THE MINERAL INDUSTRY OF

QATAR

By David Izon[1]

Qatar produced less than 1% of the world's output of crude oil in 1994, its major mineral product, along with natural gas. The Government sought to develop the North Field by studying the expansion of two existing joint ventures to streamline the liquefied natural gas (LNG) program. Development of the North Field's phase 1 and phase 2 gas projects was expected to determine the economic future of Qatar. The huge nonassociated gas reserves of the North Field were considered to be the largest in the world at about 6.7 trillion cubic meters (m^3). Qatar's economy continued to be largely dependent on the oil industry, which accounted for more than 28% of a gross domestic product of about $8.8 billion[2] in 1994. Oil- and gas-related exports dominated the external trade sector and generated about 90% of Government revenues and 95% of mineral exports.

The Government's shipping company acquired more ships to boost the country's capacity to handle its shipping needs, particularly for LNG. It transported petrochemicals, fertilizers, steel bars, and other locally manufactured goods to and from overseas markets. The Government stepped up measures to attract foreign and local investors to participate in the economy, particularly in the natural gas industry. The investment laws of 1980 were amended to allow foreign equity participation in private-sector joint ventures.

The Government focused more attention on the development of the North Field gas projects. Gas was to be the main energy source and feedstock, such as at Ras Laffan industrial city. Also, expansion of facilities at Umm Said was mostly dependent on the North Field developments. The Government signed several contracts and agreements on LNG and petrochemical projects.

The Government, through Qatar General Petroleum Corp. (QGPC), was involved in two major ventures; both were at Ras Laffan, the nearest landfall to the North Field. The LNG export terminal and liquefaction plant were currently under construction. Mobil Corp. of the United States and QGPC also signed an agreement to establish a second LNG venture in Ras Laffan, in which QGPC held a 70% share and Mobil, 30%. Mobil would be the operator of the facility, scheduled to start production in 1998 at 10 million metric tons per year (Mmt/a). The Chamber of Commerce and Industry's standing committee continued to act as intermediary between the Government and business to promote the role of the private sector in industry and boost economic activity.

The Government encouraged foreign investments. Foreign investors entering into joint ventures with Qatari partners could hold a maximum 49% share of the business. Importers were required by law to have an import license for almost all products, but import licenses were issued only to Qatar citizens. Even in the case of joint ventures, the import license was issued to the Qatari partner. Although wholly foreign-owned firms were allowed to operate in Qatar, they had to have a local sponsor. Investment in major chemical, oil and gas, and steel industries were restricted to the Government through QGPC and specialized international firms.

Production of nonfuel minerals such as cement, fertilizer, and steel increased. Cement was produced from domestic and imported clinker. Production in excess of plant capacity at the steel and fertilizer facilities continued and stemmed from minor technological improvements made at the plants. Also, the frequency and length of shutdown and maintenance time was reduced significantly to meet demand. *(See table 1.)*

Qatar's mineral economy continued to be largely dependent on the oil sector. Oil exports accounted for about 90% of Government revenue and other about 95% of export earnings. Qatar continued to sell crude oil and refined products under term contracts to Japan and the other Far Eastern countries. The country's major trading partners, in order of importance, outside its neighbors were Japan, South Korea, Brazil, Western Europe, and the United States. Qatar also traded its other commodities, such as cement, fertilizer, and iron and steel, to neighboring Gulf countries. Qatar imported pelletized iron ore from Bahrain and equipment and raw materials for the steel and construction industries from Japan, Western Europe, and the United States. Other imports from the United States included power generating machinery and equipment, nonferrous metals, such as copper and copper alloys, aluminum semimanufactures, zinc and zinc alloys, vehicles, and heavy machinery.

Qatar's mineral industry continued to be dominated by the oil and gas sector. In 1994, about 25% of the labor force of about 1,700 was employed in oil-related industries. The 600,000-metric-ton-per-year (mt/a) aluminum smelter's new equity partners with the Government included Trafalger House, Glynweld International, Southwire Group, and British Aerospace, all of the United Kingdom. The only known company without any Government interest was Al Jabor, a sponge iron plant with a capacity of 1.2 Mmt/a. Its joint-venture partners were Ferrostal of Germany (35%) and an Indian group (30%). Al Jabor owned a 35% interest in the company.

Qatar Steel Co. Ltd. (QASCO) has produced about 80%

above design capacity of 330,000 mt since 1989 and continued with production above capacity of 87% in 1994. Almost all of its output (90%) was exported to Gulf Cooperation Council States (GCC) and to international markets. The remaining 10% was sold to domestic markets. The administrative, marketing, and technical operations of the company were entirely Qatari managed since May 1992. It distributed 3% of its annual profits to the employees. QASCO remained 70% owned by the Government, with 30% held by two Japanese companies, Kobe Steel (20%) and Tokyo Boeki (10%). The shareholders continued to act as consultants to QASCO, with Kobe Steel handling the technical aspects and Tokyo Boeki, the production and marketing. QASCO has embarked on a two-stage expansion program that would increase its capacity by 650,000 mt/a at a cost of $275 million. In the first phase, the existing plant would be modernized and upgraded to increase production capacity by 150,000 mt/a and, in the second phase, a new unit with a capacity to produce 500,000 mt/a would be installed. Total capacity at completion was expected to reach 1.2 Mmt/a. The expansion was expected to start in parallel with Qatar Electricity and Water Co.'s increase in local generating capacity. Qatar anticipated utilizing most of the less expensive gas from its North Field.

Two industrial development activities of the Government were yet to take off owing to disagreements with the foreign partners. The planned 193,000-mt/a aluminum smelter collapsed after the foreign partner, Davy McKee of the United Kingdom, pulled out because of a disagreement over the price of gas supplies from the North Field. Another project that was not developed was the Qatar Ferroalloy Smelter. The smelter was originally planned to produce 100,000 mt/a of ferromanganese, 70,000 mt/a of silicomanganese, and 60,000 mt/a of ferrochrome at a cost of $300 million. However, the plan was scaled down to produce only ferromanganese at a cost of $200 million, but had not come to fruition.

Qatar Fertilizer Co. (QAFCO), the sole producer of fertilizer, was a 75-25 joint venture of Qatar General Petroleum Corp. and Norsk Hydro of Norway, respectively. QAFCO's $500 million expansion project moved closer to fruition after a letter of intent was signed by QAFCO and a consortium of Uhde of Germany and Belleli of Italy. Completion of QAFCO III, a 1,500-metric-ton-per-day (mt/d) ammonia and 2,000-mt/d urea plant, was planned for 1997. Total annual capacity at the plant for ammonia would be raised from 750,000 mt to 1.3 Mmt, and for urea from 820,000 mt to 1.55 Mmt. Other components of the project included an ammonia tank farm with a capacity of 20,000 mt, a 100,000-mt urea storage facility, a desalination plant with an hourly thoroughput of 110 mt, a 42 megawatt powerplant, and the construction of a jetty and seawater intake system. Uhde would carry out the project's design and engineering, together with supply of equipment, while the Italian partner would undertake fabrication of units and on-site construction. The facility would use Uhde's process for ammonia production and Stamicarbon's for urea. QAFCO also appointed Eurotenica of Italy to conduct a feasibility study for a planned 20,000-mt/a melamine project. The $60 million project would be built at Umm Said, next to the QAFCO plant.

Qatar Liquefied Gas Co. (Qatargas) was established in 1984 to develop the North Field for the production of natural gas and condensate and to build and operate a gas liquefaction plant to produce LNG for export. Several projects were undertaken, entailing the development of the North Field to provide feedstock for such gas liquefaction facilities as the LNG plant, tankers, port, and powerplants. Qatar was expected to become a major gas exporter at the turn of the century. Sale of gas by pipeline also was being studied. Supply of 4 Mmt/a of LNG to Chubu of Japan, finalized in early 1994, was scheduled to start in January 1997.

Mobil Oil Corp. of the United States replaced British Petroleum Co. in development of phase 2 of the North Field LNG project. Mobil's share held at 10%, but Mobil took a 30% share in a new venture with QGPC at Ras Laffan (RASGAS) to start production of 10 Mmt/a of LNG after 1998. Construction work for phase 2 progressed in 1994 and completion was scheduled for 1997. The U.S. firm's "Air Process" was selected for use at the LNG plant. RASGAS had signed sales agreements with the Korea Gas Corp., the Chinese Petroleum Corp. of Taiwan, and Enron Corp. of the U.S. for a total of about 7 Mmt/a to 8.5 Mmt/a of LNG.

Qatar continued to develop its infrastructure, although the petroleum and natural gas transportation facilities were already quite modern. There were 235 kilometers (km) of petroleum and 400 km of natural gas pipelines, running east to west from Doha to Dukhan, and from Umm Said through Umm Bab to Dukhan. Other pipelines also linked offshore fields in the Persian Gulf to Umm Said. Crude oil and gas exports were from four terminals: Halul Island, which served the offshore fields; Umm Said, which served the onshore fields; and Ras Abu Abbud and Abu Hamur, which were used for refined products. Major cargo ports were at Ad Dawhah and Musayid. The construction of the new port at Ras Laffan was expected to provide a center for exploitation of natural gas from the offshore North Field.

The North Field gas projects were to be given top priority because of an abundance of natural gas and the expected growth in demand worldwide. Development of the gasfields to full capacity by 2010 remained an urgent program that should guarantee its economic well-being into the next century. Electricity generating facilities of European and Far Eastern countries were particularly targeted because of the high demand from this part of the world, the low price of gas, and the limited effect on the environment. The addition of Mobil Oil Corp. to the LNG project was expected to prove beneficial to Qatargas. Qatar was expected to be exporting gas by pipeline to southern Asia by the end of the decade, if talks to supply gas by pipeline to Israel and to Europe through Israel come to fruition. The implementation of the $2 billion project depended on feasibility studies

underway and on the progress made in the Middle East peace negotiations.

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[1]Text prepared Aug. 1995.

[2]Where necessary, values have been converted from Qatari riyals (QRls) to U.S. dollars at the rate of QRls3.64=US$1.00 in 1994.

Other Sources of Information

Qatar General Petroleum Corp.
P.O. Box 3212
Doha, Qatar
Telephone: 491491
Fax: 831125

National Oil Distribution Co.
P.O. Box 50033
Umm Said, Qatar
Telephone: 776555
Fax: 772880

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

(Metric tons unless otherwise specified)

Commodity 3/		1990	1991	1992	1993	1994
Cement, hydraulic		267,000	526,527	544,348	544,000	544,000
Gas, natural:						
Gross	million cubic meters	7,500	8,000	12,000	17,500	18,000
Dry	do.	6,800	7,200	10,800	15,750	16,000
Iron and steel: Metal:						
Direct-reduced iron	thousand tons	530	530	567	601	610
Steel, crude	do.	580	561	588	610	620
Semimanufactures	do.	540	540	588	609	610
Natural gas liquids	thousand 42-gallon barrels	14,600	18,300	18,300	18,200	18,200
Nitrogen:	N content of ammonia	584,000	569,000	622,000	621,000	621,000
Petroleum:						
Crude	do.	148,000	143,000	155,000	152,000	153,000
Refinery products:						
Gasoline	do.	4,750	4,750	4,750	4,700	5,000
Jet fuel	do.	3,800	3,800	3,800	3,800	4,000
Kerosene	do.	1,710	1,710	1,700	1,700	2,000
Distillate fuel oil	do.	6,180	6,170	6,100	6,100	6,200
Residual fuel oil	do.	7,600	7,500	7,500	7,500	8,000
Other 4/	do.	1,800	2,000	2,000	2,000	2,000
Total	do.	25,800	25,900	25,900	25,800	26,000
Stone: Limestone e/	thousand tons	810	850	900	900	900
Sulfur		50,000	40,000	60,000	60,000	61,000

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 Aug. 1995.
3/ In addition to the listed commodities, Qatar also produced clays, gypsum, and sand and gravel for construction purposes.
4/ Includes refinery fuel and losses.