majority of Bolivia's miners. There are 87 co-operatives leased from Comibol – 55 in the department of Potosi, 17 in Oruro and 15 in La Paz - and others are relics of private mining companies. A significant proportion of Bolivia's tin production is won by co-operatives (and some is imported clandestinely from Brazil).

Comibol remains a shadow of its former self - a mere holding company of the former state-mining company's concessions. The major joint ventures and leased properties are with Comsur (Bolivar, Porco), EM Barrosquiera (Caracoles), Andean Silver Corp (San Antonio de Lípez), Pan American Silver Corp (San Vicente), and CM Don Mario (Planta Plahipo and the tailings of Potosí).

Oil and gas

Following the privatisation of the state-owned petroleum company (YPFB) in the mid-1990s, foreign ownership and overseas investments have increased reserves and expanded production. Natural gas output increased by almost a quarter in 2002 and the value of exports rose by a similar fraction in 2003. The completion of the Bolivia-Brazil gas line five years ago opened the prospects of a lucrative and secure new consumers' market. However, in 2003 demand from Brazil fell and attempts were made by Petrobras to renegotiate the basis of the contracted price, calculated in relation to a basket of international traded commodities; talks continue as part of a wider package.

There have been plans to ship liquefied natural gas (LNG) via Chile or Peru, to Baja California in Mexico, to serve the markets in the south west US. The project fell through partly because of delays in choosing which Pacific port to serve as an entrepôt. The privatisation of the oil industry and co-operation with Chile are highly emotional political issues with the hoi polloi and they played a significant part in the downfall of the government of Sánchez de Lozada in October. The Mesa government promised a referendum on the LPG scheme but other suppliers have stepped in and the commercial opportunity seems to have passed. The proposed increase in the level of production royalties favoured by the new government may dampen enthusiasm for some immediate exploration efforts. But, in general terms, the longer-term prospects for Bolivia's hydrocarbons seem positive and fairly secure.

Table 1: Mineral production ('000 t)

	1997	**2001**	**2002**	**Jan-June 2003**	**% change over Jan-June 2002**
Zinc	155	140	151	72.5	5.1
Gold	13.29	12.42	11.3	4.60	18.6
Silver	387	434	441.9	240	16.5
Tin	14.4	12.4	14.5	8.5	21.4
Lead	18.6	9.1	8.5	4.8	1.2
Antimony	6.0	2.0	2.2	1.1	9.1
Wolfram	0.6	0.7	0.5	0.3	0.7

Source: Viceministerio de Minas y Metalurgia, EIU.

Table 2: Mineral exports (US$ million)

	1997	2001	2002	Jan-Sept 2002	Jan-Sept 2003 (e)
Zinc	200.0	120.6	108.4	82.3	81.4
Gold	110.5	86.2	89.7	68.1	61.3
Silver	59.5	52.7	67.8	49.1	54.6
Tin	81.0	56.0	58.2	43.1	56.7
Total Mining	**480.9**	**334.5**	**342.2**	**253.3**	**268.7**
Natural Gas	69.3	236.8	265.6	189.1	255.5
Petroleum	28.2	47.3	62.1	45.4	78.7

Source: Instituto Nacional de Estadistica, EIU (e) estimate