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MIDDLE EAST

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The Mineral Industries of the Middle East

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Production and processing of crude oil and natural gas formed the foundation upon which the economies of many of the countries in the Middle East region were based. The production of metals and industrial minerals was a significant factor in the economies of Iran and Turkey. Metal production also was a notable factor in the economies of Bahrain, Oman, Saudi Arabia, and the United Arab Emirates. In 2007, the continued international demand for mineral fuels, especially natural gas and oil, extended the Middle East region's economic boom.

The 14 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. In 2007, according to the World Bank Group (2008), the total population of the Middle East region was estimated to be about 269 million compared with 302 million for the United States and 6.6 billion for the world.

Acknowledgments

The U.S. Geological Survey (USGS) acknowledges and expresses its sincere appreciation to the Government agencies and organizations listed below for providing minerals production statistics and basic economic data.

For mineral production statistics—

- Bahrain—National Oil and Gas Authority;
- Israel—Mines Department of the Ministry of National Infrastructures;
- Jordan—Department of Statistics and the Natural Resources Authority;
- Kuwait—Central Statistical Office of the Ministry of Planning;
- Qatar—Qatar Statistics Authority and the Ministry of Energy and Industry;
- Saudi Arabia—Central Department of Statistics and Information of the Ministry of Economy and Planning, and Deputy Ministry for Mineral Resources of the Ministry of Petroleum and Mineral Resources;
- Turkey—General Directorate of Mining Affairs of the Ministry of Energy and Natural Resources.

For basic economic and population data—

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

General Economic Conditions

As a region, the Middle East was a major supplier of hydrocarbons to the world market, and the merchandise exports of the nations that encircle the Persian Gulf were dominated by hydrocarbons; most of the region's exports of natural gas and oil were shipped to Asia, especially to China, India, Japan, the Republic of Korea, and Singapore. In 2007, the economies of the oil-producing nations in the region were buoyed by the continued high international market prices for crude oil and natural gas. The economies of nations that were dependant on imports of refined petroleum products, however, were adversely affected by higher international oil prices. The Governments of the area strongly endorsed the diversification of their respective economies into nonoil sectors, including the expansion of the nonfuel minerals sector.

The abundance of locally produced natural gas, which had resulted in the availability of low-cost electrical energy, coupled with convenient access to ocean transportation, had provided the initial justification for the region's development of energy-intensive mineral-processing operations, such as aluminum smelting; petrochemical establishments, which included fertilizer plants; and value-added minerals facilities, such as direct-reduced iron plants, plants with electric arc furnaces (EAFs) for the production of crude steel, and steel-rolling mills. In the past few years, the international price of natural gas had increased with the significant demand for gas.

Rising natural gas prices coupled with equipment and material cost increases and shortages in the availability of engineering services and labor have adversely affected the economic feasibility of new mineral industry projects (and the expansion of existing facilities) in the region. Numerous ongoing and proposed projects in the construction sector, which included commercial office buildings, industrial facilities, residential housing, retail centers, and the infrastructure necessary to support the new buildings and facilities, also were affected by the labor shortages and significant price increases or shortages of construction materials, such as aggregate, aluminum, cement, glass, steel beams, and steel concrete-reinforcing bar (rebar).

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. Work on planning the construction of new aluminum smelters or smelter-production-capacity expansions, new cement plants, new hydrocarbon-processing plants, and new iron-and-steel-processing facilities was underway in several countries. The expansion of the copper mining and refining capacities of state-owned facilities continued in Iran, subject to constraints based on the availability of Government funds. Progress was made on development of gold and phosphate resources in Saudi Arabia and development of zinc resources in Yemen.

The U.S. Government had instituted sanctions on international and U.S. company investment in Iran under Executive Order 12957 of March 15, 1995; Executive Order 12959 of May 6, 1995; Executive Order 13059 of August 19, 1997; Public Law 104-172

(The Iran Sanctions Act of 1996 [ISA], formerly the Iran-Libya Sanctions Act of 1996 [ILSA]); Public Law 107-24 (ISA Extension Act of 2001, formerly the ILSA Extension Act of 2001); and Public Law 109-293 (Iran Freedom Support Act), which extended the ISA sanctions until 2011. Although several foreign companies had entered into agreements for natural gas or oil development projects in Iran, no companies formally had been sanctioned, although they (and the Governments of their home countries) had been made aware of U.S. Government concerns.

Legislation

At yearend, the Government of Iran cited the depreciation of the United States (U.S.) dollar and U.S. economic sanctions as reasons to end its sales of crude oil in U.S. dollars. Iranian oil sales in 2008 were expected to be denominated primarily in European Union euros and Japanese yen. In Iraq, a new Hydrocarbon Law was approved by the Cabinet in February, but it was not sent to Parliament for approval.

Turkey became a participant of the Kimberley Process, which prohibited participant nations from trading diamond with nonparticipant nations in order to discourage the trade in conflict diamond. In the United Arab Emirates, Abu Dhabi Basic Industries Corp. was created as a holding company to promote economic diversification of the mineral industry in Abu Dhabi. The new corporation, which was a subsidiary of the Abu Dhabi Government's General Holding Corp., planned to promote the establishment of aluminum, copper, petrochemical, and steel sectors, in addition to helping to establish associated downstream industries, such as aerospace, automotive, construction, durable consumer goods, energy services, and industrial gases. In Yemen, the International Finance Corp., which was an affiliate of the World Bank, and the Ministry of Oil and Minerals of Yemen jointly continued work on the development of a national mining policy.

Exploration

In the Middle East region, state-owned and international oil companies continued exploration for hydrocarbons in all countries of the region. Local and international exploration companies were allowed to explore for nonfuel minerals in most of the countries of the region.

In 2007, metal exploration activity was most notable in Turkey. Exploration and prospecting were also ongoing in Iran, Oman, Saudi Arabia, the United Arab Emirates, and Yemen. 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. As long as international mineral prices are high, exploration activity is expected to continue.

Commodity Overview

The Middle East has significant identified resources of boron minerals, bromine, crude oil, helium, natural gas, perlite, phosphate rock, and potash. In tables 5 though 20, estimates for the production of major mineral commodities for 2009 and beyond have been based upon supply-side assumptions, such as announced plans for expanded production capacity and new capacity construction, and for bankable feasibility studies of development projects. The outlook tables in this summary chapter show historic production and projected production capacity 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 (2007) 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 take place.

Metals

Alumina and Bauxite and Aluminum.—Bahrain and the United Arab Emirates each accounted for more than 2% of world aluminum production in 2007. Other aluminum producers in the region included Iran and Turkey. As a region, the Middle East accounted for about 5% of the world's total primary aluminum production. The ongoing construction boom in the Middle East absorbed about 75% of the region's aluminum and aluminum product output.

Regional bauxite production capacity was projected to increase significantly by 2012 (compared with that of 2007) following the expected commissioning of the Az Zabirah bauxite mine for Saudi Arabian Mining Co. (Ma'aden). Bauxite from Az Zabirah was to be processed at Ma'aden's planned alumina refinery and aluminum smelter complex at Ras al-Zour.

Compared with 2007, regional aluminum production capacity was expected to increase by about 110% by 2011 and by about 170% by 2013. The projected increase in aluminum output is attributable to the construction of new smelters (which included South Aluminum Corp. in Iran, Sohar Aluminum Co. in Oman, Qatar Aluminium Ltd. in Qatar, Ma'aden in Saudi Arabia, and Abu Dhabi Basic Industries Corp. and Emirates Aluminium Co. in the United Arab Emirates) and the expansion of the Arak and Al Mahdi smelters in Iran and Dubai Aluminium Co. Ltd. (Dubal) in the United Arab Emirates. Additional aluminum smelter capacity was proposed to be built in the planned Jizan Economic City in Saudi Arabia (table 6).

Copper.—The Middle East region was a minor contributor to the world's copper stocks. Iran was the most notable copper

producer in the region. The increase in Iran's copper concentrate output was attributed to the completion of the Sungun project in 2007. Iran also accounted for much of the region's planned expansion of production capacity of copper ore by 2011 because of a new copper concentrator scheduled to be installed at Aliabad Yazd and a planned expansion of the Sarcheshmeh concentrator. Iranian refined copper capacity was expected to increase significantly by 2011, with a solvent extraction-electrowinning facility at Miduk planned to be completed by 2010 and a copper leach expansion expected to be operational by 2011 at the Sarcheshmeh Refinery (tables 7, 8).

Other expected future additions to regional copper output included the proposed development of the Jabal Sayid copper deposit in Saudi Arabia, the proposed development of the Saudi Arabian Mining Co.'s Al Amar Mine (which was expected to begin production in 2008), and the recently (2007) completed shaft extension project at the Çayeli Bakir İşletmeleri A.Ş. copper mine in Turkey.

Gold.—The Middle East was a significant gold trading region, and the region's jewelry manufacturing sector was a noted consumer of gold; the Middle East's gold mines, however, were modest contributors to the world's supply of precious metals. Plans to increase mine output of gold significantly in Iran, Saudi Arabia, and Turkey could result in the region's gold production reaching an annual volume of about 29 metric tons (t) by 2011.

Iron and Steel.—Iron ore was produced from several mines in Iran and from the Divrigi Mine in Turkey. Several iron ore deposits in Saudi Arabia had been explored in the past and some of the deposits of the Wadi Sawawin formation in northwestern Saudi Arabia were reevaluated in 2007. Significant increases in production capacity were planned for Iranian iron ore mines, including expansions of the mines of Chadormalu Mining and Industrial Co., Gol-e-Gohar Iron Ore Co., and Sangan Iron Ore Co.; ongoing development of the Jalal Abad Mine; and the opening of Iran Central Iron Ore Co.'s new facilities at Bafgh, at the Bafgh North Anomaly, and at Chahgaz and Mishdovan.

Steel demand in the region was driven primarily by the demands of the construction sector. In the past few years, the highest demand has been from Iran, Iraq, Saudi Arabia, and the United Arab Emirates. Much of the planned expansion of iron and steel production capacity in the region was attributed to projects in the Government of Iran's Fourth Five-Year Development Program, which included National Iranian Steel Co.'s proposal to fund the construction of steel plants at Bafgh in Yazd Province, Miyaneh in East Azarbayjan Province, Neiriz in Fars Province, Qaenat (Ghaenat) in South Khorasan Province, Sefid Dasht in Chahar Mahal va Bakhtiari Province, Shadegan in Khuzestan Province, and Sirjan in Kerman Province. Additional crude steel plants were planned to be built at Bandar Abbas and Hamadan, and production capacity expansions were scheduled to be completed at the steel plants of Isfahan Steel Co., Khuzestan Steel Co., and Mobarekeh Steel Co.

Other new crude steel facilities in the region that were expected to begin producing crude steel between 2009 and 2011 included the Shadeed Iron & Steel LLC plant in Oman; the Al Atoun Steel Industries Co. plant at Yanbu in Saudi Arabia; the Rajhi Steel Industries plant at Jeddah in Saudi Arabia; the plant of Syria Metals Industries, which was a subsidiary of Hamsho International Group, in Syria; and in the United Arab Emirates, the Abu Dhabi plant of the Emirates Steel Establishment, which was a subsidiary of Al Nasser Industrial Enterprises; the Emirates Steel Industries (formerly the Emirates Iron and Steel Factory) plant in Abu Dhabi; and the Essar Group's plant at the Hamriya Free Zone in Sharjah. Planned crude steel production-capacity-expansion projects included the ramp up of the fourth EAF, which was installed in 2007 at the Qatar Steel Co. plant in Qatar, and the commissioning of a fifth EAF at Qatar Steel by 2009.

Historically, the construction of industrial plants in Iran often was delayed because of a lack of funding. Proposed mineral-sector projects of the Government's Fourth Five-Year Economic, Social, and Cultural Plan of Iran, however, were being funded by higher-than-expected income derived from the high international prices of crude oil, and many projects were expected to be completed by 2009 or 2010. These Government-funded projects, which were spread across the country and included the construction of new steel plants and the expansion of the production capacities of existing crude steel plants, were not expected to be significantly affected by international market fluctuations; such fluctuations would be more likely to have adverse effects on privately funded projects in other countries of the region. Outside of Iran, the current (2007) demands of the regional construction boom significantly increased domestic and international investor interest in the construction of new plants to produce direct-reduced iron and rolled-steel products, such as concrete-reinforcing bar (rebar).

Lead and Zinc.—Increases in the price of lead and zinc in 2006 resulted in a rekindling of interest in the rehabilitation of several closed lead and zinc operations in Turkey. The subsequent significant decline in zinc prices in 2007, however, was expected to deter activity in the sector for the next few years.

Projects of the Government of Iran's Fourth Five-Year Development Program accounted for most of the planned expansion of lead and zinc ore and zinc metal production capacities in the region. Included in the 5-year plan were the expansion of production from the Anguran lead and zinc mine and the anticipated construction of a 100,000-metric-ton-per-year-capacity zinc plant in the Zanjan district (Iranian Mines and Mining Industries Development and Renovation Organization, 2005, p. 195).

Nickel.—In Turkey, European Nickel PLC suspended trial mining of the Caldag Mine's laterite ore while the Government processed European Nickel's forestry permit. The lack of a forestry permit delayed the planned construction of the mine's heap-leach facilities and processing plant, which originally were expected to begin in 2007. Produced nickel was to be exported.

Industrial Minerals

Phosphate Rock.—The Middle East region accounted for about 8% of the world's phosphate rock production in 2007. The region's new phosphate project was located in Saudi Arabia, where the initial production of phosphate rock from Al Jalamid deposit by Ma'aden was expected to begin in 2009.

Al Jalamid Mine was expected to produce about 12 million metric tons per year (Mt/yr) of ore with an average grade of 18.9% phosphorous pentoxide (P_2O_5). By 2010, a phosphate rock beneficiation plant was expected to be in operation; the plant was projected to produce about 5 Mt/yr of phosphate rock concentrate at an average grade of 32% P_2O_5. By 2012, Al Jalamid Mine was scheduled to be at full production level. Concentrate was to be shipped to a fertilizer complex to be built at Ras Az Zawr (Saudi Arabian Mining Co., undated).

Mineral Fuels

Coal.—Iran and Turkey were the region's coal producers. By 2011, the planned expansion of mine capacity in Iran was expected to double the country's output capacity to more than 4 Mt/yr. In Turkey, coal production was used primarily for electrical-power generation. Whereas the Government encouraged the use of natural gas for new power-generation projects and retained control of hydroelectric-generating facilities, many of Turkey's lignite and subbituminous coal operations were divested to the private sector in the past decade. Coal production was expected to vary, depending on the demand for electrical power not met by imported natural gas.

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TABLE 1
MIDDLE EAST: 2007 TOTAL AREA AND POPULATION

Country	Total area[1] (square kilometers)	Eatimated population[2] (millions)
Bahrain	665	
Cyprus	3,250	0.8
Iran	1,648,000	71.0
Iraq	437,072	28.9 [3]
Israel	20,770	7.2
Jordan	92,300	5.6
Kuwait	17,820	2.7
Lebanon	10,400	4.1
Oman	212,460	2.6
Qatar	11,437	0.8
Saudi Arabia	2,149,690	24.2
Syria	185,180	19.9
Turkey	780,580	73.9
United Arab Emirates	83,600	4.4
Yemen	527,970	22.4
Total	6,181,194	268.5
United States	9,826,630	301.6
World	148,940,000 [4]	6,612.0

[1]Source: U.S. Central Intelligence Agency, World Factbook 2008.
[2]Source: World Bank 2008, World Development Indicators Database.
[3] Iraq's population source: U.S. Central Intelligence Agency, World Factbook 2008.
[4] Land area.

TABLE 2
MIDDLE EAST: GROSS DOMESTIC PRODUCT IN 2007[1, 2]

Country	Gross domestic product based on purchasing power parity		Real gross domestic product growth rate (percent)
	Total (billion dollars)	Per capita (dollars)	
Bahrain	$24.4	$31,899	6
Cyprus	21.4	27,171	4.4
Iran	757.5	10,570	6.4
Iraq	104.6	4,000	1.5
Israel[3]	188.9	27,147	5.4
Jordan	28.1	4,906	6
Kuwait	130.2	39,344	4.6
Lebanon	42.3	11,279	4
Oman	61.7	23,987	6.4
Qatar	79.7	85,638	15.9
Saudi Arabia	555.1	22,852	3.5
Syria	87.2	4,492	3.9
Turkey	885.9	12,858	4.6
United Arab Emirates	170.3	37,941	7.4
Yemen	52.2	2,343	3.3
Total	$3,189.4	XX	XX
United States	13,808	45,725	2
World	65,281	XX	5

XX Not applicable
[1]Source: International Monetary Fund, World Economic Outlook Database, October, 2008.
[2]Table data compiled April, 2009. Gross domestic product may differ from that reported in individual country chapters of the 2007 Minerals Yearbook owing to differences in source or date of reporting.
[3]Does not include Gaza Strip or the West Bank areas.

TABLE 3
SELECTED MIDDLE EAST EXPLORATION ACTIVITY IN 2007

Country	Type[1]	Prospect	Commodity[2]	Company	Resource notes[3]	Exploration notes
Iran	P	Angouran	Zn, Pb	Iran Zinc Mine Development Co.	1.3 Mt Zn, 5.3 Mt Pb	Temporary shutdown.
Do.	E	Chad-e-Zard	Au	Persian Gold plc.	Data not released	Ongoing drilling and sampling program.
Do.	E	Dalli	Au	do.	do.	Completed limited drilling program.
Do.	E	Delijan	Au	Iran Minerals Production Co.	do.	Exploration ongoing.
Do.	E	Gandi	Au	do.	do.	do.
Do.	E	Jiroft	Au	do.	do.	do.
Do.	F	Mehdiabad	Zn, Pb, Ag	Union Resources Ltd.	10.8 Mt Zn, 3.2 Mt Pb, 164 Moz Ag	Feasibility drilling ongoing.
Do.	E	Saveh	Au	Iran Minerals Production Co.	Data not released	Exploration ongoing.
Do.	E	Sharafabad	Au	do.	do.	do.
Oman	P	Ajib	Cu	National Mining Company LLC	62,000 t Cu	Ongoing drilling program.
Do.	E	Ghuzayn	Cu	do.	Data not released	do.
Saudi Arabia	F	Az Zabirah	Bauxite	Saudi Arabian Mining Co. (Ma'aden)	do.	Development planned.
Do.	E	Jabal Sayid	Cu	Citadel Resource Group Ltd.	830,000 t Cu	Completed drilling program.
Turkey	E	Agi Dagi	Au, Ag	Fronteer Development Group Inc.	1.5 Moz Au, 9 Moz Ag	Ongoing $10 million drilling program.
Do.	E	Artvin	Au, Cu, Ag	KEFI Minerals plc.	Data not released	Commenced sampling program.
Do.	E	Berta	Cu, Au	Nuinsco Resources Ltd.	do.	Ongoing drilling program.
Do.	D	Cerattepe	Cu, Au, Ag, Zn	Inmet Mining Corp.	137,000 t Cu, 70,000 oz Au, 1.6 Moz Ag, 17,000 t Zn	Obtained the initial construction and operating permit.
Do.	F	Cöpler	Au, Ag	Anatolia Minerals Development Ltd.	2.8 Moz Au, 7.3 Moz Ag	Completed 33,000 m of drilling.
Do.	E	Corak	Au, Cu	Ariana Resources plc.	400,000 oz Au, 650,000 oz Ag	Completed 20,000-m drilling program.
Do.	E	Derekoy	Cu, Mo	Cloudbreak Resources Ltd.	Data not released	Completed drill testing and geophysical surveys.
Do.	E	Doganbey	Au, Ag	Stratex International plc.	do.	Completed 1,000-m drilling program.
Do.	E	Dogancilar	Au	Eldorado Gold Corp.	do.	Completed limited drilling program.
Do.	F	Efemçukuru	Au	do.	1.2 Moz Au reserve	Completed feasibility study.
Do.	E	Elmalaan	Cu, Zn	Nuinsco Resources Ltd.	Data not released	Completed drilling, geophysics, mapping, and sampling program.
Do.	E	Halilaga	Au, Cu	Teck Cominco Ltd.	do.	Ongoing exploration.
Do.	E	Hatay	Cu, Au	Marakand Minerals Ltd.[4]	do.	Completed drilling, mapping, and sampling program.
Do.	E	Ikiztepe	Cu, Au	Anatolia Minerals Development Ltd.	do.	Ongoing drilling program.
Do.	E	Inlice	Au, Ag	Stratex International plc.	do.	do.
Do.	E	Ivrindi	Au	Ariana Resources plc.	do.	do.
Do.	E	Karaağac	Au	Stratex International plc.	160,000 oz Au (inferred)	do.
Do.	E	Kirali	Au	Eldorado Gold Corp.	Data not released	Completed limited drilling program.
Do.	E	Kirazli	Au, Ag	Fronteer Development Group Inc.	244,000 oz Au, 1.7 Moz Au	Completed 30,000 m of drilling to date.
Do.	E	Kiziltepe	Au, Ag	Ariana Resources plc.	100,000 oz Au, 1.6 Moz Ag	Ongoing drilling and sampling program.
Do.	E	Kuscayiri	Au	Eldorado Gold Corp.	Data not released	Completed limited drilling program.
Do.	E	Murat Dag	Ni	Aldridge Minerals Inc.	do.	Ongoing drilling program.
Do.	E	Sisorta	Au	Chesser Resources Ltd.	do.	Ongoing drilling, mapping, and sampling program.

See footnotes at end of table.

TABLE 3—Continued
SELECTED MIDDLE EAST EXPLORATION ACTIVITY IN 2007

Country	Type[1]	Prospect	Commodity[2]	Company	Resource notes[3]	Exploration notes
Turkey—Continued	E	Tac	Au, Cu	Mediterranean Resources Ltd.	1 Moz Au, 27,000 t Cu	Ongoing drilling program.
Do.	E	Yenipazar	Au, Ag, Cu	Aldridge Minerals Inc.	110,000 t Zn, 93,000 t Pb, 25,000 t Cu, 260,000 oz Au, 8.4 Moz Ag	Completed 29,000-m drilling program.
Yemen	E	Al Hariquh	Au	Cantex Mine Development Corp.	Data not released	Ongoing drilling program.
Do.	E	Suwar	Ni	do.	do.	do.
Do.	D	Al Hariquh	Ni, Cu	do.	do.	Ongoing drill testing and sampling program.

Do., do. Ditto.

[1]D--Development approved or ongoing; E--Active exploration; F--Feasibility work ongoing or completed; P--Exploration at producing site.

[2]Abbreviations used for commodities in this table are as follows: Ag--silver; Au--gold; Cu--copper; Mo--molybdenum; Ni--nickel; Pb--lead; Zn--zinc. Abbreviations used for units of measure in this table are as follows: m--meters; Moz--million troy ounces; Mt--million metric tons; oz--troy ounces; t--metric tons.

[3]Resources reported where available based on data from various public sources at the measured + indicated level unless otherwise specified. Data were not verified by the U.S. Geological Survey.

[4]KazakGold Group Ltd. acquired Marakand Minerals' (a subsidiary of Oxus gold plc) 25% interest in Hatay Madencilik S.A.

TABLE 4
MIDDLE EAST: PRODUCTION OF SELECTED MINERAL COMMODITIES IN 2007[1]

(Thousand metric tons unless otherwise specified)

	Metals			Industrial minerals					Mineral fuels and related materials	
									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	865	--	--	343	190 e	--	--	--	12,552	97,903
Iran e	205	225	10,100	2,000	41,000	12,000	330	--	1,470,000	600,000
Iraq	--	--	--	10 e	4,515	--	3 e	--	676,000	116,000
Israel	--	--	480 e	--	5,000	83	3,069	2,150 e	8	86,600 e
Jordan	--	--	150 e	--	4,138	288	5,552	1,090 e	9 e	28,542
Kuwait e	--	--	500	485	2,200	--	--	--	960,000	310,000
Lebanon e	--	--	--	--	4,900	30	--	--	--	--
Oman e	--	69	84	1,000	3,880 2	180	--	--	259,293 2	25,353 2
Qatar e	--	--	1,175 2	1,800 2	2,500	--	--	--	299,000	115,000
Saudi Arabia	--	--	4,600	2,600	30,369	2,200	--	--	3,208,000	695,369
Syria e	--	--	70	120	5,500	448 2	3,678 2	--	135,000	90,600
Turkey e	65	466 2	25,700	--	48,832 2	3,241 2	--	--	15,000	181,000
United Arab Emirates e	890	19	90	380	15,000	150	--	--	933,000	98,800
Yemen e	--	--	--	--	1,728 2	44	--	--	118,000	39,900
Total	2,030	779	42,900	8,740	170,000	18,700	12,600	3,240	8,090,000	2,480,000
Share of world total	5%	4%	3%	7%	6%	11%	8%	9%	30%	8%
United States	2,550	--	98,100	8,840 3	96,900	17,900	29,700	1,100	1,850,000	6,570,000
World total	38,100	21,000	1,350,000	132,000	2,790,000	173,000	162,000	34,500	27,300,000	29,800,000

eEstimated; estimated data, U.S. data, and world totals are rounded to no more than three significant digits. -- Zero.

[1]Totals may not add due to independent rounding. Percentages are calculated on unrounded data. Table includes data available as of June 4, 2009.

[2]Reported figure.

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

TABLE 5
MIDDLE EAST: HISTORIC AND PROJECTED BAUXITE MINE PRODUCTION, 1995-2015

(Metric tons)

Country	1995	2000	2005	2007	2009[e]	2011[e]	2013[e]	2015[e]
Iran	148,000	485,130	437,595	500,000	500,000	710,000	710,000	710,000
Saudi Arabia	--	--	--	--	--	--	3,300,000	3,300,000
Turkey	232,278	458,537	475,349	921,369	900,000	900,000	900,000	900,000
Total	380,000	944,000	913,000	1,421,000	1,400,000	1,600,000	4,900,000	4,900,000

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

TABLE 6
MIDDLE EAST: HISTORIC AND PROJECTED PRIMARY AND SECONDARY ALUMINUM PRODUCTION, 1995-2015

(Metric tons)

Country	1995	2000	2005	2007	2009[e]	2011[e]	2013[e]	2015[e]
Bahrain[1]	450,709	509,308	750,710	865,048	875,000	880,000	880,000	880,000
Iran	119,400	140,000	220,000	205,000	300,000	470,000	745,000	745,000
Oman	--	--	--	--	350,000	350,000	350,000	350,000
Qatar	--	--	--	--	50,000	585,000	585,000	585,000
Saudi Arabia	--	--	--	--	--	300,000	670,000	670,000
Turkey	61,514	61,000	60,000	65,000	65,000	65,000	65,000	65,000
United Arab Emirates	247,400	470,000	722,000	890,000	920,000	1,620,000	2,100,000	2,100,000
Total	879,000	1,180,000	1,753,000	2,025,000	2,600,000	4,300,000	5,400,000	5,400,000

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

TABLE 7
MIDDLE EAST: HISTORIC AND PROJECTED COPPER MINE PRODUCTION, 1995-2015[1]

(Metal content of concentrate in thousand metric tons)

Country	1995	2000	2005	2007	2009[e]	2011[e]	2013[e]	2015[e]
Iran	102	125	190	260	280	350	350	350
Oman	--	--	--	20	1	(2)	(2)	(2)
Saudi Arabia	1	1	1	1	1	10	16	10
Turkey	24	70	54	49	55	55	55	55
Total	127	196	245	330	340	420	420	420

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

TABLE 8
MIDDLE EAST: HISTORIC AND PROJECTED REFINED COPPER METAL PRODUCTION, 1995-2015[1]

(Metric tons)

Country	1995	2000	2005	2007	2009[e]	2011[e]	2013[e]	2015[e]
Iran	90,400	155,856	178,000	201,000	250,000	400,000	410,000	410,000
Oman	33,900	24,281	24,543	24,500	22,000	22,000	22,000	22,000
Turkey	100,300	64,100	95,000	105,000	100,000	100,000	100,000	100,000
Total	225,000	244,000	298,000	331,000	370,000	520,000	530,000	530,000

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

TABLE 9
MIDDLE EAST: HISTORIC AND PROJECTED GOLD MINE PRODUCTION, 1995-2015

(Metal content of ore in kilograms)

Country	1995	2000	2005	2007	2009[e]	2011[e]	2013[e]	2015[e]
Iran	630	216	1,000	1,500	2,000	3,500	3,000	3,000
Oman	591	551	384	350	--	--	--	--
Saudi Arabia	8,080	3,800	7,456	4,438	11,000	12,000	12,000	12,000
Turkey	1,200	500	4,170	9,920	10,000	13,500	13,000	13,000
Total	10,500	5,000	13,000	16,000	23,000	29,000	28,000	28,000

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

TABLE 10
MIDDLE EAST: HISTORIC AND PROJECTED BENEFICIATED IRON ORE PRODUCTION, 1995-2015

(Metal content of ore in thousand metric tons)

Country	1995	2000	2005	2007	2009[e]	2011[e]	2013[e]	2015[e]
Iran	4,500	5,800	9,162	11,000	15,000	30,000	30,000	30,000
Turkey	2,750	2,200	2,450	2,600	2,700	2,700	2,700	2,700
Total	7,300	8,000	11,600	14,000	18,000	33,000	33,000	33,000

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

TABLE 11
MIDDLE EAST: HISTORIC AND PROJECTED CRUDE STEEL PRODUCTION, 1995-2015

(Thousand metric tons)

Country	1995	2000	2005	2007	2009[e]	2011[e]	2013[e]	2015[e]
Iran	4,696	6,600	9,400	10,100	20,000	29,000	29,000	29,000
Iraq	300	50	--	--	--	--	--	--
Israel	200	270	480	480	480	480	480	480
Jordan	30	30	150	150	390	390	390	390
Kuwait	--	--	450	500	500	500	500	500
Oman	--	--	84	84	600	1,200	1,200	1,200
Qatar	614	744	1,057	1,175	1,500	1,500	1,500	1,500
Saudi Arabia	2,451	2,973	4,185	4,600	5,200	6,500	6,500	6,500
Syria	70	70	70	70	590	590	590	590
Turkey	12,744	14,325	20,960	25,700	26,000	26,000	26,000	26,000
United Arab Emirates	--	90	90	90	1,700	1,700	1,700	1,700
Total	21,000	25,000	37,000	43,000	57,000	68,000	68,000	68,000

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

TABLE 12
MIDDLE EAST: HISTORIC AND PROJECTED LEAD MINE PRODUCTION, 1995-2015

(Metal content of concentrate in metric tons)

Country	1995	2000	2005	2007	2009[e]	2011[e]	2013[e]	2015[e]
Iran	15,900	18,000	22,000	20,000	23,000	26,000	26,000	26,000
Saudi Arabia	50	50	--	123	100	50	50	50
Turkey	1,196	8,500	17,000	32,000	20,000	20,000	20,000	20,000
Total	17,000	27,000	39,000	52,000	43,000	46,000	46,000	46,000

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

TABLE 13
MIDDLE EAST: HISTORIC AND PROJECTED PRIMARY AND SECONDARY REFINED LEAD PRODUCTION, 1995-2015

(Metric tons)

Country[1]	1995	2000	2005	2007	2009[e]	2011[e]	2013[e]	2015[e]
Iran	45,200	50,000	68,000	70,000	75,000	75,000	75,000	75,000
Israel	8,200	13,000	28,000	25,000	25,000	25,000	25,000	25,000
Turkey	4,000	4,000	6,000	6,000	5,000	5,000	5,000	5,000
Total	57,000	67,000	102,000	101,000	105,000	105,000	105,000	105,000

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

TABLE 14
MIDDLE EAST: HISTORIC AND PROJECTED NICKEL MINE PRODUCTION, 1995-2015

(Metal content of ore in metric tons)

Country	1995	2000	2005	2007	2009[e]	2011[e]	2013[e]	2015[e]
Turkey	--	--	1,000	--	--	5,000	20,000	20,000

[e]Estimated; estimated data are rounded to no more than three significant digits. -- Negligible or no production.

TABLE 15
MIDDLE EAST: HISTORIC AND PROJECTED ZINC MINE PRODUCTION, 1995-2015

(Metal content of ore in metric tons)

Country[1]	1995	2000	2005	2007	2009[e]	2011[e]	2013[e]	2015[e]
Iran	145,100	90,000	167,000	100,000	165,000	180,000	180,000	180,000
Saudi Arabia	500	3,000	--	716	3,000	3,000	3,000	3,000
Turkey	9,118	39,000	41,000	80,000	80,000	80,000	80,000	80,000
Total	155,000	132,000	208,000	181,000	248,000	260,000	260,000	260,000

[e]Estimated; estimated data and totals are rounded to no more than three significant digits; estimated data may not add to totals shown. -- Negligible or no production.
[1]In Yemen, the Jabail zinc deposit was to be developed as a zinc oxide project. Output of 70,000 metric tons (t) of zinc oxide per year was expected to begin in 2010. The ore will be treated hydrometallurgically and not concentrated.

TABLE 16
MIDDLE EAST: HISTORIC AND PROJECTED ZINC METAL PRODUCTION, 1995-2015

(Metric tons)

Country	1995	2000	2005	2007	2009[e]	2011[e]	2013[e]	2015[e]
Iran	--	51,475	120,000	90,000	150,000	230,000	230,000	230,000
Turkey	17,050	--	--	--	--	--	--	--
Total	17,100	51,500	120,000	90,000	150,000	230,000	230,000	230,000

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

TABLE 17
MIDDLE EAST: HISTORIC AND PROJECTED PHOSPHATE ROCK PRODUCTION, 1995-2015

(P_2O_5 content of ore in thousand metric tons)

Country	1995	2000	2005	2007	2009[e]	2011[e]	2013[e]	2015[e]
Iran	NA	20	40	41	41	42	42	43
Iraq	300	200	1	1	100	100	100	100
Israel	1,264	1,305	890	840	980	1,140	1,140	1,140
Jordan	1,655	1,824	2,040	1,780	1,800	1,800	1,800	1,800
Saudi Arabia	--	--	--	--	1,000	1,000	2,500	2,500
Syria	477	646	1,080	1,135	1,190	1,190	1,190	1,190
Total	4,000	4,000	4,000	4,000	5,000	5,000	7,000	7,000

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

TABLE 18
MIDDLE EAST: HISTORIC AND PROJECTED POTASH PRODUCTION, 1995-2015

(K_2O equivalent in thousand metric tons)

Country	1995	2000	2005	2007	2009[e]	2011[e]	2013[e]	2015[e]
Israel	1,325	1,750	2,224	2,150	2,300	2,450	2,450	2,450
Jordan	930	1,162	1,115	1,090	1,440	1,440	1,440	1,440
Total	2,300	2,910	3,339	3,240	3,700	3,900	3,900	3,900

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

TABLE 19
MIDDLE EAST: HISTORIC AND PROJECTED SALABLE COAL PRODUCTION, 1995-2015[1]

(Thousand metric tons)

Country	1995	2000	2005	2007	2009[e]	2011[e]	2013[e]	2015[e]
Iran	1,640	2,002	1,898	2,000	3,200	4,500	4,500	4,500
Turkey	59,408	64,645	58,676	73,839	75,000	75,000	75,000	75,000
Total	61,000	66,600	60,600	76,000	78,000	80,000	80,000	80,000

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

TABLE 20
MIDDLE EAST: HISTORIC AND PROJECTED URANIUM PRODUCTION, 1995-2015

(Metal content in metric tons)

Country	1995	2000	2005	2007	2009[e]	2011[e]	2013[e]	2015[e]
Iran[1]	--	--	NA	NA	50	50	50	50

[e]Estimated; estimated data are rounded to no more than three significant digits. NA Not available. -- Negligible or no production.
[1]Uranium may have been produced in 2005 and 2006, but information is inadequate to estimate output.