

THE MINERAL INDUSTRY OF NAMIBIA

By Ebrahim Shekarchi

The mineral industry of Namibia continued to be a major factor in the country's economy, accounting for about 18% of the gross domestic product (GDP) with a value of \$3 billion in 1995.¹ Most of the production value was attributed to the operations of diamond, lead, manganese, uranium, zinc, and many precious and semiprecious gem mines throughout the country. The mineral exports alone contributed 50% of the export value of Namibia during 1995, roughly the same as that of the previous year.

Prospecting at new and old operations more than doubled during the year to \$25.4 million, including capitalization of the cost of marine diamond exploration vessels. Several small Australian and Canadian firms were involved in base- and precious-metal prospecting for the first time in Namibia. Prospecting for kimberlites continued in alluvial deposits along the Orange River, where Rio-Tinto holds considerable acreage. For the year, 404 nonexclusive prospecting licenses, 3 mining licenses and 195 claims were registered.

The three larger mining companies announced significant investment in capital infrastructure, most notably the expansion of a copper smelter at Tsumeb, the dredge project at Namdeb, and replacement of haul trucks at Rössing Uranium Mines, all of which demonstrated ongoing confidence in the future of mining operations in Namibia.

Under the European Community Sysmin program, the Geological Survey of Namibia was given aid to produce computer generated geologic maps of the Kuisch and Walvis Bay area. In addition, aeromagnetic surveys were carried out over five highly prospective areas, the results of which would be available to the public in 1996, according to the Chamber of Mines of Namibia.

More than any other section of the economy, the mining industry has provided the locomotive power on which national development and growth of Namibia has been based. There were 43 mines active in 1995, producing some 30 different commodities, the most valuable of which were copper, diamonds, fluor spar, gold, lead, pyrite, salt, uranium, and zinc. The mining industry was the dominant sector (apart from the Government itself) in its contribution to the GDP. It was also, directly or indirectly, the largest taxpayer and surpasses all other sectors in its contribution to Namibia's exports. Total Namibian export in 1995 was about 6,000 million Namibian dollars; close to one-third of it was from mining and processing of mineral output.

Government Policies and Programs

During 1995, the Chamber of Mines of Namibia published the final version of the 1992 mining law, which is as follows: To effectively control the orderly exploitation of what can be regarded as "national wasting asset," the Government regulates the allocation of licenses for prospecting and mining activities. The Minerals (Prospecting and Mining) Act of 1992, empowers the Mining Commissioner in the Ministry of Mines and Energy to grant prospecting, reconnaissance, exclusive prospecting, mineral deposit retention, and mining licenses to approved companies and individuals. The licensing system incorporates a scale of fees, and standard or special conditions may also be imposed.

A nonexclusive prospecting license is granted to an individual or company to prospect (and sample) nonexclusively on land open to prospecting. Details of analysis samples removed must be furnished to the Mining Commissioner. The validity of license is 12 months and is nonrenewable.

Reconnaissance licenses are designed primarily to provide an opportunity for broad-based regional airborne appraisals and surveys of mineral provinces. Such licenses are allocated for specific commitments, only exclusive where deemed necessary, and have a validity of 6 months with a renewal of a further 6 months in exceptional circumstances.

The exclusive prospecting license confers sole prospecting rights to areas of land up to 1,000 square kilometers (km²) in extent for a specific mineral or group of minerals based on certain commitments by the applicant. The license is valid for 3 years with two renewals for 2 years and, under exceptional circumstances, for further periods.

Mineral deposit retention licenses, however, provide for the retention of rights to a discovery (without obligation to mine) that may be uneconomic to develop immediately. This type of license gives a certain degree of comfort to prospecting and exploration companies and allows an element of flexibility in forward planning. The validity is up to 5 years, and the license may be renewed subject to certain project assessment/review procedures.

Mining licenses are issued, subject to the submission and approval of satisfactory environmental safeguard proposals, to applicants who demonstrate the necessary technical and financial capabilities to conduct a mining operation. The

license grants an exclusive right to mine for a predetermined period, initially up to 25 years with renewals of up to 15 years at a time. For land already subject to a mineral license or a claim to specific minerals, the license will only be granted to the existing license holder in respect to those minerals. Once the license has been granted, no further licenses will be allocated for any other minerals without the consent of the first license holder.

Mining claims are primarily designed for the small-scale miner or prospector and are restricted to Namibian citizens or Namibian-owned companies that are holders of nonexclusive prospecting licenses or, in exceptional circumstances, exclusive prospecting licenses. The claim, measuring 600 meters (m) by 300 m, must be pegged and registered; the holder has the exclusive right to prospect or mine in that area. However, the exclusive right to prospect without obligation to mine is limited to 6 months. Apart from this condition, the initial validity of the claim is for 3 years at a time, dependent on potentially commercial quantities of minerals remaining in the claim area.

Environmental Issues

In an ecologically fragile and sensitive environment such as Namibia's, there is a growing awareness of the need to conserve and protect the natural surroundings and associated flora and fauna. Mining companies have responded proactively to such concern and have, in many instances, played a leading role in creating harmony between development and conservation.

The Government is developing a national environmental management system with the appropriate regulations. The Minerals (Prospecting and Mining) Act of 1992 specifies that any application for a mining license (and, where warranted, an exclusive prospecting license) must be accompanied by an environmental impact study and management plan/program.

On completion of prospecting and at the closure of operations, the Government requires mining companies to rehabilitate the natural environment to an acceptable state. Universities, biologists, international environmentalists, paleontologists, and archaeologists are routinely involved in assisting the mines to minimize the effect of their operations on the environment. Particular attention is paid to revegetation and control and protection of mined-out areas and material dumps. Special care, in close cooperation with the Department of Water Affairs, is taken to prevent any contamination to natural ground water, both on-site and offsite. In a semiarid country, the use of water is of major concern and the mines have devised economic recycling and retreatment systems that efficiently reduce consumption.

A specific example of integrated environmental management practice is the Okanjande graphite pilot project.

The principles of integrated environmental management were applied from project conception with the expert advice of external consultants. Design and applicability of equipment, plant location, and extraction methods were evaluated in the light of eventual decommissioning with the intention of leaving the site in a safe condition, having, as far as possible rehabilitated the area to its natural state.

Production and Trade

The production statistics in table 1, were compiled largely from an annual questionnaire submitted to the Ministry of Mines and Energy by the U.S. Geological Survey and from annual reports of some of the companies operating within Namibia. Diamonds continued to be marketed through DeBeers Central Selling Organization and were exported to South Africa and overseas. Uranium concentrates were exported from Walvis Bay to contract customers in Western Europe and Japan. Tsumeb's metal production and concentrates were transported on the company's 640-kilometer (km) railroad to loading facilities at Walvis Bay for export to overseas customers.

Structure of the Mineral Industry

Ownership of mining companies in Namibia was primarily private. Government participation remained limited, and it has generally functioned in a regulatory manner. Two Namibian companies were considered significant by world standards, Namdeb Diamond Corp. (Pty.) Ltd. (formerly DCM), and Rössing Uranium Ltd. (*See table 2*). Together, they account for about 75% of the mineral production value of the mining sector.

The Chamber of Mines of Namibia reported that the total number of employees at its member mines was 9,690 during 1995, almost the same level as for 1994. The Mineworkers' Union of Namibia (MUN), which is recognized by all of the mining company members of the Chamber of Mines, was involved in two short work stoppages at a number of mines during the year. Various agreements between Chamber members and the MUN were signed in 1995 involving recognition, salaries, and other benefits including health, safety, and environment.

Commodity Review

Metals

Antimony.—The production of antimony, which peaked in 1994, was discontinued in 1995 because of international market conditions and the high cost of mining operations in Namibia. The mines will remain closed until better market

conditions prevail.

Cadmium.—Tsumeb Corp. Ltd. processed several tons of sinter baghouse dust in 1995 to produce 15 metric tons (t) of refined cadmium, 4 t less than 1994.

Copper.—The decline in copper production continued in Namibia during 1995, with a total of 82,000-t mine output, which was nearly 16,000 t less than 1994 output. Decline in blister copper was also evident. The declining price of copper reflected a growing awareness of the large amount of mine and refining capacity coming on the world scene. For example, Chile is expected to account for more than 60% of mine capacity growth in 1998. Mine-smelter production in Chile was expected to increase by about 6% in 1996 and will outstrip any increase in demand. Namibia blister copper production for 1995 was about 30,000 t. Exploration for new copper deposits continued during the year, but no new discoveries of significant reserves were reported.

Gold.—Erongo Mining and Exploration Co. Ltd., which owns one of the largest gold mines, Navachab, produced about 2,393 kilograms during 1995. Navachab, an opencast operation, produced the same amount of gold as in previous years. The company processed 1.3 million metric tons of ore with a head grade at the plant of 1.99 grams per ton of gold. Although the European Union has provided about \$1.4 million for exploration along the down plunge of the ore body, no positive result was reported during 1995.

Lead.—Since the average price of lead in 1995 was significantly higher than that of 1994, the production of lead in Namibia increased from 43,800 t in 1994 to 57,105 t in 1995; the refined lead product was 12% higher in 1995 compared with that of 1994.

Manganese.—Purity Manganese (Namibia) Ltd., a 100% privately owned company, operated the Otjosondu Mine, 160 km northeast of Windhoek. Prior to Namibia's independence in 1990, the mine was operated by a South African company. During 1995, Purity produced manganese ore for the first time since Johannesburg Consolidated Investment Co. Ltd. of South Africa had abandoned the mine. The first year's production was an impressive 95,385 t of manganese ore, with 45% Mn content. The mine was an opencast, low-cost operation but transportation to Walvis Bay remained a problem.

Silver.—Domestic production of silver, a byproduct of copper and lead mining, increased slightly from 1994 figures, but decreased 12% compared with 1993 output. Tsumeb Corp. continued to be the largest silver producer in the country, recovering 66 t of silver from the company's concentrate. The company also produced refined silver from imported concentrate. Virtually all silver produced in the country was produced by Tsumeb, which exported silver in the form of blister copper and ore bullion for toll refining elsewhere.

Uranium.—Namibia's only producer of uranium, the

Rössing Uranium Ltd. operation, 30 km east of Swakopmund, was reported to have an annual production of about 2,000 t in 1995. Because of limited demand for uranium in the world market, it seems Rössing Uranium has ceased most of their exploration for the time being.

Zinc.—The Rosh Pinah Mine of Imcor Zinc (Pty.), a subsidiary of South African Iron and Steel Industries Corp. (ISCOR), produced about 30,000 t of zinc in concentrate during 1995, 35% less than 1994. This decrease was due to partial closure of the Rosh Pinah, which was put up for sale, and also for the generally low price of zinc in the international market. By the end of 1995, no offer was received to meet the company's expectation; so Cooper and Lybrand Trust and Mining Co., Ltd. supervised the operation for the year.

Industrial Minerals

Diamond.—By value of output, Namibia remained the world's fourth most important diamond producer (after Botswana, Russia, and South Africa) because of the exceptional gem quality of its product. Diamond production during 1995 increased by 8% compared with the 1994 output. The 1995 output was a result of a higher production level in the main onshore mining areas combined with a full operation in the Elizabeth Bay area and further progress with offshore marine operations. Capetown-based Ocean Diamond Mining (ODM) was the main commercial-scale producer of diamonds offshore in 1995. ODM deployed a new vessel, *Namibian Gem*, in its shallow water operations around the 12 Penguin Islands. ODM anticipated that additional concessions in the territorial waters off the Islands will be allocated by the Namibian Government, since it produced more than 20,000 gem-quality diamonds in 1995.

The main producer of diamonds was Namdeb Diamond Corp. (Namdeb) in which the Namibian Government and Swiss-based DeBeers Centenary AG each owned a 50% interest. Namdeb operated onshore and offshore mines through DeBeers Marine Co. (DBM), a subsidiary of the South African-based DeBeers Consolidated Mines Ltd., with DBM controlling a 60,000-square-kilometer deep-water area. DBM was developing the next generation of undersea mining equipment designed to mine low-grade deposits economically. Construction of a 3,500-t-per-hour dredge and a floating treatment plant to economically remove the overburden and expose the basal diamonds began in 1995.

Fluorspar.—Okorusu Fluorspar (Pty.) Ltd., Namibia's only fluorspar producer, was forced to close down its open pit operation on the main ore body owing to a backlog in waste stripping. Mining operation shifted to a second ore body that proved to be mineralogically vastly dissimilar to the original ore body. The presence of, typically, 25% silica as finely disseminated grains with the fluorspar matrix

resulted in concentrate grades being outside the international specifications with respect to silica. The crushing, milling, and flotation sections were altered in an attempt to address the silica problem to maintain a salable product and resumed operation. Okorsu Fluorspar's production fell from an all-time high of 50,600 t for 1994 to approximately 34,000 t for 1995.

Salt.—Namibia's shore line, along the Atlantic Ocean, was the site of high-grade sea-salt production in 1995, producing a record of 500,000 t. Various salt companies produced salt by building small dikes along the coast; as the tide came in, these dikes filled, and with evaporation caused by intensive heat and prevailing winds, salt layers were formed. These layers are harvested periodically and provide coarse salt for industrial purposes and refined salt for domestic use.

Mineral Fuels

Since its independence in 1990, Namibia has joined other African countries with hydrocarbon potential in attracting foreign investment. Its fledgling upstream industry has included two licensing rounds with a number of licenses awarded in the offshore area. The Namibian coastline extends for 1,300 km, in which four major gas basins have been found: (1) Namibia Basin, in the north, extends to Walvis Ridge, (2) Walvis Basin, (3) Luderitz Basin which covers an area from Walvis Basin to Luderitz and (4) Orange Basin, which extends to the south to South Africa's border.

Offshore exploration commenced in 1968, and the Kudu Gasfield was discovered by Chevron in 1973. Further exploration did not resume until after Namibia achieved full economic independence. Exploration activity in 1995 included the following.

Block 2814A, also known as the Kudu Block, 130-km offshore southwest of Namibia, was licensed to Shell Exploration and Production, 75%; Texaco Namibia, 15%; and Energy Africa, 10%. Estimates by Government agencies indicated that this field could achieve gas flow rates in excess of 75 million cubic feet per day. However, there was no immediate market for Namibian gas, and possibly production will not take place before the next century.

Block 2815, adjoining the Kudu Block, was jointly held by Chevron Overseas (Namibia) Ltd., 75%, and Energy Africa, 25%. Seismic tests and drilling have shown potential reserves are large and may contain oil and/or condensate-rich gas.

Block 1911 has been awarded to three Norwegian companies: Norsk Hydro, 40%, and Statoil and Saga, 30% each. The license area covers an area of 11,000 km² offshore northern Namibia with water depths of 300 to 1,200 m. No exploration was carried out in 1995.

Block 2012, on the northern coast of Namibia, was awarded to Sasol of South Africa.

Block 2212, a 4-year exploration permit for 5,170 km² off the central Namibian coast, has been granted to the joint venture Canadian Ranger Oil (operators), Hardy Oil and Gas, and Amerada Hess.

Oil and gas exploration was governed by the Petroleum Exploration Act of 1992 and the Petroleum (taxation) Act of 1991. Finally, the Namibian oil industry was regulated by the Ministry of Mines and Energy.

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 (Mt) of contained copper, 100,000 t of contained uranium oxide, 20 t of gold, 36 Mt of graphite ore grading 4.3% carbon, 70 Mt of ore grading 0.135% tin, 6 Mt of trona-rich and sulfate-rich salts, 2.9 Mt of fluorspar ore grading 61% calcium fluoride, and 29,000 t of wollastonite.

Infrastructure

Namibia has two principal Ports, Walvis Bay and Luderitz. Walvis Bay has container and bulk mineral-handling facilities and oil storage tanks. More than 1 million metric tons per year (Mt/yr) of freight is handled at Walvis Bay, compared with 50,000 metric tons per year at Luderitz. Since the March 1994 return of Walvis Bay from South Africa, the Government has shown considerable interest in developing a free trade zone or export processing zone 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 well-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 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 Luderitz 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 Mt/yr 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.

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 stages 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 geologic 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.

¹Where necessary, values have been converted from the Namibian dollar (ND) to U.S. dollars at the rate of ND\$3.80=US\$1.00 for 1995.

Major Sources of Information

Association of Prospectors and Mines of Namibia
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Windhoek, Namibia
Telephone: (264) 61 34978

The Chamber of Mines of Namibia
P.O. Box
Windhoek, Namibia

Geological Survey of Namibia
Private Bag 2168
Windhoek, Namibia
Telephone: (264) 01 37240

Ministry of Mines and Energy
Private Bag 13297
Windhoek, Namibia
Telephone: (264) 61 226571

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

(Metric tons unless otherwise specified)

Commodity	1991	1992	1993	1994	1995
METALS					
Antimony, sodium antimonate (47% Sb):					
Gross weight	21	13	16	29	--
Sb content	10	6	8	14	--
Arsenic, white, 99% arsenic trioxide	1,800	2,460	2,290	1,775 r/	1,661
Beryl concentrate	6	10 e/	15	-- r/	--
Cadmium metal, refined	67	33	13	19 r/	15 e/
Cesium, pollucite, gross weight e/	5 3/	5	5	5	5
Columbium and tantalum, tantalite concentrate: e/					
Gross weight kilograms	200	200	--	--	--
Cb content do.	30	30	--	--	--
Ta content do.	30	30	--	--	112
Copper:					
Mine output, concentrate (29% to 30% Cu):					
Gross weight	117,000	115,000	110,000	97,900	82,000
Cu content	31,700	31,300	29,500	28,400	22,500
Metal, blister 4/	33,500	37,500	34,800	30,100	29,820
Gold kilograms	1,860	2,030	1,953	2,445	2,393
Lead:					
Mine output, concentrate (30% to 32% Pb):					
Gross weight	50,600	49,600	36,400	43,800	57,105
Pb content e/	15,000	15,000	11,600 3/	13,000	16,084
Metal, refined, primary 4/	33,400	31,700	31,200	23,800	26,752
Manganese gross weight	--	--	--	--	95,385
Silver, mine output, Ag content of concentrate kilograms	91,300	89,000	72,000	64,000	66,000 e/
Tin, mine output, concentrate (61% to 67% Sn):					
Gross weight	17	18	6	6 e/	--
Sn content	11	11	4	4 e/	2
Uranium, U ₃ O ₈ content of concentrate	2,890	1,990	1,970	2,240	2,004
Zinc, mine output, concentrate (49% to 53% Zn):					
Gross weight	68,100	68,300	54,000	64,600	59,290
Zn content	33,200	36,100	28,400	33,400	30,209
INDUSTRIAL MINERALS					
Diamond:					
Gem e/ thousand carats	1,170	1,520	1,120	1,312 r/ 3/	1,382 3/
Industrial e/ do.	20	30	20	-- r/	-- r/
Total do.	1,190	1,550	1,140	1,312 r/	1,382 r/
Fluorspar, concentrate, acid grade (98% CaF ₂)	34,600	37,200	43,500	50,600	33,559
Graphite e/	200	200	--	--	--
Gypsum e/	--	380 3/	400	400	400
Lithium minerals:					
Amblygonite	20	5	5	5 e/	3
Lepidolite	33	93	87	90 e/	106
Petalite	1,140	1,060	647	650 e/	2,502
Total	1,193	1,158	739	745 e/	2,611
Salt 5/	141,000	115,000	133,000	400,000 e/	500,000 e/
Semiprecious stones:					
Agate	53	100 e/	102	80 e/	115
Amethyst	110	120 e/	100	180 e/	6
Chrysocolla kilograms	5,380	6,480	6,500 e/	6,500 e/	--
Diopase do.	52	35	50 e/	50 e/	--
Quartz, crystal e/	11 3/	50	50	50	--
Rose quartz	314	124	166	170	200
Sodalite e/	50	100	354 3/	400 3/	465
Tourmaline kilograms	1,220	638	600 e/	600 e/	--

See footnotes at end of table.

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

(Metric tons unless otherwise specified)

Commodity	1991	1992	1993	1994	1995
INDUSTRIAL MINERALS--Continued					
Stone, sand, and gravel:					
Granite	7,890	7,310	2,960	3,000 e/	4,518
Marble	10,000	12,300	13,400	15,000 e/	16,935
Quartz e/	100	100	339 3/	350	--
Sulfur, pyrite concentrate:					
Gross weight (49% to 51% S)	127,000	164,000	114,000	122,000	103,140
S content	65,000 e/	80,900	56,900	60,000 e/	51,330
Wollastonite	305	549	824	800 e/	967

e/ Estimated. r/ Revised.

1/ Estimated data are rounded to three significant digits; may not add to totals shown.

2/ Table includes data available through May 31, 1997.

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 1995

(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. (Iscor 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	3 gold.	
Lithium	SWA Lithium Mines (Pty.) Ltd. (Kloekner; Matramco)	30 kilometers south of Karibib	1,500 concentrate.	
Manganese	Purity Manganese (Namibia) Ltd. (private, 100%)	Otjosondu, 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 GmbH, 5%; Government of Namibia, 3.5%; Gencor Ltd., 2.3%)	Rossing, 30 kilometers east of Swakopmund	4,800 uranium oxide.	
Zinc	Incorm Zinc (Pty.) Ltd. (Iscor Ltd., 51%; Moly Copper Mining and Exploration Co.)	Rosh Pinah Mine, 80 kilometers northeast of Oranjemund	40,000.	