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Konkola Deep deferred

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of the Zambian copper industry (*MJ*, April 7, 2000, p.262). The acquisition terms included an immediate cash payment (to ZCCM) of US\$30 million, deferred cash payments totalling US\$60 million over six years beginning in 2006, a price participation scheme for ZCCM, a minimal capital commitment of US\$208 million over three years by the new investors and, finally, a contractual commitment to raise limited recourse finance for Konkola Deep with the project to commence within 18 months provided that US\$313 million of such finance would become available "on reasonable terms". There was also a requirement that, for Konkola Deep to proceed, the copper price (currently less than US\$1,400/t) should exceed US\$1,700/t for a period of 12 months.

In the nine months of its operations to the end of 2000, KCM produced 136,000 t of copper, below the 149,000 t target although a modest operating profit was achieved. However, this year ZCI reported a first half net loss of US\$38 million. □

Kaltim Prima sued

Kaltim Prima Coal (KPC), the Indonesian coal producer owned jointly by Rio Tinto and BP, is being sued by the East Kalimantan Regional Government for damages of US\$772 million plus legal costs of US\$4 million. Seizure of KPC's assets is also being sought. The regional government contends that Rio Tinto and BP have failed to honour an agreement with the central government concerning the divestment of 51% of KPC's assets. KPC considers the claims against it to be baseless and says that it intends to defend them vigorously to the full extent of the law.

KPC carries out its Indonesian operations under a contract with the central government known as the Coal Agreement. Under the terms of this agreement, it has agreed to offer shares for sale to local investors. The initial obligation was to offer shares after the first four years of operations in a series of tranches beginning in 1996 with the full 51% divestment scheduled for completion in 2001. According to Rio Tinto, government restructuring of the coal industry and its publicly-announced intentions to amend the provisions of Coal Agreements meant that it was impractical to proceed with offers in 1996 and 1997 and KPC deferred the process by written agreement with the government. The divestment process was begun in 1998 with offers by KPC to sell 23% of its shares. There were further offers to sell 30% in 1999 and 37% in 2000 but there were no acceptances of any of these offers.

During 2000, the Indonesian Government requested that KPC revert to the original divestment schedule which meant that 51% would be offered this year. This was agreed by KPC but Rio Tinto says that offers have yet to be made as the price has not yet been finalised. The share offer is to be based on the "fair market value of KPC as a going concern", and "giving due consideration to the project investment risk".

The government believes that the price should be between US\$583 million and US\$625 million (100% basis). KPC, advised by Salomon Smith Barney, believes that the price should be US\$889 million. Discussions continue and KPC believes it is now appropriate to call for two independent valuers to be appointed (one by each party) as allowed for in the provisions set out in the Coal Agreement.

KPC says it remains committed to fulfilling all its obligations under the Coal Agreement and considers that the legal action taken by the regional government "will cause concern to all existing and potential investors in East Kalimantan". □

Norilsk in New Caledonia venture

Perth-based Argosy Minerals Inc. has now finalised an agreement with Norilsk Mining Co. and Soc. Mines de la Tontouta (SMT) concerning a tripartite venture for the development of the US\$800 million Nakety/Bogota lateritic nickel project in the French Pacific territory of New Caledonia. Under the terms of the agreement, Norilsk will reimburse Argosy 45% of its costs to date (US\$7.17 million) and, thereafter, Norilsk can earn a 45% interest in the project by completing a bankable feasibility study over two years.

The feasibility study is expected to cost US\$15 million and includes additional resource/reserve drilling on the Bogota concessions. Nakety alone is estimated to contain a measured and indicated nickel resource of some 680,000 t in 34.6 Mt of ore, and Argosy has envisaged a mine and pressure acid-leach process capable of producing around 50,000 t/y of nickel. The feasibility study will be completed by Bateman Engineering in Australia, in conjunction with Norilsk's GipproNickel Institute in St Petersburg.

Subsequently, Norilsk can sequentially increase its stake by paying Argosy a further US\$17.5 million and providing the necessary banking guarantees to secure project financing for a further year. This would raise Norilsk's interest to 70%. Thereafter, a further payment to Argosy of US\$12.5 million, plus a final payment of an agreed 20% of the net present value of the project, would raise Norilsk's interest to 90%, with SMT holding the remaining 10%.

Mining and sustainability

In the debate about mining and sustainable development, the industry's opponents frequently point to the physical and social damage that can be caused by mining and are keen to highlight examples of bad practice. Rarely do they consider any positive aspects and the industry, itself, seems reluctant to do so. In Peru last month, Teck Cominco took up the gauntlet and made a modest but timely contribution in a paper presented at the mining engineers' convention in Arequipa where the theme was 'Mining: society and development'. The paper prepared by Messrs Horswill, Parker and Godlewski of Cominco highlighted the achievements at the Sullivan mine in the East Kootenay area of British Columbia.

It was natural resource development and the building of railroads that opened western Canada to community and economic development, and Sullivan played a prominent role. When exploration first began there were no roads or towns, and virtually no infrastructure apart from a few trading posts and hunting trails. The community that grew around the Sullivan mine eventually became the City of Kimberley, with a population today of around 6,000.

The Sullivan orebody was discovered in 1892 and production began in 1909. By 1916, Cominco had made a major technological breakthrough when it developed a process to separate lead and zinc concentrates from the ores. Since then it has consistently been amongst the top producers of both metals, and between 1909 and 2000 it produced almost 9 Mt of zinc, more than 9 Mt of lead and 280 Moz of silver, with a total production value exceeding US\$20 billion in today's prices. This metal production has been sufficient to manufacture half a billion lead-acid batteries, provide the zinc content for 160 million automobiles, and make countless x-rays and photographic images.

The authors acknowledge that if these metals were used only once and then discarded, the sustainability of metals production might be questioned. However, they contend that the fact that the metals can be recycled and renewed repeatedly creates the opportunity for them to play a fundamental role in sustainability. The lead recycling rate for lead-acid batteries in Canada is over 90%. The recycling rate for zinc is more difficult to assess because of its diverse applications but around 35% of current production is estimated to come from recycled sources and the rate is expected to continue to climb.

Over 91 years, the number of employees at Sullivan has averaged more than 1,000 with average salaries exceeding C\$68,000

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(in today's terms) for a total contribution exceeding C\$6 billion. The total direct contribution of the mine to the local and provincial economies in terms of taxes, payments to suppliers, local services and shareholders' profits is estimated at an additional C\$20 billion. Indirect benefits, including economic contributions to the local retail industry, and purchases of housing, education etc. throughout the region have probably added a further C\$60 billion in gross product to the economy of British Columbia.

The authors consider that this level of economic activity made possible the building of a social and economic infrastructure that places the East Kootenay region among the most advantaged in the world. They point out that the mine has numerous fourth-generation employees, and that many individuals brought up and educated in Kimberley have gone on to achieve wide recognition in academia, the arts, athletics and business.

On the environmental front, the authors freely admit that until relatively recently there was little awareness of the effects that mine waste could have on the environment. Not until 30 years ago did scientific knowledge link waste rock generation to acid rock drainage. As this understanding grew, Cominco pioneered the development of high-density sludge treatment, and in the 1970s it established the world's first operating plant in Kimberley to treat acid rock drainage. Since then, the company has embarked on reclaiming all tailings areas and waste dumps, and when this work is finally complete it expects to have spent some C\$70 million.

Finally, the authors argue that, far from hampering the ability of future generations to meet their own needs, the Sullivan mine has "vastly enhanced it". The operation has created a social capital in terms of an educated and able community, and infrastructure such as schools, hospitals and roads, and the foundation for the City of Kimberley to build on its future. Despite the imminent closure of the Sullivan mine, the outlook for the city, according to the authors, has never been better. Since the early 1990s, there have been moves to transform the city into a tourist resort and retirement destination.

Recreational facilities include a ski-hill and golf courses, and Cominco has entered into a venture with a developer to build a 1,000-unit residential community that will help sustain the tax base after the mine closes.

The authors believe that the development, operation and eventual closure of Sullivan has not only contributed social and economic benefits extending through several generations, but also provides a case study on mining's potential impact on the environment and what can be done to avoid environmental harm. □

China's role in the world mining industry*

David Humphreys, Rio Tinto's chief economist, said in a paper presented last month, at the *China Mining 2001* conference in China's Shaanxi Province, that the country's rapid industrialisation, alongside the mining boom in Latin America, is arguably the most important event for the global mining industry over the past decade.

The following article is a summary of the paper and assesses what the emergence of China as a major industrial power means for China's mineral raw material needs and for the global industry supplying mineral raw materials

As recently as the late 1980s China's relevance to the world mining industry was largely confined to its role as a producer and exporter of a handful of minor metals, such as tungsten, and industrial minerals, such as magnesite. While these were relatively small markets, China was in many cases the dominant component of world supply. In the cases of antimony, barytes, fluor spar, graphite, magnesite, rare earths, talc and tungsten China was, and still is, the world's largest producer, and in virtually every case its share of world production has increased.

However, for the major base metals such as copper, aluminium and zinc, China was in world terms a relatively small consumer during the 1980s and was largely able to meet domestic demand from its own resources. Supply deficits were made up for by occasional 'lumpy' purchases from Western sources. In the absence of hard

information, the general presumption in the West was that these purchases reflected planning requirements or else the grasping of opportunities offered by weak Western markets and low prices.

China's relationship with the rest of the world mining industry was, in short, somewhat remote and lacking in transparency, volatile from year-to-year, and based on little outside understanding of China's needs or mining economics. Frequently, trade was conducted through traders rather than directly with producers. China exploited opportunities offered by oversupply in Western markets, and Western suppliers exploited opportunities presented by China's periodic raw material shortfalls.

Compound growth

A decade of rapid industrialisation has brought about a massive change in China's mineral requirements and in its importance to the world mining sector. As a result of its remarkable and sustained industrial growth, China's consumption of copper has grown since 1990 at an average annual rate of 12%, so that it is now the second largest consumer in the world after the US, with over 12% of total world consumption. This is up from 5% in 1990, when it was only the fifth largest consumer in the world. China is also the world's second largest consumer of primary aluminium – again behind the US – accounting for 13% of total world consump-

Exports of coal from China

