

THE MINERAL INDUSTRY OF

NAMIBIA

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Namibia produced about 30 different minerals in 1994, the most important, in order of value, being diamond, uranium, copper, silver, lead, zinc, gold, pyrite, and salt. There were 45 active mines, including 37 Chamber of Mines of Namibia members, in 1994. Mainly as a result of higher base metal prices and the stability of precious metal, diamond and uranium prices in 1994, Namibia's gross domestic product (GDP) increased by about 5% in real terms during 1994 to about \$2.2 billion, compared with a 3.3% contraction recorded in 1993. The mining industry accounted for about 20% of the GDP—surpassing all other sectors in relative share of the GDP—and more than 50% of foreign exchange earnings.² Diamonds constituted about one-third of the Nation's exports and 10% of its GDP. The mining industry was the largest taxpayer, its capital investment being second only to that of the Government, and it was the largest employer, after the Government and the agricultural sector. In 1994, the mineral sector employed about 6% of the formal-sector work force. However, mining's contribution to the GDP, foreign exchange earnings, and employment levels has decreased steadily from that of 1980. This is because exploration has not been conducted on a sufficient scale to ensure that new mineral deposits are discovered and developed to replace production as older mines close.

In spite of a general increase in world metal prices, exploration expenditures decreased in Namibia in 1994. The Chamber of Mines members' exploration expenditures dropped from \$11.7 million in 1993 to \$10.8 million in 1994. Erongo Mining and Exploration Co. Ltd., a subsidiary of Anglo American Corp. of South Africa, announced that their prospecting operations would cease at the end of March 1995. However, increased interest was shown in offshore diamond prospecting as well as in small grassroots deposits that could benefit the small-scale miners in the future. In early 1994, Namibia and South Africa signed a treaty transferring ownership of Walvis Bay, the principal deep water port, to Namibia. A free trade zone was established in Walvis Bay to attract foreign investors and spur economic expansion.

In November 1994, the Government of Namibia acquired 50% of De Beers Centenary AG's diamond mines in the country. Since the Government made no capital investment in the project, the move was viewed by some as *de facto* nationalization. The arrangement was to last 25 years as a joint venture to be known as Namdeb Diamond Corp. (Pty.)

Ltd. The agreement stipulated that a portion of the Government's share of the venture's profits be reinvested.

Government Policies and Programs

In December 1992, the National Assembly approved the new Minerals (Mining and Exploration) Act, No. 33 of 1992. The Minerals Act, which took effect on April 1, 1994, replaces South African colonial legislation covering the mining sector. It provided for a standard licensing regime with special provisions to promote investment by foreign and domestic enterprises in minerals exploration and extraction. An accompanying Mining (Taxation) Act set forth revised fiscal provisions for the industry. The main innovation was a provision for royalty payments by producers to the Government.

With regard to mining activities, excluding petroleum and diamond mines, the Minerals Act allowed all exploration expenditures incurred before the startup to be written off in the first year of production and subsequent exploration expenditures in the year incurred. In the case of development expenditures, however, the new act stipulated that only one-third could be written off in the year incurred and one-third in each of the two ensuing years. The new progressive tax rates applicable to nondiamond and nonpetroleum mining companies vary from 25% to 55%, with most companies' rates ranging from 25% to 40%.

The system of taxation on diamond mining consists of three separate taxes: income, diamond profits, and diamond export duties. The latter has now been replaced by a 10% royalty. The income tax on diamond mining companies is levied at the rate of 50% of taxable profits, plus a surcharge of 10%. A diamond profits tax is levied at the rate of 15% of the taxable profits as specified in the Diamond Taxation Proclamation, No. 16 of 1941, as amended. The Income Tax Act provides that the amount paid as diamond profits tax be credited against the income tax payable by diamond mines.

The fiscal regime for oil exploration companies consists of three principal elements: an income tax and an Additional Profits Tax (APT), both levied in terms of the Petroleum (Taxation) Act, No. 3 of 1991; and a royalty, levied in terms of the Petroleum (Exploration and Production) Act, No. 2 of 1991. With respect to the income tax, the applicable tax rate is 42% of taxable income. The APT is a tax on profits above a level necessary to earn a reasonable rate of return on

investment. A three-tiered incremental APT scheme is provided in the new legislation. The first-tier APT rate is at 25% when the net rate of return reaches 15%. The second- and third-tier incremental APT rates are negotiated between the Government and the oil company. As in the case of the petroleum income tax, the APT is applied on a license or contract area basis. This means that expenditures incurred on different oilfields within the same license can be deducted from the revenues generated not only by a particular oilfield but from any and all others in the license area, thereby reducing the negative financial impact of any unsuccessful drilling programs. The Petroleum (Exploration and Production) Act, No. 2 of 1991, provides that the holder of a production license for petroleum is required to pay to the State Revenue Fund a royalty of 12.5% of the market value of petroleum produced. However, the act provides that the Minister of Mines and Energy may, in concurrence with the Minister of Finance, remit wholly or partly any payable royalty, or defer payment of any such royalty with the intention to assist any marginal oilfield development.

The Foreign Investment Act of 1990 offers prospective investors a package of incentives, such as repatriation of profits, security of title and tenure, availability of foreign exchange, international arbitration, and fair compensation in case of expropriation.

The Ministry of Mines and Energy is responsible for making and enforcing policies related to minerals and energy. Within the ministry and attached to the Permanent Secretary are the Diamond Board, the Mining Advisory Board, and the National Energy Council, all of which have both Government and private-sector representation. The Namibia Petroleum Co. and the Namibia Electricity Development Co. also are part of the ministry. The four main directorates in the ministry are the Geological Survey, Mining, Energy, and Administration and Finance. The three main functions of the Mining Directorate are evaluating and controlling mineral license applications; ensuring adequate safety standards in mining operations; and collecting, analyzing, and disseminating production statistics.

During 1994, The Ministry of Mines and Energy issued one mining license and approved 24 exclusive prospecting grants, compared with 25 approved in 1993. In addition, 240 claims were registered and 552 non-exclusive prospecting licenses were issued in 1994, compared with 818 claims and 676 licenses, in 1993, respectively.

The Government had been reviewing exploration licenses issued under the previous mining law to determine if the holders of the licenses are actually conducting exploration activities. If the Government determines that insufficient work is being done, it can revoke the license and make an award to someone else. That review was expected to free up considerable land area for exploration.

Using funding from the European Union Sysmin Fund, the Namibian Geological Survey is conducting aerogeophysical surveys of selected target areas for exploration for minerals

and ground water. Results are expected to become available during the next several years.

Environmental Issues

Environmental control, waste management, and rehabilitation have long been regarded as part of mining by most large-scale operations in Namibia. The new Mining Act required the submission of an Environmental Management Program Report (EMPR) for all current and planned mining operations to document the full range of environmental impacts and describe how these are to be addressed during the life of the mine and after closure. The report is to cover every aspect of operations, what remedial action will be undertaken, and how it will be funded. Another legal requirement is that sufficient funds be put aside during the life of a mine to cover all future rehabilitation costs; this applies to existing as well as planned operations.

A comprehensive report published in early 1993 by the International Atomic Energy Agency (IAEA) largely commended the practices of Namibia's Rössing Uranium Ltd. with regard to current radiological and occupational safety procedures. However, IAEA emphasized the need for closer monitoring of possible long-term environmental contamination problems. The IAEA concluded that health and safety practices at Rössing met or exceeded internationally accepted norms for the uranium industry and that the data provided by mine management on external radiation, including radioactive radon and thoron isotopes, were acceptable and reliable. A representative of the Mineworkers' Union of Namibia (MUN) participated in each of the IAEA team's working groups, but the union rejected the preliminary findings and maintained that a number of its concerns needed further investigation, including the possibility that cancer deaths of past employees may have been due to radiation exposure.

Production

In 1994, the improvement in base metal prices and the stability of precious metal, diamond, and uranium prices helped to generate some growth in the mineral sector. Diamond production by Namdeb Diamond Corp. (Pty.) Ltd., formerly Consolidated Diamond Mines (CDM), a wholly owned subsidiary of De Beers Centenary, increased by 15% from that of 1993. Similarly, output of uranium from the Rössing Mine rose by 14%. Production of copper and silver dropped, but that of gold and zinc increased. Fluorspar production continued its upward trend, increasing by about 20% from its 1993 level. (See table 1.)

Trade

Namibia's total exports amounted to about \$1.39 billion in 1994, compared with \$1.30 billion in 1993, topped by

diamond, manufactures, and uranium as the main export products. Total mineral exports were estimated at about \$700 million and included diamond, about \$400 million; base metals, about \$120 million; gold, about \$30 million; and others, including uranium, \$150 million. Imports were valued at about \$1.14 billion, compared with \$1.13 billion in 1993, with food and beverages, machinery and electrical goods, vehicles and transport equipment, and mineral fuels and lubricants as the main imports. Namibia's main trading partners, in order of importance, were South Africa, Germany, Switzerland, the United Kingdom, Japan, the United States, and Belgium. Ninety percent of Namibia's imports, especially processed foodstuffs and manufactured consumer goods, have originated in South Africa, and many Namibian exports are destined for the South African market or transit that country. Additionally, as a member of Southern African Customs Union (SACU), Namibia's products have duty-free access to the markets of Botswana, Lesotho, South Africa, and Swaziland. Namibia accounts for about 5% of total SACU exports and a slightly higher percentage of imports. Namibia's products also have duty-free and quota-free access to the European Community (EC) under the Lome Convention. On September 15, 1992, Namibia became the 105th contracting party of the General Agreement on Tariffs and Trade (GATT).

According to the U.S. Department of Commerce's International Trade Administration, Namibia's exports to the United States were \$14 million in 1994, down from \$22.1 million in 1993. Namibian diamonds enter the United States indirectly through the De Beers Central Selling Organization. Namibia's total imports from the United States—construction machinery, agricultural commodities, radio and television broadcast equipment, aircraft parts, and other manufactured products—were \$19.7 million in 1993 and \$16 million in 1994. U.S.-Namibian trade has diminished in recent years, a trend attributable in part to the strength of the U.S. dollar relative to the Namibian dollar and South African rand. Furthermore, in a historical context, Namibia has never been a traditional market for U.S. traders, a situation compounded by its own pre-independence isolation as well as sanctions against South Africa.

Structure of the Mineral Industry

Ownership of mining companies operating in Namibia was primarily private. Government participation remained limited to only a few entities, and it has generally functioned in a regulatory fashion.

Two Namibian mining companies were considered significant by world standards, Namdeb (formerly CDM), and Rössing Uranium Ltd. Together, they account for about 75% of the production value of the mining sector. Namdeb ranked sixth in terms of production volume of near-gem and gem diamond worldwide. Rössing ranked fifth in Western World uranium production with a share of about 9%.

The five other largest Namibian operations were all metal mines, of which four are base metal properties. The five are Tsumeb Mine, Kombat Mine, Otjihase Mine, Rosh Pinah Mine, and the Navachab Gold Mine. They may be joined by the Okanjande graphite deposit, which is currently at the final feasibility and pilot plant stage. There are three medium-sized mines, each with a labor force of more than 100 persons. These are the Rubicon Mine of SWA Lithium Mines; the base metal property Namib Lead and Zinc of Lead Namibia Ltd.; and the Okurusu fluor spar mine. The small-scale category comprises about 35 properties, each employing a work force of between 5 and 75 persons on a regular schedule. With the exception of a copper and a gold-silver mine, the small mines extract nonmetallic minerals. (See table 2.)

Namibia has very little investment in smelters, refineries, or processing plants. Tsumeb has a copper and a lead smelter with blister copper and refined lead being produced. All other concentrate leaves the country for treatment and processing either in South Africa or overseas.

The Chamber of Mines of Namibia reported that the total number of employees at its member mines, as of December 31, 1994, was 9,693, down from 9,854 in 1993, and less than 50% of its 1980 level. Mine wages are on par with those in South Africa, but are higher than those in other African countries. Total remuneration paid to Chamber of Mines employees amounted to about \$114 million in 1994.

MUN, a member of the ruling party-affiliated National Union of Namibian Workers (NUNW), which is recognized by all of the mining company members of the Chamber of Mines of Namibia, was involved in one short work stoppage at a mine during 1994. Rössing Uranium and MUN signed the first occupational health, safety, and environment agreement to be negotiated in Namibia. The number of mine employees injured in reportable accidents dropped from 30 in 1993 to 26 in 1994.

Two institutions of higher education provide mineral sector-related training in Namibia. The Namibian Institute of Mining and Technology, financed by Rössing, is providing technician level training in geology, mining, mineral processing, metallurgy, surveying, and chemistry. The new University of Namibia (UNAM), which came into existence in early 1993, will have seven colleges. Two of these—Natural Sciences, and Social and Economic Sciences—are to cover mineral sector-related disciplines at the undergraduate and graduate levels, although at this stage no mining courses are proposed. In addition, UNAM is establishing a Multidisciplinary Research Center (MRC) and will coordinate with other universities in Africa and overseas to provide research and training opportunities in mineral-related areas for Namibian students.

Commodity Review

Metals

Copper.—The substantially higher copper price during 1994 was a much needed blessing for Tsumeb Corp. Ltd, the country's major base metals producer. Blister copper output was 13% less than in 1993, and almost 20% less than 1992, reflecting reduced output from the main Tsumeb Mine as it nears the end of its economic life. During the second half of the year, a last-minute agreement between the Tsumeb Corp. and MUN prevented a strike by the union after the latter dropped its demand for a 60% wage increase. As the main Tsumeb Mine's production declined, development work continued at Tsumeb Corp.'s Tschudi Mine, 30 kilometers (km) west of Tsumeb. Tschudi's copper ore is of relatively low grade. The mine is expected to have a life of 15 years and likely will be a successor to the main Tsumeb Mine.³

Gold.—The open pit Navachab gold mine near Karibib, Namibia's major gold producer, experienced a better than expected production year. During 1994, about 1.1 million metric tons (Mmt) of ore were treated, producing 2,200 kilograms (kg) of gold from a plant head grade of 2.26 grams per metric ton (g/mt), according to the Chamber of Mines. Both production and grade increased from the previous year's levels of 1,790 kg and 1.99 g/mt of gold, respectively. In addition, high treatment rates, successful cost control, and the significant improvement in the rand/Namibian dollar gold price contributed to the profitability of the mine. As a result, total mine revenue for the year rose from \$20 million to \$26 million. The European Union (EU) provided Navachab about \$1.4 million for exploratory drilling on the downplunge extension of the ore body for possible underground mining.

Manganese.—Production of high-grade manganese ore at Otjosondou, 160 km northeast of Windhoek, by privately-owned Purity Manganese (Namibia) Ltd. started during the second half of 1994. Otjosondou is the only mine to produce manganese in Namibia since Johannesburg Consolidated Investment Co. Ltd. (JCI) of South Africa ceased operations there in 1960's. The Otjosondou ore body is generally contiguous, covering an area of about 35 square kilometers. The operation, consisting of surface mining, followed by crushing, screening, and jigging, recovers nodules of manganese from beneath a shallow overburden averaging only 1.5 meters (m) in depth. Production of a medium-grade ore having a manganese content of about 45% and a relatively low phosphorous content of 0.035% was projected to be about 100,000 metric tons per year (mt/a). Export was to be via the port of Walvis Bay, 400 km from the mine.⁴

Uranium.—Rio Tinto Zinc (RTZ) increased its stake in the Rössing uranium mine from 41% to a controlling 51%. The additional 10% equity interest was purchased from

France's Compagnie Francaise des Pétroles, a part of the Total group.

A stable uranium market prevailed during 1994 with prices moving in a very narrow band. Production of uranium oxide at Namibia's only uranium mine, owned and operated by Rössing Uranium Ltd., increased by 14% compared with the 1993 level, enabling the mine to return to profitability. It was expected that production would remain at the current 2,200 mt/a level, or about 75% of Rössing's reduced production capacity of 3,000 mt/a, for 1995 because Rössing has a long-term contract to supply Electricité de France with uranium oxide, according to the Chamber of Mines.

Zinc.—Production of zinc from the Rosh Pinah lead-zinc underground mine, 70 km northeast of Oranjemund in southwestern Namibia, increased by about 18%, following a drop of 20% in 1993, as the market for zinc improved and prices increased in 1994. Operations at the Rosh Pinah Mine resumed in January 1994 after production was halted in October 1993 due to low metal prices. In 1994, Iscor Ltd. of South Africa, the majority shareholder in Imcor Zinc (Pty.) Ltd., the operating company, put the property up for sale. No offer was received as of early 1995. Subsequently, Coopers & Lybrand and Trust and Mining Co. (Pty.) Ltd., designated joint liquidators, issued a request for bid with a closing date of April 14, 1995.⁵

Industrial Minerals

Diamond.—Diamond is Namibia's most important mineral, accounting for more than one-half of the value of all mineral exports. Total production was about 1.31 million carats, compared with 1.14 million carats in 1993 and 1.55 million carats in 1992. The 1992 peak output was a result of higher production levels in the main onshore mining area, combined with the first full year of production from CDM's Elizabeth Bay near Lüderitz, and further progress with the offshore marine operations. However, production in 1993 declined as the Central Selling Organization (CSO), De Beers' marketing arm, reduced contract deliveries from all producers, including CDM, by 25% after September 1992.

Near yearend, De Beers Centenary, CDM, and the Government of Namibia signed an agreement in which the latter acquired a 50% share in CDM, renamed Namdeb Diamond Corp. (Pty.) Ltd. (Namdeb), on the basis of an agreed profit split. This included recognition of the principle of single-channel marketing, which is intended to ensure the continuing stability of the diamond industry.

CSO quota restrictions for purchases from producers continued to apply in 1994, but at a reduced level, so that Namdeb's production for 1994 amounted to 1,302,918 carats, compared with 1,138,998 carats in 1993. Satisfactory progress continued to be made with offshore marine productions where 406,925 carats were recovered, representing 31% of total production, compared with 27% in

1993, the Chamber of Mines reported.

The commercial and technical success achieved by Namdeb in its large-scale offshore mining operations has now attracted the interest of new investors, with the potential for a further significant increase in Namibia's marine diamond output in coming years. Geological experts estimate that the Atlantic Ocean floor contains some 1 billion carats deposited through 100 million years of erosion along a 1,400-km stretch of multiple submerged beaches offshore southern Namibia and northern South Africa. The average gem content is calculated at 93%, according to the Chamber of Mines.

Redaurum Ltd. agreed to acquire a 100% interest in alluvial diamond prospect on the Konkiep River. The property was located 25 km north of the diamond region around the lower section of the Orange River. A ground penetrating radar survey was started in preparation for first-stage drilling, which is likely to be followed by a detailed program of close pattern drilling and bulk sampling.⁶

Fluorspar.—The main fluorspar operation is centered around Okorusu, 48 km north of Otjiwarongo. Okorusu's main markets are, in order of importance, Germany, the United States, and the United Kingdom. In 1993, the company became the first beneficiary of the EC's \$47 million aid program for Namibia's mining industry. The loan, at an annual interest rate of 6% and repayable by 2006, has enabled Okorusu to maintain its current capital expenditure program on expanding and developing the plant. Production increased by 20% as world demand for fluorspar increased in 1994.

Mineral Fuels

Namibia produced neither crude oil nor natural gas and had no crude oil refining capacity. It had no proven crude oil reserves and only limited gas reserves, at the Kudu Gasfield, 200 km west of Oranjemund off Namibia's southern coast, generally estimated at between 150 to 500 billion cubic meters (m³).

Early in 1993, the Government awarded the first round of licenses to several foreign consortia, including the U.S.-based Chevron Petroleum Co., to undertake offshore exploration for oil. One of the concessionaires, Norsk Hydro SA (Hydro) of Norway, drilled its first well, a dry hole, offshore Namibia under the country's recent licensing round. The hole was drilled to 4,554 m. Hydro is reportedly committed to drilling two more wells during the 4-year license period ending in April 1996. The Government is conducting a second petroleum licensing round, from October 1, 1994, to November 30, 1995, during which all available offshore and onshore blocks are open for international bidding.

Reserves

Reserve data reported by the Chamber of Mines and operating companies in Namibia indicated reserves of about 1 billion carats of diamond, about 3 million metric tons (Mmt) of contained copper, 100,000 metric tons (mt) of contained uranium oxide, 20 mt of gold, 36 Mmt of graphite ore grading 4.3% carbon, 70 Mmt of ore grading 0.135% tin, 6 Mmt of trona-rich and sulfate-rich salts, 2.9 Mmt of fluorspar ore grading 61% calcium fluoride, and 29,000 tons of wollastonite.

Infrastructure

Namibia has two principal ports, Walvis Bay and Lüderitz. Walvis Bay has container and bulk mineral-handling facilities and oil storage tanks. More than 1 million metric tons per year (Mmt/a) of freight is handled at Walvis Bay, compared with 50,000 mt/a at Lüderitz. Since the March 1994 return of Walvis Bay from South Africa, the Government has shown considerable interest in developing a free trade zone (FTZ) or export processing zone (EPZ) in the harbor town and expects Walvis Bay to become an important commercial gateway to the southern African region.

Namibia has a well-developed and maintained road transport system, with a railway network that links the principal centers of population to the coast and to South Africa. The country has about 40,000 km of roads, of which about 4,500 km is surfaced. A principal north-south axial road links southern Angola with South Africa, and east-west routes connect the coastal ports of Walvis Bay, Swakopmund, and Lüderitz with South Africa and Botswana, respectively. The Botswana route will assume even greater importance once the Trans-Kalahari Highway is completed, reducing the journey between Windhoek and Johannesburg by more than 400 km. In the northeast, work is underway on upgrading the road through the Caprivi Strip to link Namibia with southeast Angola, Botswana, Zambia, and Zimbabwe.

The 2,400-km-long rail network is operated by TransNamib. The rail fleet consists of 100 diesel-electric locomotives and 2,400 wagons. Namibia's railways carry about 2 Mmt/a of freight and 480,000 passengers per year, approximately 10 times the traffic transported annually on scheduled road services.

Electricity throughout the country is provided by SWAWEK, the national power utility. Principal power stations include the 120-megawatt (MW) Van Eck coal burning plant in Windhoek and the 240 MW Ruacana hydroelectric station on the Kunene River. The SWAWEK network interconnects with South Africa's grid. Planning is currently underway for a second hydro station to be built on the Kunene River border with Angola. The proposed Epupa plant would have an installed capacity of 450 MW. Initial

cost estimates of this major project, which proponents have deemed crucial to the country's future energy and water needs, are in excess of \$1 billion. Critics contend that this undertaking is unnecessary and would have adverse environmental impacts.

Outlook

Many of Namibia's mines are old and nearing the end of their economic lives. Because of the political uncertainties in the 1980's, little prospecting was conducted in Namibia, resulting in fewer new mines being developed. Because of a long lead time between the prospecting and development stage of a mine, even with an increase in exploration, a gap is likely to occur in mining revenues as old mines close before new mines can start production.

According to the Chamber of Mines of Namibia, the Nation's geological potential (excluding oil and gas) may be limited; Namibia is unlikely to ever have another Tsumeb Mine, although it has numerous smaller, rich ore deposits. However, the Chamber of Mines stated that the provision of the new mining law that allows royalties to be levied in the future may deter exploration because of the uncertainty about the ultimate tax rate. As a result, according to the Chamber of Mines, mineral industry output is not expected to exceed its current level.

The large mining houses already present in Namibia are likely to remain dominant in Namibia's mining industry. However, government officials have expressed their desire to attract smaller, more aggressive mining companies. The freeing up of land for exploration should encourage smaller mining companies to enter Namibia.

The future of Namibia's mineral sector may lie in applying new cost-effective mining and extraction techniques to the country's wide variety of low-grade mineral deposits. Considering its general political stability, Namibia is a viable market for technology transfer, mining equipment, and investment for U.S. mining firms.

Namibia also is looking toward Angola to help sustain its mining industry because Namibia has the infrastructure to support the development of mines in southern Angola. Ore could be processed in Tsumeb and railed to Walvis Bay for export. Since this would eliminate the immense capital costs of port and railroad construction, the development of mining projects in Angola would become more economically attractive.

¹Text prepared May 1995.

²Where necessary, values have been converted from the Namibian dollar (ND) to U.S. dollars at the rate of N\$3.50=US\$1.00 for 1994 and N\$3.27=US\$1.00 for 1993.

³The Chamber of Mines of Namibia, 16th Annual Report, 1994.

⁴Skilling's Mining Review. V. 83, No. 21, May 21, 1994, p. 8.

⁵Engineering and Mining Journal, Feb. 1995, p. 57.

⁶Mining Journal, London, Sep. 30, 1994, p. 236.

Major Sources of Information

- Association of Prospectors and Miners of Namibia
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- Geological Survey of Namibia
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Fax: (264) 61 220148
- Namibia National Small Miners Association
P.O. Box 7289
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- U.S. Embassy
P.O. Box 12029
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Major Publications

- Chamber of Mines of Namibia, Annual Report.
Mineral Investment in Namibia, Mining Journal
Research Services, in cooperation with the Ministry of
Mines and Energy, Namibia, Mar. 1993, 107 pp.

TABLE 1
NAMIBIA: PRODUCTION OF MINERAL COMMODITIES 1 / 2/

(Metric tons unless otherwise specified)

Commodity	1990	1991	1992	1993	1994
METALS					
Antimony, sodium antimonate (47% Sb):					
Gross weight	5	21	13	16 r/	29
Sb content	2	10	6	8	14
Arsenic, white, 99% arsenic trioxide	1,640	1,800	2,460	2,290 r/	3,050
Beryl concentrate	1,990	6	10 e/	15	15 e/
Cadmium metal, refined	69	67	33	13 r/	23
Cesium, pollucite, gross weight e/	3 3/	5 3/	5	5	5
Columbium and tantalum, tantalite concentrate: e/					
Gross weight kilograms	3,680 3/	200	200	--	--
Cb content do.	550 3/	30	30	--	--
Ta content do.	550 3/	30	30	--	--
Copper:					
Mine output, concentrate (29% to 30% Cu):					
Gross weight	108,000	117,000	115,000	110,000 r/	97,900
Cu content	27,800 r/	31,700 r/	31,300 r/	29,500 r/	28,400
Metal, blister 4/	33,200	33,500 r/	37,500	34,800	30,100
Gold kilograms	1,610	1,860	2,030	1,950	2,450
Lead:					
Mine output, concentrate (30% to 32% Pb):					
Gross weight	61,800	50,600	49,600	36,400 r/	43,800
Pb content e/	18,000	15,000	15,000	11,600 r/ 3/	13,000
Metal, refined, primary 4/	35,100	33,400	31,700	31,200	23,800
Silver, mine output, Ag content of concentrate kilograms	92,100	91,300	89,000	72,000	64,000
Tin, mine output, concentrate (61% to 67% Sn):					
Gross weight	1,390	17	18	6	6 e/
Sn content	900	11	11	4	4 e/
Uranium, U ₃ O ₈ content of concentrate	3,790	2,890	1,990	1,970	2,240
Zinc, mine output, concentrate (49% to 53% Zn):					
Gross weight	72,500	68,100	68,300	54,000	64,600
Zn content	37,700	33,200	36,100	28,400	33,400
INDUSTRIAL MINERALS					
Diamond:					
Gem e/ thousand carats	750	1,170	1,520	1,120	1,280
Industrial e/ do.	15	20	30	20	30
Total do.	763	1,190	1,550	1,140	1,310
Fluorspar, concentrate, acid grade (98% CaF ₂)	27,100	34,600	37,200	43,500 r/	50,600
Graphite e/	--	200	200	--	--
Gypsum e/	--	--	380 3/	400	400
Lithium minerals:					
Amblygonite	54	20	5	5	5 e/
Lepidolite	80	33	93	87 r/	90 e/
Petalite	1,130	1,140	1,060	647 r/	650 e/
Total	1,270	1,190	1,160	739 r/	745 e/
Salt 5/	157,000	141,000	115,000	133,000 r/	400,000 e/
Semiprecious stones:					
Agate	72	53	100 e/	102 r/	80 e/
Amethyst	110	110	120 e/	100 r/	180 e/
Chrysocolla kilograms	900	5,380	6,480	6,500 e/	6,500 e/
Diopase do.	109	52	35	50 e/	50 e/
Quartz, crystal e/	20 3/	11 3/	50	50	50
Rose quartz	605	314	124	166	170 e/
Sodalite e/	50	50	100	354 3/	400 e/
Tourmaline kilograms	1,120	1,220	638	600 e/	600 e/
Stone, sand, and gravel:					
Granite	5,440	7,890	7,310	2,960 r/	3,000 e/
Marble	12,900	10,000	12,300	13,400 r/	15,000 e/
Quartz e/	107 3/	100	100	339 r/ 3/	350
Sulfur, pyrite concentrate:					
Gross weight (49% to 51% S)	139,000	127,000	164,000	114,000	122,000
S content e/	70,000	65,000	80,900 3/	56,900 r/ 3/	60,000
Wollastonite	--	305	549	824 r/	800 e/

e/ Estimated. r/ Revised.

1/ Previously published and 1994 data are rounded by the U.S. Bureau of Mines to three significant digits; may not add to totals shown.

2/ Table includes data available through May 31, 1995.

3/ Reported figure.

4/ Includes products of imported concentrate.

5/ The increase in 1994 is due to production from Walvis Bay previously included under South Africa.

TABLE 2
NAMIBIA: STRUCTURE OF THE MINERAL INDUSTRY FOR 1994

(Metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Copper	Tsumeb Corp. Ltd. (Gold Fields Namibia Ltd., 100%)	Tsumeb	15,500 copper in concentrate, 58,000 blister copper.
Do.	do.	Kombat, 50 kilometers south of Tsumeb	12,000 copper in concentrate.
Do.	Otjihase Mine (Tsumeb Corp. Ltd., 70%; Johannesburg Consolidated Investment Co. Ltd., 30%)	Otjihase, near Tsumeb	16,500 copper in concentrate.
Diamond million carats	Namdeb Diamond Corp. (Pty.) Ltd. (De Beers Centenary AG, 50%; Government, 50%)	Mines near Oranjemund, Elizabeth Bay Mine, 25 kilometers south of Luderitz, and marine operations	1.6.
Fluorspar	Okorusu Fluorspar (Pty.) Ltd. (Iskor Ltd., 26%; Okorusu Holdings)	Okorusu, 48 kilometers north of Otjiwarongo	50,000, 98% calcium fluoride.
Gold	Navachab Gold Mine Co. (Erongo Mining and Exploration Co. Ltd., 70%; Metall Mining Corp., 20%; Rand Mines Ltd., 10%)	Navachab near Karibib	2 gold.
Lithium	SWA Lithium Mines (Pty.) Ltd. (Kloekner; Matramco)	30 kilometers south of Karibib	1,500 concentrate.
Manganese	Purity Manganese (Namibia) Ltd. (private, 100%)	Otjosundu, 160 kilometers northeast of Windhoek	100,000 ore with 45% manganese content.
Salt	Salt and Chemicals (Pty.) Ltd. (private, 100%)	Walvis Bay	350,000.
Do.	Salt Company (Pty.) Ltd. (private, 100%)	Swakopmund	150,000.
Stone cubic meters	Karibib Mining and Construction Co. (Namibia) Ltd. (private, 100%)	Marble quarry at Karibib Granite quarry	2,500 600.
Uranium	Rossing Uranium Ltd. (RTZ Corp. plc, 51.4%; Industrial Development Corp. of South Africa, 10%; Government of Iran, 10%; Rio Algom, Canada, 8%; Urangesellschaft mbH, 5%; Government of Namibia, 3.5%; Gencor Ltd., 2.3%)	Rossing, 30 kilometers east of Swakopmund	4,800 uranium oxide.
Zinc	Imcor Zinc (Pty.) Ltd. (Iskor Ltd., 51%; Moly Copper Mining and Exploration Co.)	Rosh Pinah Mine, 80 kilometers northeast of Oranjemund	40,000.