THE MINERAL INDUSTRIES OF THE MIDDLE EAST

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The 15 nations of the Middle East that are covered in this volume encompass an area of more than 6 million square kilometers, which is about two-thirds the size of the United States and about 4% of the world's land mass. According to the World Bank Group (2005§[1]), in 2004, the total population of the Middle East region was estimated to be about 256 million compared with 294 million for the United States and 6.3 billion for the world. Production and processing of crude oil and natural gas were the foundations upon which the economies of most of the countries in the region (Bahrain, Iraq, Iran, Kuwait, Oman, Qatar, Saudi Arabia, Syria, United Arab Emirates, and Yemen) were based. Production of metals and industrial minerals in Iran and Turkey also was significant.

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For mineral production statistics—

- Bahrain—Ministry of Oil;
- Cyprus—Mines Service of the Ministry of Agriculture, Natural Resources, and Environment;
- Iran—Iranian Mines and Mining Industries Development and Renovation Organization;
- Israel—Mines Authority of the Ministry of National Infrastructures;
- Jordan—Natural Resources Authority;
- Qatar—Ministry of Energy and Industry; and
- Turkey—State Institute of Statistics.

For basic economic and population data—

- The International Monetary Fund and the World Bank Group in the United States.

General Economic Conditions

The Middle East was a major supplier of hydrocarbons to the world market. In the region, the economies of the oil-producing nations were buoyed and the economies of oil-import-dependant nations adversely affected by the continued high international market prices for crude oil and natural gas. Total exports of the nations that encircle the Persian Gulf were dominated by hydrocarbons. Much of the region's natural gas and oil export production was shipped to Asia.

The abundance of locally produced natural gas, access to ocean transportation, and the availability of low-cost electrical energy encouraged the construction of such value-added mineral facilities to the area as direct-reduced iron plants; energy-intensive mineral-processing operations, which included aluminum smelting; and petrochemical establishments, which included fertilizer plants. Expansion of the nonfuel minerals sector was supported by the national Governments of the region, which strongly endorsed the diversification of their respective economies into non-oil sectors.

The area's booming demand for consumer products was driven by the region's fast-growing, youthful population. The regional trend toward increased population and the increase in income associated with the high international oil prices spurred numerous construction sector projects; these included commercial office buildings, industrial (especially petrochemical) facilities, retail centers, residential housing, and the infrastructure necessary to support the new buildings and facilities.

Investment Data and Political Risk

State-owned companies dominated the Middle East's mineral industry, although foreign investment was finding its way into the mineral sector. Proposed construction or expansion projects in the region included an alumina refinery, aluminum smelters, ammonia and urea plants, cement plants, coke manufacturing plants, crude oil refineries, liquefied natural gas (LNG) plants, methanol plants, natural-gas-processing plants, and natural-gas-to-liquids facilities.

Government-funded expansion of copper mining and refining capacity continued in Iran, and additional iron-and-steel-processing facilities were proposed for several countries in the region. Progress was made on the privately funded development of copper reserves in Oman, foreign-investor- and Government-funded development of gold resources in Iran, internationally funded development of gold resources in Turkey, Government-funded development of gold resources in Saudi Arabia, foreign-investor-funded development of nickel resources in Turkey, Government-funded development of phosphate resources in Saudi Arabia, and Government- and internationally-funded development of zinc resources in Iran and Yemen.

The attempted reconstruction of Iraqi infrastructure and the continued international demand for minerals, especially natural gas and oil, fueled the continued domestic, foreign, and Government investment interest in the mineral operations in the area. Surplus petrodollars also found their way into general investments outside the region. In 2004, funds that originated in the Middle East accounted for about $1.2 billion of foreign investment that was provided to companies in the United States compared with $42 million from the Middle East in 2004 (Blustein, 2006).

Legislation

A new mining investment law was promulgated in Saudi Arabia in 2004. Changes in laws and regulations concerning foreign participation in the oil industry remained under discussion in Kuwait.

[1]References that include a section mark (§) are found in the Internet References Cited section.

Exploration

Exploration activity was most notable in Iran, Turkey, and Yemen (see table 3). Industrial mineral and metal exploration and prospecting also were underway in Cyprus, Jordan, Oman, and Saudi Arabia. Local and international exploration companies were allowed to explore for minerals in most countries of the region. Government agencies engaged in mineral prospecting and general exploration included the Geological Survey of Iran, the Department of Geological Survey of the Directorate General of Minerals in Oman, the Saudi Geological Survey, the General Directorate of Mineral Research and Exploration in Turkey, and the Geological Survey and Mineral Resources Board of Yemen.

Crude oil and natural gas exploration was undertaken by Government and international oil companies. In 2004, hydrocarbon exploration continued in Bahrain, Iran, Israel, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Syria, Turkey, the United Arab Emirates, and Yemen.

Commodity Overview

he Middle East has significant reserves of boron minerals, crude oil, natural gas, and phosphate rock. Estimates for production of major mineral commodities for 2007 and beyond have been based upon supply-side assumptions, such as announced plans for increased production/new capacity construction and bankable feasibility studies. The outlook tables in this summary chapter show historic and projected production trends; therefore, no indication is made about whether the data are estimated or reported and revisions are not identified. Data on individual mineral commodities in tables in the individual country chapters are labeled to indicate estimates and revisions. The outlook segments of the mineral commodity tables are based on projected trends that could affect current (2004) producing facilities and on planned new facilities that operating companies, consortia, or Governments have projected to come online within indicated timeframes. Forward-looking information, which includes estimates of future production, exploration and mine development, cost of capital projects, and timing of the start of operations, are subject to a variety of risks and uncertainties that could cause actual events or results to differ significantly from expected outcomes. Projects listed in the following section are presented as an indication of industry plans and are not a USGS prediction of what will occur.

Metals

Alumina and Bauxite and Aluminum.—Regional aluminum production capacity was expected to increase by about 50% by 2007. By 2011, the planned construction of new potlines or expansion of existing production lines in Bahrain, Iran, Qatar, Saudi Arabia, and the United Arab Emirates was projected to increase regional aluminum capacity by about 140% compared with that of 2004. This capacity expansion was expected to greatly increase the region's alumina import requirements. In Saudi Arabia, the planned Az Zabirah project of the Saudi Arabian Mining Company (Ma'aden) would have the largest capacity of all the new aluminum projects in the region. Unlike most of the other aluminum projects in the region, which smelted imported alumina, the Az Zabirah project also included a mine to supply bauxite and a refinery to produce alumina. In Turkey, the proposed expansion of the Seydisehir aluminum smelter to 110,000 t/yr from 60,000 t/yr could be postponed again if the next attempt to privatize the smelter (in 2005) is successful (Mining Journal, 2001).

Copper, Gold, and Iron and Steel.—The Government of Iran's Fourth Five-Year Development Program (2005 to 2010) accounted for much of the region's planned expansion of copper ore (capacity expansions at the Dareh Zereshk and the Songun Mines), refined copper (expansion of the Sarcheshmeh Refinery), gold (development of the Zarshuran Mine), iron ore (capacity expansions at the Chadormalou, the Chah Gaz, the Gol-e-Gohar, the Kalal Abad-e Zarand, and the Sangan Mines), iron and steel (expansion of the Isfahan, the Khuzestan, and the Mobarekeh steel plants; construction of the Azarbayjan and the Hormozgan steel plants), lead and zinc ore, and zinc metal (Iranian Mines and Mining Industries Development and Renovation Organization, 2005).

Non-Iranian additions to projected regional output included that of Çayeli Bakir İşletmeleri A.Ş., which expected to produce, concentrate, and export additional copper from its mine in Turkey, and Saudi Arabian Mining Company (Ma'aden), which expected to increase gold production from the Al-Hajar and the Bulghah Mines and, in 2006, to start mining operations at the Al-Amar Mine.

Nickel.—In Turkey, European Nickel PLC proposed to start up a heap-leach operation at the Caldag deposit in 2007. The company planned to export (for additional processing) the nickel-cobalt hydroxide that it expected to recover.

Industrial Minerals

Phosphate Rock.—The Middle East region accounted for about 9% of the world's phosphate rock production in 2004. Initial production from the 1.4 million-metric-ton-per-year-capacity Al Jalamid deposit in Saudi Arabia was expected to begin in 2008. In Jordan, the planned expansion of the Shidiya Mine would significantly increase national production by 2011.

Mineral Fuels

International demand for crude oil, natural gas, and refined petroleum products and the continued surge in international prices for natural gas and oil during 2004 sustained the economies of the oil-producing nations of the region.

Natural Gas.—Natural gas production capacity was expected to be about 40% higher by 2011 compared with that of 2004. The continued development of the North Field, which is located offshore Qatar, and the South Pars gasfield, which is an extension of the North Field that is located offshore Iran, accounted for much of the capacity expansion.

Construction of several additional LNG trains in the Middle East region was planned, including the plants of the Pars LNG joint venture and the Persian LNG joint venture in Iran; the Oman Liquefied Natural Gas LLC plant and the Qalhat LNG

Co. S.A.O.C. plant in Oman; Qatar Liquefied Natural Gas Co. Ltd.'s Qatar Gas II and III plants and Ras Laffan Liquefied Natural Gas Co. Ltd.'s Ras Laffan LNG trains 5, 6, and 7 in Qatar, and the Yemen LNG Co. Ltd. production facility in Yemen.

Petroleum.—The expectation that international interest would be focused on the natural gas exploration activities in Saudi Arabia was shattered after significant international attention was diverted to a controversy that concerned the long-term sustainability of Saudi oil production. The continued high international oil prices sustained the media interest in the dispute, which was primarily expounded by an analyst from the United States, about the production capacity and reserves of Saudi Arabian Oil Co. (Saudi Aramco) (Al-Husseini, 2004; Middle East Economic Digest, 2004; Takin, 2004, Morton, 2004§; Simmons, 2004§).

By late 2004, Iraq and Saudi Arabia reportedly were the only nations that had excess crude-oil production capacity. Crude oil production in Iraq was constrained by the sabotage of the oil facilities and pipelines, especially the northern pipeline to Turkey. Despite the international demand for crude oil, Saudi Arabia's high-sulfur-content heavy oil [27° to 29° API on the American Petroleum Institute (API) density scale], which comprised a significant portion of Saudi Aramco's excess capacity, remained difficult to sell. The Kingdom embarked on a program to increase production capacity to 12.5 million barrels per day (Mbbl/d), which would allow Saudi Arabia to maintain from 1.5 to 2 Mbbl/d of excess production capacity that could offset unexpected international supply disruptions. Most of the other planned increase in production capacity in the region was attributed to new oilfield development in Iran (Petroleum Economist, 2005; U.S. Energy Information Administration, 2004§).

In 2004, 5 of the 14 leading oil-producing nations were located in the Middle East. Saudi Arabia was ranked 1st in oil production in the world; Iran, 4th; the United Arab Emirates, 10th; Kuwait, 11th; and Iraq, 14th. Iran, Iraq, Kuwait, Qatar, Saudi Arabia, and the United Arab Emirates were among the world's leading oil exporters (U.S. Energy Information Administration, undated a§).

In 2004, the countries of the Middle East accounted for about 24% of crude oil and 19% of total petroleum (crude oil and refined products) that the United States imported compared to 2003, when the region supplied 26% of U.S. crude oil and 21% of total petroleum imports.

The average free-on-board (f.o.b.) cost of crude oil imports entering the United States from Persian Gulf nations was $33.08 per barrel in 2004 compared with $25.17 per barrel in 2003, $23.38 in 2002, and $18.89 in 2001 (U.S. Energy Information Administration, 2006; undated b§, c§).

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TABLE 1
MIDDLE EAST: 2004 AREAL EXTENT AND ESTIMATED POPULATION

Country	Area[1] (square kilometers)	Estimated population[2] (millions)
Bahrain	665	0.7
Cyprus	9,250	0.8
Iran	1,648,000	66.9
Iraq	437,072	25.3
Israel	26,990	10.3
Jordan	92,300	5.4
Kuwait	17,820	2.5
Lebanon	10,400	4.6
Oman	212,460	2.7
Qatar	11,437	0.6
Saudi Arabia	1,960,582	23.2
Syria	185,180	17.8
Turkey	780,580	71.7
United Arab Emirates	82,880	4.3
Yemen	527,970	19.4
Total	6,003,586	256.1
United States	9,631,418	293.5
World	148,940,000 [3]	6,345.1

[1]Source: U.S. Central Intelligence Agency, World Factbook 2004.

[2]Source: World Bank Group, World Development Indicators Database, July 2005.

[3]Land area.

TABLE 2
MIDDLE EAST: GROSS DOMESTIC PRODUCT IN 2004

Country	Estimated GDP[1] based on purchasing power parity[2, 3]		Real GDP annual percentage change[4]
	Total (billions)	Per capita	
Bahrain	$15	$18,817	5.4
Cyprus	16	19,633	3.7
Iran	519	7,594	5.6
Iraq[3]	90	3,500	52.3
Israel	145	22,077	4.4
Jordan	25	4,383	7.7
Kuwait	43	16,066	7.2
Lebanon	22	5,930	6.0
Oman	37	15,649	4.5
Qatar	22	28,919	9.3
Saudi Arabia	316	13,955	5.2
Syria	68	3,724	3.4
Turkey	530	7,503	8.9
United Arab Emirates	104	23,818	8.5
Yemen	18	736	2.5
Total	$1,970	$7,341	XX
United States	11,605	39,496	4.2
World	55,655	8,771	5.1

XX Not applicable

[1]Gross domestic product (GDP)

[2]Source: International Monetary Fund, World Economic Outlook Database, September 2005.

[3]Table data compiled February 1, 2006; may be different than what is presented in individual country chapters.

[4]Source: U.S. Central Intelligence Agency, World Factbook 2005.

TABLE 3
SELECTED MIDDLE EAST EXPLORATION ACTIVITY IN 2004

Country	Type[1]	Prospect	Commodity	Companies	Resource notes[2, 3]	Exploration notes
Iran	F	Mehdiabad	Zinc, lead, silver	Union Resources Ltd.[4]	15.6 Mt of zinc, 5 Mt of lead, 11,100 t of silver	Feasibility study underway.
Turkey	F	Çaldağ	Nickel, cobalt	European Nickel PLC	430,000 t of nickel, 200,000 t of cobalt	Feasibility study underway.
Do.	E	Çöpler	Gold	Anatolia Minerals Development Ltd.	45,000 kg of gold	Completed 12,000 meter drill program.
Yemen	F	Jabali	Zinc, silver	ZincOx Resources plc	1.1 Mt of zinc, 857 t of silver	Feasibility study underway.

[1]E--Active exploration. F--Feasibility work ongoing/completed.

[2]Resources reported where available based on data from various public sources. Data were not verified by the U.S. Geological Survey.

[3]Abbreviations used for units of measure in this table are as follows: kg--kilogram; Mt--million metric tons; and t--metric ton.

[4]Formerly Union Capital Ltd.

TABLE 4

MIDDLE EAST: PRODUCTION OF SELECTED MINERAL COMMODITIES IN 2004[1]

(Thousand metric tons unless otherwise specified)

	Metals			Industrial minerals					Mineral fuels and related products	
									Petroleum	
Country	Aluminum, metal, primary	Chromite, mine output, gross weight	Steel, crude	Ammonia, N content	Cement, hydraulic	Gypsum	Phosphate rock, gross weight	Potash, K_2O equivalent	Crude, including condensate (thousand 42-gallon barrels)	Refinery products (thousand 42-gallon barrels)
Bahrain	532	--	--	311	153	--	--	--	13,600	92,700
Cyprus	--	--	--	--	1,689 [p]	255 [p]	--	--	--	1,700 [p]
Iran	213	139	8,382	1,088	32,198	12,594	230	--	1,400,000 [p]	545,000 [e]
Iraq	--	--	--	30 [e]	2,515	--	100 [e]	--	738,000	50,000 [e]
Israel	--	--	280 [e]	--	4,494	76	2,947	2,060	14	73,700
Jordan	--	--	135 [e]	--	3,908	135	6,223	1,210	8	29,500 [e]
Kuwait	--	--	--	413	1,600 [e]	--	--	--	880,000 [e]	306,000 [e]
Lebanon[e]	--	--	--	--	2,900	2	--	--	--	--
Oman	--	19	90 [e]	--	2,500 [e]	60 [e]	--	--	285,000	28,900
Qatar	--	--	1,046	1,428	1,400 [e]	--	--	--	287,000 [e]	42,300 [e]
Saudi Arabia	--	--	3,902	1,726	23,200 [e]	450 [e]	--	--	3,540,000 [2]	692,000 [e]
Syria[e]	--	--	70	162	5,450	370	2,883 [3]	--	196,000 [3]	83,200
Turkey	60 [e]	506	19,868	329	38,019	250	--	--	16,300	171,000
United Arab Emirates[e]	683	7 [3]	70	380 [3]	8,000	100	--	--	970,000	160,000
Yemen[e]	--	--	--	--	1,546 [3]	44	--	--	149,000	33,600
Total	1,490	671	33,800	5,870	130,000	14,300	12,400	3,270	8,470,000	2,310,000
Share of world total	4.9%	3.8%	3.2%	5.1%	6.0%	12.6%	8.9%	10.8%	31.2%	8.5%
United States	2,520	--	99,700	8,850 [4]	99,000	17,200	35,800	1,300	1,980,000	6,500,000
World total	30,300	17,700	1,040,000	116,000	2,150,000	114,000	140,000	30,200	27,200,000	27,100,000

[e]Estimated; estimated data, U.S. data, and world totals are rounded to no more than three significant digits. [p]Preliminary. -- Zero or zero percent.

[1]Totals may not add due to independent rounding. Percentages are calculated on unrounded data. Table includes data available as of March 31, 2006.

[2]Includes natural gas liquids.

[3]Reported figure.

[4]Synthetic anhydrous ammonia; excludes coke oven byproduct ammonia.

TABLE 5
MIDDLE EAST: HISTORIC AND PROJECTED BAUXITE MINE PRODUCTION, 1990-2011

(Metric tons)

Country	1990	1995	2000	2004	2007[e]	2009[e]	2011[e]
Iran	100,000	148,000	485,130	419,955	500,000	550,000	785,000
Saudi Arabia	--	--	--	--	--	--	2,800,000
Turkey	773,000	232,278	458,537	365,836	300,000	300,000	300,000
Total	870,000	380,000	944,000	786,000	800,000	850,000	3,900,000

[e]Estimated; estimated data are rounded to no more than three significant digits; may not add to rounded totals shown.

TABLE 6
MIDDLE EAST: HISTORIC AND PROJECTED ALUMINUM PRODUCTION, 1990-2011[1]

(Metric tons)

Country	1990	1995	2000	2004	2007[e]	2009[e]	2011[e]
Bahrain[1]	213,000	450,709	509,308	531,626	850,000	1,000,000	1,000,000
Iran	60,000	119,400	140,000	212,602	400,000	700,000	700,000
Qatar	--	--	--	--	--	--	285,000
Saudi Arabia	--	--	--	--	--	--	640,000
Turkey	61,000	61,514	61,000	60,000	110,000	110,000	110,000
United Arab Emirates	174,000	247,400	470,000	683,000	860,000	860,000	860,000
Total	510,000	879,000	1,180,000	1,490,000	2,200,000	2,700,000	3,600,000

[e]Estimated; estimated data are rounded to no more than three significant digits; may not add to rounded totals shown.
[1]May include some secondary aluminum produced from used beverage cans.

TABLE 7
MIDDLE EAST: HISTORIC AND PROJECTED COPPER MINE PRODUCTION, 1990-2011[1]

(Metal content of concentrate in thousand metric tons)

Country	1990	1995	2000	2004	2007[e]	2009[e]	2011[e]
Iran	66	102	125	150	150	200	300
Oman	14	--	--	--	10	20	20
Saudi Arabia	1	1	1	1	1	1	1
Turkey	33	24	70	40	50	60	60
Total	114	127	196	190	210	280	380

[e]Estimated; estimated data are rounded to no more than three significant digits; may not add to rounded totals shown. -- Negligible or no production.
[1]Copper content of mined ore (gross weight).

TABLE 8
MIDDLE EAST: HISTORIC AND PROJECTED REFINED COPPER METAL PRODUCTION, 1990-2011[1]

(Metric tons)

Country	1990	1995	2000	2004	2007[e]	2009[e]	2011[e]
Cyprus[2]	--	--	5,197	1,240	--	--	--
Iran	47,800	90,400	155,856	152,463	155,000	200,000	400,000
Oman	12,000	33,900	24,281	24,000	25,000	25,000	25,000
Turkey	84,200	100,300	64,100	50,000	50,000	50,000	50,000
Total	144,000	225,000	249,000	230,000	230,000	280,000	480,000

[e]Estimated; estimated data are rounded to no more than three significant digits; may not add to rounded totals shown. -- Negligible or no production.
[1]May include secondary.
[2]Electrowon.

TABLE 9
MIDDLE EAST: HISTORIC AND PROJECTED GOLD MINE PRODUCTION, 1990-2011

(Metal content of ore in kilograms)

Country	1990	1995	2000	2004	2007[e]	2009[e]	2011[e]
Iran	500	630	216	195	600	900	900
Oman	54	591	551	--	--	--	--
Saudi Arabia	3,540	8,080	3,800	9,000	12,000	20,000	22,000
Turkey	1,010	1,200	500	4,500	3,000	3,000	3,000
Total	5,100	10,500	5,100	14,000	16,000	24,000	26,000

[e]Estimated; estimated data are rounded to no more than three significant digits; may not add to rounded totals shown. -- Negligible or no production.

TABLE 10
MIDDLE EAST: HISTORIC AND PROJECTED IRON ORE MINE PRODUCTION, 1990-2011

(Metal content of ore in thousand metric tons)

Country	Average grade	1990	1995	2000	2004	2007[e]	2009[e]	2011[e]
Iran	49%	1,800	4,500	5,800	8,900	10,000	15,000	30,000
Turkey	53%	2,690	2,750	2,200	2,060	2,500	2,500	2,500
Total		4,500	7,300	8,000	11,000	13,000	18,000	33,000

[e]Estimated data are rounded to no more than three significant digits; may not add to rounded totals shown.

TABLE 11
MIDDLE EAST: HISTORIC AND PROJECTED IRON PRODUCTION, 1990-2011

(Metric tons)

Country	1990	1995	2000	2004	2007[e]	2009[e]	2011[e]
Iran							
DRI[1]	264,000	3,301,000	4,740,000	6,410,000	10,000,000	16,000,000	25,000,000
Pig iron	1,270,000	1,532,000	2,200,000	2,136,000	4,000,000	4,000,000	4,000,000
Total	1,534,000	4,833,000	6,940,000	8,546,000	14,000,000	20,000,000	29,000,000
Iraq, DRI[1]	170,000	--	--	--	--	--	--
Qatar, DRI[1]	580,000	622,000	620,962	830,000	850,000	870,000	900,000
Saudi Arabia, DRI[1]	1,090,000	2,129,000	3,090,000	3,410,000	3,900,000	4,400,000	4,400,000
Turkey, pig iron	4,830,000	330,070	300,000	213,210	300,000	400,000	400,000
Grand Total	8,200,000	7,910,000	11,000,000	13,000,000	19,000,000	26,000,000	35,000,000

[e]Estimated; estimated data are rounded to no more than three significant digits; may not add to rounded totals shown. -- Negligible or no production.
[1]Direct-reduced iron.

TABLE 12
MIDDLE EAST: HISTORIC AND PROJECTED STEEL PRODUCTION, 1990-2011

(Thousand metric tons)

Country	1990	1995	2000	2004	2007[e]	2009[e]	2011[e]
Iran	1,425	4,696	6,600	8,382	14,500	20,000	29,000
Iraq	150	300	50	--	--	--	--
Israel	144	200	270	280	350	350	350
Jordan	179	30	30	135	380	400	400
Oman	--	--	--	90	100	100	100
Qatar	580	614	744	1,046	1,200	1,500	1,500
Saudi Arabia	1,833	2,451	2,973	3,902	5,200	5,200	5,200
Syria	76	70	70	70	70	70	70
Turkey	9,322	12,744	14,325	19,868	20,000	22,000	25,000
United Arab Emirates	--	--	70	70	70	70	70
Total	13,700	21,100	25,100	33,800	42,000	50,000	62,000

[e]Estimated; estimated data are rounded to no more than three significant digits; may not add to rounded totals shown. -- Negligible or no production.

TABLE 13
MIDDLE EAST: HISTORIC AND PROJECTED LEAD MINE PRODUCTION, 1990-2011

(Metal content of concentrate in metric tons)

Country	1990	1995	2000	2004	2007[e]	2009[e]	2011[e]
Iran	11,000	15,900	18,000	22,000	25,000	35,000	40,000
Saudi Arabia	250	50	50	30	50	50	50
Turkey	11,000	1,196	8,500	9,100	9,000	9,000	9,000
Total	22,000	17,100	27,000	31,000	34,000	44,000	49,000

[e]Estimated; estimated data are rounded to no more than three significant digits; may not add to rounded totals shown. -- Negligible or no production.

TABLE 14
MIDDLE EAST: HISTORIC AND PROJECTED PRIMARY REFINED LEAD PRODUCTION, 1990-2011

(Metric tons)

Country	1990	1995	2000	2004	2007[e]	2009[e]	2011[e]
Iran	--	4,000	15,000	17,857	18,000	18,000	18,000
Turkey	5,400	2,000	--	--	--	--	--
Total	5,400	6,000	15,000	18,000	18,000	18,000	18,000

[e]Estimated; estimated data are rounded to no more than three significant digits; may not add to rounded totals shown. -- Negligible or no production.

TABLE 15
MIDDLE EAST: HISTORIC AND PROJECTED SECONDARY REFINED LEAD PRODUCTION, 1990-2011

(Metric tons)

Country[1]	1990	1995	2000	2004	2007[e]	2009[e]	2011[e]
Iran	10,000	41,200	35,000	NA	35,000	35,000	35,000
Israel	--	8,200	13,000	27,000	27,000	27,000	27,000
Turkey	3,600	2,000	4,000	6,000	6,000	6,000	6,000
Total	14,000	51,000	53,000	33,000	68,000	68,000	68,000

[e]Estimated; estimated data are rounded to no more than three significant digits; may not add to rounded totals shown. NA Not available.
-- Negligible or no production.
[1]In addition to the countries listed, Saudi Arabia also produces secondary lead, but information is inadequate to estimate production.

TABLE 16
MIDDLE EAST: HISTORIC AND PROJECTED NICKEL PRODUCTION, 1990-2011

(Metal content of ore in metric tons)

Country	1990	1995	2000	2004	2007[e]	2009[e]	2011[e]
Turkey	--	--	--	--	10,000	20,000	20,000
Total	--	--	--	--	10,000	20,000	20,000

[e]Estimated; estimated data are rounded to no more than three significant digits; may not add to rounded totals shown. -- Negligible or no production.

TABLE 17
MIDDLE EAST: HISTORIC AND PROJECTED ZINC MINE PRODUCTION, 1990-2011

(Metal content of ore in metric tons)

Country[1]	1990	1995	2000	2004	2007[e]	2009[e]	2011[e]
Iran	29,000	145,100	90,000	121,000	135,000	200,000	250,000
Saudi Arabia	2,470	500	3,000	1,500	2,000	3,000	3,000
Turkey	39,000	9,118	39,000	44,000	40,000	40,000	40,000
Total	71,000	155,000	132,000	167,000	180,000	240,000	290,000

[e]Estimated; estimated data are rounded to no more than three significant digits; may not add to rounded totals shown.
[1]In Yemen, zinc ore with an estimated metal content of 40,000 metric tons (t) was expected to be produced in 2009. The volume was expected to increase to 75,000 t of zinc content in 2011. The ore will be treated hydrometallurgically and not concentrated.

TABLE 18
MIDDLE EAST: HISTORIC AND PROJECTED ZINC METAL PRODUCTION, 1990-2011

(Metric tons)

Country	1990	1995	2000	2004	2007[e]	2009[e]	2011[e]
Iran	--	--	51,475	109,400	120,000	150,000	230,000
Turkey	21,100	17,050	--	--	--	--	--
Total	21,100	17,100	51,500	109,000	120,000	150,000	230,000

[e]Estimated; estimated data are rounded to no more than three significant digits; may not add to rounded totals shown. -- Negligible or no production.

TABLE 19
MIDDLE EAST: HISTORIC AND PROJECTED PHOSPHATE ROCK PRODUCTION, 1990-2011

(P_2O_5 content of ore in thousand metric tons)

Country	1999	1995	2000	2004	2007[e]	2009[e]	2011[e]
Iran	NA	NA	20	28	20	30	40
Iraq	270	300	200	30	--	--	--
Israel	1104	1264	1305	940	1000	1000	1000
Jordan	2010	1655	1824	2050	2060	2060	2800
Saudi Arabia	--	--	--	--	--	1000	1400
Syria	511	477	646	850	1100	1100	1100
Total	3900	3700	4000	3900	4200	5200	6300

[e]Estimated; estimated data are rounded to no more than three significant digits; may not add to rounded totals shown. NA Not available. -- Negligible or no production.

TABLE 20
MIDDLE EAST: HISTORIC AND PROJECTED SALABLE COAL PRODUCTION, 1990-2011[1]

(Thousand metric tons)

Country	1990	1995	2000	2004	2007[e]	2009[e]	2011[e]
Iran	1,440	1,640	2,002	2,498	2,500	3,000	3,200
Turkey	52,530	59,408	64,645	46,597	45,000	40,000	40,000
Total	54,000	61,000	66,500	49,100	48,000	43,000	43,000

[e]Estimated; estimated data are rounded to no more than three significant digits; may not add to rounded totals shown.
[1]Includes anthracite, bituminous, and lignite.

TABLE 21
MIDDLE EAST: HISTORIC AND PROJECTED NATURAL GAS PRODUCTION, 1990-2011

(Dry gas in million cubic meters)

Country	1990	1995	2000	2004	2007[e]	2009[e]	2011[e]
Bahrain	6,000	7,205	8,966	9,194	9,000	8,000	7,000
Iran	23,800	36,600	60,200	89,663	100,000	120,000	130,000
Iraq	4,200	3,000	3,000	2,900	3,000	3,000	5,000
Israel	40	21	10	1,193	6,200	6,200	6,200
Jordan	--	30	289	294	540	540	540
Kuwait	5,200	9,280	9,600	9,600	10,000	10,000	10,000
Oman	3,000	3,015	12,020	17,000	20,000	20,000	20,000
Qatar	6,090	13,600	26,141	39,200	60,000	80,000	80,000
Saudi Arabia	30,800	38,030	49,668	68,000	75,000	85,000	85,000
Syria	1,200	2,900	3,886	7,000	12,800	12,800	12,800
Turkey	212	182	612	344	500	500	500
United Arab Emirates	23,800	31,320	39,800	46,000	45,000	45,000	45,000
Yemen[1]	--	--	--	--	--	5,000	10,000
Total	104,000	145,000	214,000	290,000	340,000	400,000	410,000

[e]Estimated; estimated data are rounded to no more than three significant digits; may not add to rounded totals shown. -- Negligible or no production.
[1]Most produced natural gas in Yemen was stripped of liquids and reinjected or flared.

TABLE 22
MIDDLE EAST: HISTORIC AND PROJECTED CRUDE PETROLEUM (INCLUDING CONDENSATE) PRODUCTION, 1990-2011

(Thousand 42-gallon barrels)

Country	1990	1995	2000	2004	2007[e]	2009[e]	2011[e]
Bahrain	15,900	14,468	13,766	13,647	13,500	13,000	12,000
Iran	1,130,000	1,329,700	1,360,000	1,399,000	1,500,000	1,600,000	1,600,000
Iraq	745,000	205,000	937,000	737,940	800,000	800,000	900,000
Israel	94	36	31	14	14	14	14
Jordan	116	20	13	8	8	8	8
Kuwait	428,000	752,265	766,000	880,000	900,000	900,000	900,000
Oman	250,000	311,300	353,000	285,385	350,000	350,000	300,000
Qatar	148,044	142,300	231,000	287,000	300,000	300,000	300,000
Saudi Arabia	2,545,000	3,260,300	3,247,000	3,538,300	4,000,000	4,000,000	4,000,000
Syria	140,000	222,650	202,000	196,200	151,000	144,000	137,000
Turkey	26,600	24,124	19,783	16,270	15,000	15,000	14,000
United Arab Emirates	773,000	800,500	815,000	970,000	1,000,000	1,000,000	1,000,000
Yemen	73,000	125,925	167,000	149,000	170,000	170,000	150,000
Total	6,270,000	7,190,000	8,110,000	8,470,000	9,200,000	9,290,000	9,310,000

[e]Estimated; estimated data are rounded to no more than three significant digits; may not add to rounded totals shown.