THE MINERAL INDUSTRY OF

YEMEN

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The Nation's mineral industry was dominated by crude oil production. Other mineral output included dimension stone, gypsum, salt, and the manufacture of cement. Development of natural gas reserves of the Marib al Jawf region were closer to implementation. Plans called for a liquified natural gas (LNG) plant with a projected annual capacity of 5 million metric tons (Mmt). In 1994, 30 petroleum exploration concessions were active, covering about one-half of the Nation's land mass.

Originally scheduled for 1992, the unified republic's first general Parliamentary election was held on April 27, 1993, which inflamed political and tribal rivalries to a civil war lasting from May until July 1994. While disruptions at petroleum production facilities were minimal, the Aden refinery suffered damage to five storage tanks, a pumping unit and two distillation tapping units

Crude oil production averaged 240,000 barrels per day (bbl/d) in 1993, rising to nearly 340,000 bbl/d in 1994. The increased output, for the most part, was derived from the Masila and Marib al Jawf Fields, while production from Shabwa was virtually constant, averaging less than 5,000 bbl/d. *(See table 1)*.

The Government liberalized import regulations for a number of commodities related to the construction and agricultural industries. These included cement, iron and steel manufactures, and fertilizers. Individual import licenses have the following ceilings: 15,000 metric tons (mt) for cement, $600,000 for iron products, and $350,000 for fertilizers.

Petroleum accounted for nearly four-fifths of the Republic of Yemen's total export earnings. Additional revenue was realized when the Masila Fields came on-stream, augmenting exports by approximately 60 million barrels (Mbbl). Total petroleum exports in 1994 exceeded 100 Mbbl. Although most of these exports were destined for Asian markets, the United States imported 8.8 Mbbl of crude and unfinished oils and 0.7 Mbbl of residual fuel oil in 1994. The value of imported raw materials and consumer goods, however, continued to exceed export earnings.

The Republic of Yemen formulated mining legislation guaranteeing the rights of private property in the mining of most mineral commodities. The royalty rate due to the Government in any mining operation is 5% on precious metals and 3% on all other minerals. The precious stone and hydrocarbon industries remained the exclusive domain of the Government. In an effort to accelerate exploration and development, the Government entered into multiple-exploration and production-sharing agreements with private companies offering both expertise and capital.

Two mineral prospecting permits were awarded to Cluff Abela Minerals (Yemen) Ltd. The first covered 3,100 square kilometers (km²) in the northern region near Sadah, where previous prospecting outlined several near-surface gold occurrences. The second covered 5,500 km² in the south near Tabaq and Awdah, where lead, zinc, and silver in carbonate terrain were under investigation. The Madden gold deposit 50 kilometers (km) west of Al Mukalla was being further defined as to the distribution of the ore zone. Under exploration carried out by the U.S.S.R. in the mid-1980's, the deposit was estimated to contain 23 mt of gold to a depth of 550 meters (m) at an average mineralized grade of 11 to 12 grams per metric ton.

The Yemen Corp. for the Production and Marketing of Cement awarded a design and construction supervision contract for the turnkey Al Buh cement works near Mafrag. The 500,000 metric-ton-per-year-(mt/a) capacity cement plant was financed by Japan's Overseas Economic Cooperation Fund at $145 million. Completion of this project should bring the Nation's total annual cement production capacity to 1.25 Mmt. Existing plants, the Japanese built 500,000-mt/a-capacity Amran plant and the 300,000-mt/a-capacity Bajil plant, were being considered for modernization and expansion. The natural gas reserves of the Marib al Jawf Fields were to be developed by a consortium likely to include the U.S.-based Enron Corp., Hunt Oil Co., and Exxon Corp. Plans call for the construction of a natural gas liquefaction plant with the capacity to produce 5 Mmt/a of LNG as part of an integrated gas export project, estimated to cost $5.4 billion.

The Yemen Exploration and Production Co. (YEPC), averaged more than 185,000 bbl/d of 40.4° API gravity crude oil from the Marib al Jawf region. Associated natural gas was separated and stripped of natural gas liquids. The remaining gas was reinjected at the rate of 18 million cubic meters per day. Production from the Canadian Occidental Petroleum's Masila Fields averaged about 155,000 bbl/d of 30.5° API gravity crude oil.

The Aden refinery was to undergo a modernization program, including the installation of new processing units and storage facilities. The Aden Refinery, operated at less than 40% of its 160,000-bbl/d capacity before damage was

sustained during the 1994 civil war. Output reached 70,000 bbl/d by the close of 1994 with the restoration of the main pumping station and two tapping units. The refinery throughput included contract crude oil from Iran, Malaysia, and Oman.

The combined estimated proven crude oil reserves of the Republic of Yemen were reported at 4 billion bbl. Natural gas reserves were reported at 565 billion cubic meters (m^3), of which 200 billion m^3 were proven reserves in the Marib al Jawf region.

Three pipelines service the petroleum industry bringing export crude to the Red Sea and to the Gulf of Aden. A 438-kilometer (km) pipeline brought crude from the Marib oilfields to the floating oil export terminal at Ras Isa on the Red Sea. A 204-km pipeline connected the Shabwa Fields to Al-Huwaymi terminal on the Gulf of Aden. A third export pipeline, opened in September 1993, transported crude oil 150 km from the Masila Fields to the export terminal near Ash Shir.

Liberalized exploration laws and investment regulations have attracted not only foreign oil companies with development financing but metallic mineral exploration groups as well. The prospect of further commercial finds is a realistic one. However, the key to realizing this potential is stability.

[1]Text prepared July 1995.

Major Sources of Information

The Petroleum and Mineral Resource Ministry Sanaa, Republic of Yemen

The Ministry of Economy, Supply, and Trade Sanaa, Republic of Yemen

TABLE 1

REPUBLIC OF YEMEN: PRODUCTION OF MINERAL COMMODITIES 1/ 2/

Commodity		1990	1991	1992	1993	1994 e/
Cement	thousand metric tons	828	850	800	800	500
Gypsum	metric tons	66,000	100,000	80,000	80,000	80,000
Natural gas:						
Gross e/	million cubic meters	20,000	50,000	80,000	100,000	100,000
Liquids	thousand 42-gallon barrels	9	25	40	2,600	2,600
Petroleum:						
Crude	do.	73,000	72,100	64,600	87,600	124,000
Refinery products:						
Gasoline	do.	2,900	6,000	9,600	10,000	8,000
Kerosene	do.	1,300	2,000	4,900	4,500	3,000
Distillate fuel oil	do.	9,500	9,000	13,700	13,000	11,000
Residual fuel oil	do.	10,400	10,400	15,500	15,500	12,000
Other e/	do.	3,100	2,500	2,500	2,000	1,000
Total	do.	27,200	33,500	46,200	45,000	35,000
Salt e/	metric tons	220,000	250,000	280,000	280,000	280,000
Stone: Dimension e/	cubic meters	410,000	410,000	410,000	410,000	410,000

e/ Estimated.

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 July 15, 1995.