THE MINERAL INDUSTRY OF

ISRAEL

By David Izon¹

The mineral industry of Israel was based mainly on the extraction of evaporites from the Dead Sea, phosphate rock mining, the manufacture of fertilizers, and gem cutting from imported stones, particularly diamonds.

Israel was the world's second largest producer of bromine and bromine compounds, the third largest producer of potash, and the seventh largest producer of phosphate rock. The country accounted for about 1% of the world's refractory-grade magnesia, produced from Dead Sea brine.

Israel processed a number of imported raw materials for reexport, such as cut diamond, polished gemstones, fertilizer, petroleum products, inorganic chemicals, and primary metal products. The diamond cutting and polishing trade alone accounted for about 16% of the value of total imports and about 25% of the value of total exports.

Investment by foreign interests was encouraged through the 1990 Investment Encouragement Act. The Government's new minerals right law exempted the Dead Sea Works from obtaining planning permission for a list of specific projects.

Israel continued to encourage foreign private investment and offered favorable tax treatment and full repatriation of capital and profits in addition to other incentive programs under the Investment Encouragement Act as amended in 1990. The Government's industrial expansion program continued with the expansion of the chemicals and construction industries. Several programs were being implemented to create more jobs and train technicians and engineers.

New incentives encouraged import and export businesses as foreign exchange for authorized imports were granted and exporters were permitted to deposit 10% of their foreign currency earnings in foreign banks for up to 1 year. Also, Israeli residents were permitted to keep foreign currency they received from abroad in resident foreign currency accounts and purchase foreign securities on approved stock exchanges.

Although the Government remained committed to privatizing the economy, it has been slow to implement proposed reforms. The Government was engaged in serious negotiations with the Governments of Egypt and Qatar for a 25-year natural-gas supply project for their energy needs. These projects required a combined investment of about \$5 billion.

The Ministry of the Environment was established in 1989 to issue guidelines and regulations for stricter air pollution controls in major cities and industrial areas. The Government

looked to the United States for expertise in this field and generally adopted the U.S. standards, and, in most cases, preferred the U.S. controls. Pollution control equipment was supplied by U.S. companies. These guidelines or regulations provide specific standards for industrywide operations in the country.

The traditional market for Israel's mineral products, particularly in Western Europe and North America, remained slow, mainly owing to the relatively sluggish economies in these regions. Israel was one of the most trade-dependent countries in the world, with more than 55% of the country's gross domestic product dependent on trade. The major mineral commodities traded were mostly evaporites for chemicals, fertilizers, salt, and cut and polished gemstones, particularly diamond.

Israel's most important trading partners were the European Union (EU) and the United States, accounting for two-thirds of all exports and imports. Israel's key exports to the United States was polished diamonds, other gemstones, and metals. Imports from the United States included transport equipment, chemicals, rough diamonds and precious stones.

The Government was still the principal owner of most of the country's mineral-related industries. The diamond cutting and polishing industry was privately owned as were the cement and potassium nitrate manufactures.

Production for most of Israel's fertilizer products rose by about 10% in 1994. Potash production declined slightly in 1994. Production of potassium nitrate also declined due to a fire that damaged a unit of the Haifa Chemicals' plant at Mishor Rotem. (See table 1.)

The total evaporite industry employed about 5,000 workers at many sites throughout the country, mostly along the Dead Sea and in the Negev Desert. The diamond processing industry employed about 9,000 persons.

The main cement producer in Israel, Nesher Israel Cement Enterprises Ltd. (Nesher), put cement production at same level as 1993 at 1.38 million metric tons per year (Mmt/a). Cement imports for 1994 were down by about 50% from 1993 at 40,000 tons. All cement produced was for domestic consumption. Work on a 1-Mmt/a clinker line at the Ramala plant was commissioned in July 1994, at a cost of \$135 million. The plant capacity is expected to be increased to 1.5 Mmt/a on its second stage of development. A new 10,000-mt cement silo was installed at Har-Tuv. Palletizing equipment also was installed that would allow Nesher to market cement

in 50-kilogram bags.

Israel does not produce diamonds but cuts and polishes imported rough diamonds and gemstones. These polished diamonds were exported mainly to the United States and the Pacific Rim countries. Israel purchased most of its diamonds through De Beers' Central Selling Organization. Annual imports of rough diamond accounted for about 20% of world sales and about 10 million carats of diamond.

Israel Chemicals Ltd. (ICL) controlled most of the Dead Sea-based evaporite minerals industry. According to the Government, 25% of ICL's shares were sold to an Israeli industrialist in 1994. ICL operated several subsidiary companies, such as Dead Sea Works (DSW), a leading producer of magnesium chloride, and potassium chloride, and Dead Sea Bromine Group (DSBG), which mainly produced bromine and bromine compounds. Earlier in 1994, ICL separated DSBG from DSW.

DSW's net profits were up by 54% owing to higher potash prices on international markets in 1994, with a total sales figure of \$296 million. Production was was about 2.1 Mmt, a slight decline from 2.18 Mmt in 1993.

DSBG's planned \$11.5 million expansion of its bromine plant at Sdom continued in 1994. The new plant, scheduled to come on-stream in 1995, would increase the group's bromine production by 40,000 mt/a to 180,000 mt/a. According to DSBG, the unit would incorporate all improvements and new innovations that were developed at DSW and utilize the latest technology for waste treatment. Some of ICL's other subsidiaries were Dead Sea Periclase Ltd. and Rotem Amfert Negev Ltd.

The Government planned to sell about 57% of ICL's shares by yearend 1995. This was in accordance with privatization plans for ICL and its subsidiaries. The Government signed an agreement between the Ministry of Finance and five other ministries that permitted subsidiaries of DSW to proceed with investment and development programs without being subject to building and development licenses. Several expansion programs for ICL's subsidiaries were being implemented in 1994.

The supply of bromine, chlorine, potash, and magnesium salts from Dead Sea brine was virtually unlimited. Reliable information on Israel's phosphate reserve base was not available.

Israel had 4,500 kilometers (km) of roads, the majority of which was paved. There were three ports at Ashdod, Elat and Haifa. A total of 708 km of pipelines carried crude oil from the Port of Elat, on the Gulf of Agaba, to the Haifa and

Ashdod oil refineries. There were also 89 km of natural gas pipelines and 290 km of pipelines carrying refined petroleum products. About 85% of the traffic on Israel's 594-km rail system was involved in the transport of potash and phosphate materials from the Dead Sea and the Negev Desert to the Ports of Ashdod and Haifa.

The mineral industry in Israel is expected to continue experiencing significant economic growth for the next decade as the country continues to improve its relationship with neighboring Arab States. Because of the warming of regional relations, the Government decided to shift its dependence from coal and oil for producing electricity to regional sources of natural gas.

Israel's continued high levels of unemployment may begin to decline because of the decline in influx of immigrants from the former Soviet Union. However, the immigrants provide a growing skilled work force, which, coupled with increasing regional political stability, should benefit the economy in the long run. Israel's economic success could be attributed to its ability to utilize its abundant work force. Expansion programs in the cement, fertilizer, gem cutting, and salt industries should translate into increased jobs. Israel's mineral industry is expected to remain export-oriented and continue to fluctuate with world commodity prices. Its economic growth could increase the domestic consumption of mineral commodities. Trends to export higher-valued mineral products, such as custom fertilizers, technical-grade chemicals, and other high-tech specialty items, should continue.

Other Sources of Information

Central Bureau of Statistics, Tel Aviv: Monthly Bulletin of Statistics.

Israel Economist International Enterprises, Jerusalem: The Israel Economist, monthly. Office of Technical Data Services Geological Survey of Israel 30 Malkhe Yisrael Street Jerusalem 95501 Israel.

¹Text prepared July 1995.

 $^{^2}$ Where necessary, values have been converted from new Israeli shekels (NIS) to U.S. dollars at the rate of NIS4.41=US\$1.00 in Dec. 1994.

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

(Metric tons unless otherwise specified)

Commodity 3/		1990	1991	1992	1993	1994 e/
METALS						
Iron and steel: Steel, crude		144,000	160,000	160,000	100,000	100,000
INDUSTRIAL MINERALS						
Bromine:		120.000	425.000	425.000	420.000	420.000
Elemental		130,000	135,000	135,000	130,000	130,000
Compounds		120,000	125,000	125,000	121,000	121,000
Cement, hydraulic		2,870	3,550 e/	3,500	3,500	3,500
Clays:	thousand tons					
Bentonite		4/	4/	4/	4/	4/
Flint clays		14,000	30,000	30,000	40,000	40,000
Kaolin		42,200	53,000	53,000	40,000	40,000
Other		6,800 r/	3,000	3,000	8,500	8,500
Fertilizer materials, manufactured:		42.000	22.000	22.000	20.542	20.000
Nitrogenous: N content of ammonia and urea		42,000 r/	33,800	33,800	38,743	38,000
Phosphatic: P content		25,800	23,500	23,400	30,363	30,300
Potassic: K content		20,900	18,600	18,600	16,007	16,000
Gypsum e/		38,000	22,500 5/	25,500	25,500	25,500
Lime e/		230,000	208,000	208,000	210,000	210,000
Magnesia, Mg content	.1 1.	38,600 r/	38,600	38,600	42,223	42,200
Phosphate rock:	thousand tons					
Beneficiated	do	3,520	3,370	3,595 5/	5,787	5,780
P2O5 content	do	1,100	1,070	1,125	1,794	1,790
	million metric tons	1,310 r/	1,320	1,300	1,309	1,300
Salt, marketed (mainly marine)		426	1,120	605	1,123	1,120
Sand:	thousand tons	0.4.000	60.000	100.000	02.000	02.000
Glass sand	do	84,800	60,000	100,000	83,000	83,000
Other e/	do	4,620 5/	6,400 5/	7,012	7,063	7,060
Sodium and potassium compounds: Caustic soda e/		31,600 5/	32,200 5/	32,200	32,200	32,200
Stone: e/		4 5 400 77	45.400.57	45.400	24.545	24 500
	nousand metric tons	16,400 5/	17,100 5/	17,100	31,515	31,500
Dimension, marble	do	8,000 5/	12,000 5/	12,000	12,000	12,000
Sulfur:						
Byproduct from petroleum e/	thousand tons	64 r/	66	60	60	60
Sulfuric acid	do.	154	136	130	130	130
MINERAL FUELS AND RELATED MATERL						
	usand cubic meters	20.000 /	22.200	22.200	22.200	22.200
Gross	do.	39,900 r/	32,300	32,300	32,300	32,300
Dry	do	39,900 r/	32,300	32,300	32,300	32,300
Peat		4/	4/	4/	4/	4/
Petroleum:						
	nd 42-gallon barrels	94 r/	82	80	80	80
Refinery products:						
Gasoline	do	12,200	12,700	12,700	12,700	12,700
Kerosene and jet fuel	do.	6,100	6,400	6,400	6,400	6,400
Distillate fuel oil	do	16,400	17,100	17,100	17,100	17,100
Residual fuel oil	do.	4,400	15,000	15,000	15,000	15,000
Other	do.	4,600	4,800	4,800	4,800	4,800
Refinery fuel and losses e/	do.	1,900	2,000	2,000	2,000	2,000
Total	do.	55,600	58,000	58,000	58,000	58,000

e/ Estimated. r/ Revised.

^{1/} Table includes data available through Sep. 14,1994.
2/ Previously reported and 1994 data are rounded by the U.S. Bureau of Mines to three significant digits; may not add to totals shown.
3/ In addition to the commodities listed, a variety of other crude construction materials are produced, but available information is inadequate to make reliable estimate of output levels.

^{4/} Revised to zero.

^{5/} Reported figure.