



# 2009 Minerals Yearbook

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**IRAN [ADVANCE RELEASE]**

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# THE MINERAL INDUSTRY OF IRAN

By Philip M. Mobbs

Iran's hydrocarbon sector, which included the production of natural gas and oil, the refining of crude oil, and the distribution of hydrocarbons, was a significant facet of the country's economy. According to the Central Bank of the Islamic Republic of Iran (2010, p. 7), crude oil production averaged about 3.6 million barrels per day in 2009. According to BP p.l.c. (2010, p. 9), Iran was the world's fourth ranked producer of crude oil and condensate (natural gas liquids) and accounted for about 5.3% of the world's output. Iran held 15.8% of proved worldwide natural gas reserves and 10.3% of proved oil reserves. The country also was estimated to account for more than 1% of the world's output of cement and fluorspar (table 1; BP p.l.c., 2010, p. 6, 9, 22; Miller, 2010; van Oss, 2010).

## Minerals in the National Economy

Iran had an extensive mineral production and processing industry. Production, processing, transportation, and sales of crude oil and natural gas accounted for a notable portion of the country's gross domestic product. Cement and steel also were significant components of the domestic mineral industry. In 2009, the Government continued to subsidize several segments of the economy, including the electricity, mineral fuel, and natural gas sectors. Legislation to end the subsidies was expected to be approved by Parliament in 2010 (Pomeroy, 2010).

## Government Policies and Programs

The Mining Code of 1998, which was based on Articles 44 and 45 of Chapter 4 of the 1978 Constitution of the Islamic Republic of Iran, and various amendments to the Mining Code, regulated the mining sector. The Petroleum Act of 1987 clarified the Government's authority in the oil sector.

## Production

Based on estimates of mineral commodity production, significant increases in output in 2009 compared with that of 2008 were estimated for cement, gypsum, natural gas, and zinc ore. Notable decreases in production were reported for chromite and estimated for industrial sand.

Significant changes in output in 2008 compared with that of 2007 were reported for bauxite, bentonite, and chromite (and estimated for diatomite, gold, lead, manganese, and zinc). Notable decreases in production in 2008 compared with that of 2007 were reported for fluorspar, mica, and salt (and estimated for boron, pig iron, and silver). Data on estimated mineral production in Iran are in table 1.

## Structure of the Mineral Industry

The Ministry of Industries and Mines administered all mining, smelting, and refining industries except the oil and gas sectors,

which were administered by the Ministry of Petroleum. Basic geologic exploration and most initial evaluations of the Nation's mineral resources (except hydrocarbons) were performed by the Geological Survey of Iran.

Most of the country's more-than-3,000 active mines were privately owned. The Government, primarily through Iranian Mines and Mining Industries Development and Renovation Organization (IMIDRO), controlled many of the larger capacity mining and mineral-processing companies, especially those that produced aluminum, ammonia, coal, copper, iron and steel, natural gas, petroleum, salt, and sulfur. National Iranian Oil Co. was responsible for natural gas and crude oil production. In 2009, the Government continued to divest some of its interest in mineral-sector companies.

## Mineral Trade

The Central Bank of the Islamic Republic of Iran (2009b, p. 13; 2010, p. 13) reported that hydrocarbons accounted for about 75% of the total value of exports in 2009. Hydrocarbon exports were valued at about \$59 billion<sup>1</sup> in 2009 compared with \$95 billion in 2008. The decrease was attributed to a decline in international demand for crude oil, which resulted in a decreased international price of oil and a decline in Iranian crude oil exports. Crude oil exports accounted for most of the hydrocarbon exports. Shipments of Iranian crude oil to China, India, and Japan accounted for about 48% of Iranian crude oil and natural gas exports, based on value (Central Bank of the Islamic Republic of Iran, 2009b, p. 13; 2010, p. 13; United Nations, undated).

For Iranian year 1387 (the period from March 21, 2008, to March 20, 2009), which was the latest period for which data were available, liquefied petroleum gases accounted for 2.8% of total exports; methanol and ethylene glycol, 1%; aluminum, copper, and zinc metal and articles, 0.8%; iron and steel, 0.7%; light oils and products, 0.6%; cement, ceramics, and stone, 0.5%; ammonia, 0.4%; and sulfur, 0.2%. In comparison, crude oil and natural gas exports accounted for about 81% of total Iranian exports in year 1387; imports of gasoline were valued at \$3 billion and accounted for about 4.5% of imports (Central Bank of the Islamic Republic of Iran, 2009a, p. 63, 67, 68).

## Commodity Review

### Metals

**Aluminum.**—Fata S.p.A. of Italy continued work on the 147,000-metric-ton-per-year (t/yr)-capacity Hormozgan aluminum complex (Hormozal) at Bandar Abbas, which was expected to begin production in 2010. The CITIC

<sup>1</sup>Where necessary, values have been converted from Iranian rials (RI) to U.S. dollars (US\$) at the average exchange rate of RI 9,752=US\$1.00 for 2009 and RI 9,638=US\$1.00 for 2008.

International Cooperation Company, Ltd. of China and China Aluminium International Engineering Corporation Ltd. (Chalico) consortium worked on the construction of a 276,000-t/yr-capacity aluminum smelter for Aluminum Jonub Co. (also known as Jonub Aluminum Co. or South Aluminum Co.), which was a joint venture of state-owned IMIDRO and Ghadir Investment Co. (which was a subsidiary of Bank Saderat of Iran) (Iranian Mines and Mining Industries Development and Renovation Organization, 2009a; 2010).

**Chromium.**—In 2008, Rohit Ferro-Tech Ltd. of India secured 49% equity interest in Rohit Persia Mines and Industries PJSC, which was formed to acquire chromite ore deposits in Iran to develop. Rohit Persia, however, deferred the acquisition of properties; instead, Rohit Ferro-Tech imported chromite ore from Iran in 2009 (Rohit Ferro-Tech Ltd., 2009, 4; 2010, p. 44).

**Copper.**—National Iranian Copper Industries Co. (NICICO) proposed significant increases in Iran's refined copper production by 2014. Projects underway in 2009 included the construction of a new smelter at Sungun, the expansion of the Khatoonabad smelter, the construction of a 5,000-t/yr-capacity solvent extraction-electrowon plant at Miduk, and a new 100,000-t/yr-capacity copper refinery at Khatoonabad. NICICO planned to increase the capacity of several domestic copper mines to concentrate ore. Construction of new copper mines also was underway (Iranian Mines and Mining Industries Development and Renovation Organization, 2009b; National Iranian Copper Industries Co., undated a-c).

**Gold.**—In 2009, the joint venture of Persian Gold plc of Ireland (70%) and DORSA Pardazeh Co. (30%) completed the technical work required for the application for a discovery certificate for the Dalli prospect. Another Persian Gold joint venture continued to wait for a positive response from the Government on the previously filed application for a discovery certificate for the Chah-e-Zard prospect. The joint ventures had acquired the required foreign investment approvals but could not proceed with the projects without discovery certificates (Persian Gold plc, 2010a, b).

**Iron and Steel.**—IMIDRO proposed to divest 40% equity interest in Khouzestan Oxin Steel Co., which was a rolling mill that was located in Ahvaz, and 30% interest in South Kaveh Steel Co. (Kaveh Jonub Steel), which was building direct-reduced iron (DRI) modules and a steel plant at Bandar Abbas, Hormozgan Province. The DRI plant was expected to be completed by 2011, and the electric arc furnace facility, by 2013. Eight new iron and steel projects were under construction in various Provinces, which included a number of additional 850,000-t/yr-capacity DRI plants that were being built for NISCO (Metal Bulletin, 2010; Midrex Technologies, Inc., 2010, p. 9).

**Zinc.**—Mehdiabad Zinc Co., which was a joint venture of IMIDRO, Itok GmbH of Austria, and Union Resources Ltd. of Australia, developed the Mehdiabad zinc deposit. In 2006, Mobin Mining and Construction Co. was awarded a contract by Iranian Minerals Production and Supply Co. (IMPASCO), which was a subsidiary of IMIDRO, to remove overburden and mine oxide ore at the Mehdiabad Mine. In late 2006, IMIDRO notified Union Resources that it had terminated several agreements concerning the Mehdiabad joint venture because of

alleged breaches of contract and that the project's exploitation license was not going to be transferred to Mehdiabad Zinc. Union Resources disputed the notice of termination and had attempted to resolve the issue since 2006. In April 2009, Union Resources filed a claim for the effective expropriation of Union Resources' interest in the Mehdiabad project against a political risk insurance policy that Union Resources held from the Export Finance and Insurance Corp. (EFIC) of Australia. In October, the EFIC declared that it did not consider that the Mehdiabad situation was an expropriation and denied the claim (Union Resources Ltd., 2009; 2010, p. 4; Mobin Mining and Construction Co., undated).

### *Mineral Fuels*

**Natural Gas and Petroleum.**—Most of the country's hydrocarbon production activity was located in the southwest, both offshore and onshore. About 40 fields were producing and several other fields were under development. The renovation of existing crude oil refineries at Abadan, Arak, Bandar Abbas, Esfahan, Lavan, and Tehran and the construction of new hydrocarbon refineries at Abadan, Bandar Abbas, Kermanshah, Shiraz, and Tabriz, and in Golestan Province, were expected to ease the domestic demand for imported gasoline. International sanctions and the global economic crisis, however, had adversely affected the availability of financing for oilfield development and oil refinery construction (MEED, 2009; U.S. Energy Information Administration, 2009).

### **Outlook**

The Government is continuing with the planned reduction of its direct-controlling interest in the economy. In the recent past, however, quasi-governmental organizations have acquired a significant proportion of the shares in companies that the Government had divested.

Numerous production-capacity expansion projects and mineral commodity development projects are planned or underway in Iran's mineral sector; however, most large-scale mineral resource development programs are dependent on the availability of scarce Government funding. The availability of international funding for capital-intensive development of mineral-related projects by Government-controlled and private companies operating in Iran is impaired, in part, by sanctions imposed by the United States and by the Iranian Government's nuclear program, which had attracted additional international sanctions.

About 56% of Iranian crude oil production was exported in 2009. As long as the Government subsidizes the price of energy, domestic demand for crude oil and natural gas is expected to continue to increase, which may require that Iran forgo income-generating hydrocarbon exports in order to meet domestic demand. Development of identified natural gas and oil resources is expected to continue in Iran, subject to funding constraints and limitations imposed by existing (2009) economic sanctions (Central Bank of the Islamic Republic of Iran, 2010, p. 7; U.S. Department of the Treasury, Office of Foreign Assets Control, 2010).

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TABLE 1  
IRAN: PRODUCTION OF MINERAL COMMODITIES<sup>1,2</sup>

(Metric tons unless otherwise specified)

Commodity <sup>3</sup>	2005 <sup>e</sup>	2006 <sup>e</sup>	2007 <sup>c</sup>	2008 <sup>c</sup>	2009 <sup>c</sup>
METALS					
Aluminum:					
Bauxite, gross weight	437,595 <sup>4</sup>	500,000	520,800 <sup>4</sup>	715,339 <sup>r,4</sup>	700,000
Alumina	200,000	250,000	250,000	250,000 <sup>r</sup>	250,000
Metal, primary ingot	220,000	205,000	215,981 <sup>4</sup>	248,000	250,000
Arsenic, orpiment and realgar, concentrates <sup>e</sup>	100	100	100	100	100
Chromite, mine output, concentrate:					
Gross weight	223,563 <sup>4</sup>	244,603 <sup>4</sup>	185,760 <sup>4</sup>	268,586 <sup>r,4</sup>	225,129 <sup>4</sup>
Cr <sub>2</sub> O <sub>3</sub> content <sup>e</sup>	110,000	115,000	90,000	130,000	110,000
Copper:					
Mine output:					
Ore mined (0.6% to 1.2% Cu):					
Gross weight	19,000	20,000	26,500	26,500	27,000
Cu content <sup>e</sup>	190,000	210,000	244,000	248,000	260,000
Concentrate (29% to 35% Cu):					
Gross weight	480,000	620,000	731,000	740,000	750,000
Cu content <sup>e</sup>	160,000	200,000	235,000	240,000	255,000
Metal:					
Smelter output, blister or anode	227,000	242,000	250,000	248,000	260,000
Refined output, cathode	178,000	200,000	201,000	200,000	210,000
Gold, mine output, Au content <sup>5</sup>	200	200	252 <sup>4</sup>	400	400
Iron and steel:					
Ore and concentrate:					
Gross weight	19,000	26,244 <sup>r</sup>	31,538 <sup>r</sup>	32,000 <sup>r</sup>	33,000
Fe content <sup>e</sup>	9,162 <sup>4</sup>	13,000 <sup>r</sup>	15,000 <sup>r</sup>	15,000 <sup>r</sup>	16,000
Metal:					
Pig iron	2,300	2,000	2,572 <sup>4</sup>	2,200 <sup>r</sup>	2,300
Direct-reduced iron	6,850	6,900	7,440 <sup>4</sup>	7,500	8,000
Ferrochromium <sup>e</sup>	8,000	7,000	8,000	8,000	8,000
Ferrosilicon	50,000	45,000	45,000	45,000	45,000
Steel, crude, ingots and castings	9,400	9,800	10,100	9,960	10,000
Lead:					
Mine output, concentrate:					
Gross weight	43,000	47,000	40,000	53,000 <sup>r</sup>	53,000
Pb content <sup>e</sup>	22,000	24,000	20,000	26,905 <sup>r,4</sup>	27,000
Refinery output, includes secondary <sup>e</sup>	68,000	75,000	70,000	75,000	75,000
Manganese, mine output (30% to 35% Mn):					
Gross weight	125,000	125,000	103,441 <sup>4</sup>	115,000 <sup>r</sup>	115,000
Mn content <sup>e</sup>	42,000	42,000	35,000	40,000 <sup>r</sup>	40,000
Molybdenum, mine output, concentrate:					
Gross weight	4,603 <sup>4</sup>	4,600	6,644 <sup>4</sup>	6,597 <sup>r,4</sup>	6,600
Mo content <sup>e</sup>	2,476 <sup>4</sup>	2,500	3,600	3,700	3,700
Silver, mine output, Ag content	25	25	20 <sup>r</sup>	15 <sup>r</sup>	15
Zinc:					
Mine output, concentrate:					
Gross weight	310,000	300,000	190,000	130,000 <sup>r</sup>	150,000
Zn content <sup>e</sup>	167,000	164,000	100,000	69,267 <sup>r,4</sup>	80,000
Metal	120,000	140,000	90,000	60,000 <sup>r</sup>	65,000
INDUSTRIAL MINERALS					
Asbestos:					
Concentrate (3% to 8% marketable fiber)	40,000	40,000	-- <sup>4</sup>	--	--
Marketable fiber <sup>e</sup>	1,300	1,300	-- <sup>4</sup>	--	--
Barite	231,184 <sup>4</sup>	230,000	249,495 <sup>4</sup>	226,590 <sup>r,4</sup>	240,000

See footnotes at end of table.

TABLE 1—Continued  
 IRAN: PRODUCTION OF MINERAL COMMODITIES<sup>1,2</sup>

(Metric tons unless otherwise specified)

Commodity <sup>3</sup>	2005 <sup>c</sup>	2006 <sup>c</sup>	2007 <sup>c</sup>	2008 <sup>c</sup>	2009 <sup>c</sup>
INDUSTRIAL MINERALS—Continued					
Boron, borax	1,660	2,000	1,603 <sup>4</sup>	1,020 <sup>r</sup>	1,000
Cement, hydraulic	32,650 <sup>4</sup>	35,000	41,000	44,400	50,000
Clays:					
Bentonite	261,888 <sup>4</sup>	260,000	254,084 <sup>4</sup>	375,898 <sup>r,4</sup>	380,000
Industrial clays	550,000	550,000	550,000	530,000	530,000
Kaolin	311,501 <sup>4</sup>	310,000	350,000	320,000	320,000
Diatomite	1,450	1,500	300	2,000 <sup>r,4</sup>	2,000
Feldspar	286,033 <sup>4</sup>	290,000	512,261 <sup>4</sup>	501,821 <sup>r,4</sup>	500,000
Fluorspar	64,601 <sup>4</sup>	65,000	68,192 <sup>4</sup>	61,592 <sup>r,4</sup>	65,000
Gemstones, turquoise <sup>c</sup>	20,000	20,000	20,000	19,000 <sup>r</sup>	19,000
Gypsum	11,196 <sup>4</sup>	12,000	12,000	11,251 <sup>r,4</sup>	13,000
Industrial or glass sand (quartzite and silica)	1,900	1,900	2,000	2,000	1,500
Lime	2,500	2,600	2,600	2,700	2,700
Magnesite	114,708 <sup>4</sup>	110,000	112,229 <sup>4</sup>	115,987 <sup>r,4</sup>	115,000
Mica	705 <sup>4</sup>	--	1,800 <sup>4</sup>	1,510 <sup>r,4</sup>	1,500
Nepheline syenite	65,000	70,000	70,000	70,000	70,000
Nitrogen:					
N content of ammonia	1,020,000	1,020,000	2,000,000	2,000,000	2,000,000
N content of urea	670,000	670,000	1,300,000	1,300,000	1,300,000
Perlite	31,000	40,000	30,000	30,000	30,000
Phosphate rock:					
Ore	324,166 <sup>4</sup>	325,000	330,000	325,000	330,000
P <sub>2</sub> O <sub>5</sub> content <sup>c</sup>	40,000	40,000	40,500	37,000 <sup>r</sup>	39,000
Pigments, mineral, natural iron oxide, ochre <sup>c</sup>	2,500	2,600	2,600	2,600	2,600
Pumice and related volcanic materials	1,500	1,400	1,500	1,500	1,500
Salt	2,009,195 <sup>4</sup>	2,000,000	2,564,871 <sup>4</sup>	2,158,280 <sup>r,4</sup>	2,200,000
Soda ash <sup>c</sup>	130,000	130,000	140,000	140,000	140,000
Sodium compound, caustic soda <sup>c</sup>	22,000	20,000	20,000	20,000	20,000
Stone:					
Construction and building, crushed <sup>6</sup>	25,000	25,000	26,000	25,000	25,000
Dimension and decorative:					
Granite	1,000	1,000	1,100	1,000	1,000
Marble, blocks and slabs <sup>7</sup>	4,000	4,000	4,200	4,000	4,000
Travertine, blocks	1,400	1,400	1,500	1,500	1,500
Total <sup>c</sup>	6,400	6,400	6,800	6,500	6,500
Dolomite	600	600	650	600	600
Limestone	50,000	50,000	55,000	50,000	50,000
Strontium, celestite	672	1,000 <sup>r</sup>	2,000 <sup>r</sup>	2,000 <sup>r</sup>	2,000
Sulfates, natural: <sup>c</sup>					
Aluminum potassium sulfate (alum)	1,000	1,000	1,000	1,000	1,000
Sodium sulfate	600,000	600,000	600,000	600,000	600,000
Sulfur: <sup>c</sup>					
Byproduct of petroleum and natural gas	1,400,000	1,400,000	1,500,000	1,500,000	1,500,000
Byproduct of metallurgical processing, S content of acid	60,000	60,000	70,000	70,000	70,000
Total	1,460,000	1,460,000	1,570,000	1,570,000	1,570,000
Talc	70,600	70,000	90,889 <sup>4</sup>	89,110 <sup>r,4</sup>	90,000

See footnotes at end of table.

TABLE 1—Continued  
 IRAN: PRODUCTION OF MINERAL COMMODITIES<sup>1,2</sup>

(Metric tons unless otherwise specified)

Commodity <sup>3</sup>	2005 <sup>e</sup>	2006 <sup>e</sup>	2007 <sup>e</sup>	2008 <sup>e</sup>	2009 <sup>e</sup>	
MINERAL FUELS AND RELATED MATERIALS						
Coal	thousand metric tons	1,898 <sup>4</sup>	2,000	2,000	1,800 <sup>r</sup>	1,900
Coke	do.	1,020	1,184 <sup>4</sup>	1,200 <sup>4</sup>	1,300	1,300
Gas, natural: <sup>e</sup>						
Gross	million cubic meters	150,000	160,000	170,000	175,000	200,000
Dry	do.	100,000	105,000	112,000	116,000	131,000
Plant liquids	thousand 42-gallon barrels	85,000	90,000	150,000 <sup>r</sup>	140,000 <sup>r</sup>	140,000
Petroleum:						
Crude	do.	1,493,000 <sup>4</sup>	1,487,000 <sup>4</sup>	1,470,000 <sup>4</sup>	1,490,000	1,300,000
Refinery products: <sup>e</sup>						
Liquefied petroleum gases	do.	48,000	47,000	53,000 <sup>r</sup>	55,000 <sup>r</sup>	56,000
Motor gasoline	do.	100,000	103,000	103,000 <sup>r</sup>	102,000 <sup>r</sup>	105,000
Jet fuel	do.	7,000	8,000	7,900 <sup>r</sup>	8,000	8,100
Kerosene	do.	50,000	49,000	51,000 <sup>r</sup>	49,000 <sup>r</sup>	50,000
Distillate fuel oil	do.	120,000	185,000	187,000 <sup>r</sup>	196,000 <sup>r</sup>	200,000
Residual fuel oil	do.	170,000	175,000	168,000 <sup>r</sup>	178,000 <sup>r</sup>	180,000
Other	do.	20,000	16,000	17,000 <sup>r</sup>	19,000	20,000
Total	do.	515,000	583,000	586,900	607,000	619,000

<sup>e</sup>Estimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. <sup>r</sup>Revised. do. Ditto. -- Zero.

<sup>1</sup>Table includes data available through October 29, 2010.

<sup>2</sup>Data are for Iranian years ending March 20 of that stated, except data for alumina, natural gas, natural-gas-plant liquids, and petroleum, which are for Gregorian calendar years.

<sup>3</sup>In addition to commodities listed, the following may have been produced, but information is inadequate to estimate output: antimony, bromine, crude construction materials (such as sand and shell), ferromolybdenum, hafnium oxide, ilmenite, selenium, silicomanganese, uranium, zeolite, and zirconium metal.

<sup>4</sup>Reported figure.

<sup>5</sup>Includes gold recovered from the Mouteh gold mine and from the Sarcheshmeh copper complex.

<sup>6</sup>Includes marble and travertine.

<sup>7</sup>Includes marmarite.

TABLE 2  
IRAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2009<sup>1,2</sup>

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Alumina	Iran Alumina Co. (Government)	Northeast of Jajarm, Khorasan Province	280
Aluminum	Iran Aluminium Co. [Iranian Mines and Mining Industries Development and Renovation Organization (IMIDRO) <sup>3</sup> majority interest, and a joint venture of Industrial Development Investment Co. and a subsidiary of Mehr Finance & Credit Institution, 40%]	Arak, Markazi Province	190
Do.	Almahdi Aluminium Corp. [Iranian Mines and Mining Industries Development and Renovation Organization (IMIDRO), <sup>3</sup> 59.34%, and International Development Corp., 20.78%]	Bandar Abbas, Hormozgan Province	110
Bauxite	Iran Alumina Co. (Government)	Jajarm Mine, about 15 kilometers northeast of Jajarm	500
Cement	Abadeh Cement Co.	Abadeh, Fars Province	175
Do.	Abyek Cement Co. (Fars & Khouzestan Cement Co.)	Abyek, Qazvin Province, 80 kilometers northwest of Tehran	5,100
Do.	Anarak Special Cement Co.	Anarak, Markazi Province	500
Do.	Ardebil Cement Co. (Espandar Cement Investment Co.)	Namin, Ardebil Province	1,050
Do.	Ardestan Cement Co.	North of Esfahan, Esfahan Province	1,000
Do.	Behbahan Cement Co. (Fars & Khouzestan Cement Co.)	Behbahan, Khuzestan Province	960
Do.	Benvid White Cement Co. (Bank Melli Iran Investment Co.)	Benvid, Esfahan Province	175
Do.	Bojnourd Cement Plant (Fars & Khouzestan Cement Co.)	About 37 kilometers from Bojnourd, Khorasan Province	700
Do.	Bushehr Cement Co. (Dashtestan Cement)	Borazjan, Bushehr Province	1,000
Do.	Darab Cement Co. [General public (Justice shares), 50%, and Bank Melli Iran Investment Co., 29%]	About 190 kilometers southeast of Shiraz, Fars Province	1,100
Do.	Doroud Cement Co. (Fars & Khouzestan Cement Co.)	Doroud, Lorestan Province	1,400
Do.	Ekbatan Cement Co. (Espandar Cement Investment Co.)	Ekbatan, Tehran Province	175
Do.	Estahban Cement Co.	20 kilometers west of Estahban, Fars Province	350
Do.	Faraz Firouzkhu Cement Co. (Espandar Cement Investment Co.)	About 180 kilometers northeast of Tehran	1,200
Do.	Fars Cement Co. (Fars & Khouzestan Cement Co.)	Shiraz, Fars Province	2,000
Do.	Fars Nov Cement Co. (Fars & Khouzestan Cement Co.)	About 65 kilometers southeast of Shiraz, Fars Province	1,000
Do.	Firozkuh	Firozkuh	1,100
Do.	Ghaen Cement Co. (Cement Investment and Development Co., 26%, and Bank Melli Iran Investment Co., 14%)	Qayen (Ghaen), Khorasan Province	770
Do.	Gharb Cement Co. (Fars & Khouzestan Cement Co.)	Kermanshah, Kermanshah Province	700
Do.	Hegmatan Cement Co. (Tehran Cement Co., 79%)	East of Razan, Hamedan Province	1,000
Do.	Hormozgan Cement Co. (OMID Investment Co.)	About 75 kilometers west of Bandar Abbas	2,200
Do.	Ilam Cement Co. (Tehran Cement Co., 47%)	Northeast of Ilam, Ilam Province	700
Do.	Isfahan Cement Co.	Esfahan, Esfahan Province	1,100
Do.	Karoon Cement Co.	Near Masjed Soleyman, Khozestan Province	1,100
Do.	Kavir Kashan Cement Co. (Espandar Cement Investment Co.)	Near Kashan, Esfahan Province	660
Do.	Kerman Cement Co. (Bank Melli Iran Investment Co., 38%)	Kerman, Kerman Province	1,260
Do.	Khash Cement Co. (Fars & Khouzestan Cement Co.)	Khash, Sistan va Baluchestan Province	730 <sup>e</sup>
Do.	Khazar Cement Co. (Fars & Khouzestan Cement Co.)	About 80 kilometers northwest of Qazvin, Qazvin Province	1,200
Do.	Khouzestan Cement Co. (Fars & Khouzestan Cement Co.)	Ramhormoz, Khuzestan Province	1,100 <sup>e</sup>
Do.	Kohkiloye Yasuj Cement (State Retirement Organization <sup>3</sup> and Fars & Khouzestan Cement Co.)	Behbahan, near Deh Dasht, Kohkiloye, Kohgiluyeh va Bowyer Ahmad Province	240
Do.	Kordestan Cement Co. (Ghadir Investment Co.)	North of Bijar, Kurdistan Province	1,000
Do.	Lar-e Sabzevar Cement Co.	Sabzevar, Khorasan Province	1,100
Do.	Loshan Cement Co. (Tehran Cement Co., 66%)	Loshan, Gilan Province	100
Do.	Mazandaran Cement Co. (Bank Melli Iran Investment Co., 60%)	Neka, Mazandaran Province	1,600
Do.	Neyriz White Cement Co. (Fars & Khouzestan Cement Co.)	Neyriz, Fars Province	160
Do.	Omran Anarak Cement Co.	Delijan, Markazi Province	1,030

See footnotes at end of table.



TABLE 2—Continued  
 IRAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2009<sup>1,2</sup>

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity	
Cement—Continued	Qeshm Cement Co.	Qeshm Island, Hormozgan Province	250	
Do.	Sarooj Bushehr International Co.	Kangan, Bushehr Province	1,600	
Do.	Saveh Grey Cement Co. (Fars & Khouzestan Cement Co.)	Saveh, Markazi Province	2,200	
Do.	Saveh White Cement Co. (Fars & Khouzestan Cement Co.)	Saveh, Markazi Province	350	
Do.	Sepahan Cement Co. (Ghadir Investment Co.)	Mobarekeh, Esfahan Province	2,300	
Do.	Shahroud Cement Co. (Fars & Khouzestan Cement Co.)	Shahroud, Semnan Province	600	
Do.	Sharg Cement Co. (Ghadir Investment Co.)	Mashhad, Khorasan Province	1,600	
Do.	Shemal Cement Co. (Bank Mellī Iran Investment Co., 59%)	Pardis, Tehran Province	880	
Do.	Soufian Cement Co. (Fars & Khouzestan Cement Co. and Social Security Organization Investment Co.)	About 33 kilometers northwest of Tabriz, East Azerbaijan Province	1,500	
Do.	Tehran Cement Co. (Ghadir Investment Co.)	Tehran, Tehran Province	6,000	
Do.	Urmia Cement Co. (Fars & Khouzestan Cement Co.)	Orumiye, West Azerbaijan Province	740	
Do.	Urumieh White Cement Co.	do.	180	
Do.	Yazd Bohrouk Cement Co.	Yazd, Yazd Province	1,100	
Do.	Zanjan Cement Co. (Fars & Khouzestan Cement Co.)	Zanjan, Zanjan Province	600	
Do.	Zarveh Torbat Cement Co.	Torbat-Heydareh, Khorasan Province	1,100	
Chromite	Faryab Mining Co.	Faryab Mine and processing plant, Minab, Hormozgan Province	180 <sup>e</sup>	
Do.	Esfandaghe Mines Co.	Abdasht Mine, Kerman Province; Suqan (Saboughan) Mine, Kerman Province; Processing plant at Esfandaghe, Kerman Province	30	
Do.	NA	Furumad Mine, Shahrud, Semnan Province; Gaft processing plant, Semnan Province	6	
Do.	NA	Mir Mahmud Mine, Mayami, Semnam Province	6	
Do.	NA	Dumak Mine, Zahedan, Sistan va Baluchestan Province	2	
Coke	thousand metric tons	Isfahan Steel Co. [Iranian Mines and Mining Industries Development and Renovation Organization (IMIDRO)] <sup>3</sup>	Plant about 40 kilometers southwest of Esfahan, Esfahan Province	900
Do.		Zarand Iranian Steel Co.	Zarand, Kerman Province	400
Copper:				
Concentrate		National Iranian Copper Industries Co. (NICICO) [Iranian Mines and Mining Industries Development and Renovation Organization (IMIDRO)] <sup>3</sup>	Sarcheshmeh Mine, south of Rafsanjan, Kerman Province	670
Do.		do.	Sungun copper mine, East Azerbaijan Province	150
Do.		do.	Miduk copper mine, Kerman Province	150
Do.		do.	Qal'eh Zari Mine, about 120 kilometers southwest of Birjand, Khorasan Province	10
Do.		Private cooperatives	Chah Musa Mine and Qal'eh Sukhteh, Semnan	5
Smelter output		National Iranian Copper Industries Co. (NICICO) [Iranian Mines and Mining Industries Development and Renovation Organization (IMIDRO)] <sup>3</sup>	Smelter, Sarcheshmeh copper complex, south of Rafsanjan, Kerman Province	145
Do.		do.	Smelter near Khatoonabad, Kerman Province	80
Refined metal		do.	Refinery, Sarcheshmeh copper complex, south of Rafsanjan, Kerman Province	210
Do.		do.	Electrowon plant, Sarcheshmeh copper complex, south of Rafsanjan, Kerman Province	14
Gemstones, turquoise		NA	Neyshabur Mine, Khorasan Province	6 <sup>e</sup>

See footnotes at end of table.

TABLE 2—Continued  
 IRAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2009<sup>1,2</sup>

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
<b>Gold:</b>			
Ore	Iran Gold Co.	Muteh Mine (Chah Khaton and Senjedeh pits), Esfahan Province, and Kuh-e-Zar Mine, Semnan Province	600
Do.	Artisanal placer operations	Neyshabur area, Khorasan Province	NA
Metal <sup>4</sup>	National Iranian Copper Industries Co. (NICICO) [Iranian Mines and Mining Industries Development and Renovation Organization (IMIDRO)] <sup>3</sup>	Sarcheshmeh copper complex, south of Rafsanjan, Kerman Province	500
<b>Iron and steel:</b>			
Iron ore	Iran Central Iron Ore Co. (National Iranian Steel Co. (NISCO), 100%) <sup>5</sup>	Choghart Mine, Bafgh, Yazd Province	7,400
Do.	Chadormalu Mining and Industrial Co. [Omid Investment Management Corp., 37%; Mines and Metals Development Investment Co., 15%; Iranian Mines and Mining Industries Development and Renovation Organization (IMIDRO), <sup>3</sup> 8%]	Chadormalu Mine, 80 kilometers north of Bafgh, Yazd Province	6,500
Do.	Gol-e-Gohar Iron Ore Co. [Omid Investment Management Corp., 39%; Mines and Metals Development Investment Co., 28%; Iranian Mines and Mining Industries Development and Renovation Organization (IMIDRO), <sup>3</sup> 18%]	Gol-e-Gohar Mine, about 50 kilometers southwest of Sirjan, Kerman Province	3,800
Do.	Sangan Iron Ore Co. (National Iranian Steel Co., 100%) <sup>3</sup>	Sangan (Songun) Mine, about 140 kilometers southeast of Torbat e-Heydariyeh, Khorasan Province	2,000
Do.	Iranian Minerals Production and Supply Co. (IMPASCO) [Iranian Mines and Mining Industries Development and Renovation Organization (IMIDRO)] <sup>3</sup>	Jalal Abad Mine, about 40 kilometers northwest of Zarand	1,700
Do.	About 20 small privately owned mines	NA	1,000 <sup>e</sup>
<b>Iron:</b>			
Cast iron	Zagros Steel Co. (Government, majority interest)	Foundry in Kurdistan Province	70
Iron metal	Mobarekeh Steel Co. [Iranian Mines and Mining Industries Development and Renovation Organization (IMIDRO)] <sup>3</sup> majority interest; Social Security Organization, <sup>3</sup> 10%; a subsidiary of Mehr Finance & Credit Institution, 5%, and the Steel Employees Fund, 5%]	Direct-reduction iron plant (Midrex® process) about 50 kilometers southwest of Esfahan, Esfahan Province	4,000
Do.	Khouzestan Steel Co. [Iranian Mines and Mining Industries Development and Renovation Organization (IMIDRO), <sup>3</sup> majority interest]	Direct-reduction iron plant (HYL I, Midrex®, and Purofer processes), Ahwaz, Khuzestan Province	3,200
Do.	Hormozgan Steel Complex [National Iranian Steel Co. (NISCO)] <sup>5</sup> and partners]	Direct-reduction iron plant (Midrex® process)	850
Do.	Isfahan Steel Co. [Iranian Mines and Mining Industries Development and Renovation Organization (IMIDRO)] <sup>3</sup>	Direct-reduction iron plant (Ghaem process) about 40 kilometers southwest of Esfahan, Esfahan Province	600
Steel, crude	Mobarekeh Steel Co. [Iranian Mines and Mining Industries Development and Renovation Organization (IMIDRO)] <sup>3</sup> majority interest; Social Security Organization, <sup>3</sup> 10%; a subsidiary of Mehr Finance & Credit Institution, 5%, and the Steel Employees Fund, 5%]	Plant about 50 kilometers southwest of Esfahan, Esfahan Province	4,200
Do.	Khouzestan Steel Co. [Iranian Mines and Mining Industries Development and Renovation Organization (IMIDRO)] <sup>3</sup> majority interest]	Plant at Ahwaz, Khuzestan Province	2,600
Do.	Isfahan Steel Co. [Iranian Mines and Mining Industries Development and Renovation Organization (IMIDRO)] <sup>3</sup>	Plant about 40 kilometers southwest of Esfahan, Esfahan Province	2,200

See footnotes at end of table.

TABLE 2—Continued  
 IRAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2009<sup>1,2</sup>

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Iron and steel—Continued:				
Steel, crude—Continued		Khorasan Steel Co. [Iranian Mines and Mining Industries Development and Renovation Organization (IMIDRO) <sup>3</sup> majority interest, and a Government pension fund, 40%]	Plant at Neyshabur, Khorasan Province	650
Do.		Vian Steel Melting and Casting Co.	Plant, about 42 kilometers of Hamadan, Hamadan Province	600
Do.		Meibod (Maybod) Steel Co. (Iranian Mines and Mining Industries Development and Renovation Organization (IMIDRO)), <sup>3</sup> 50%	About 15 kilometers southwest of Meybod, Yazd Province	300
Magnesite		Birjand Refractory Mining Co. (Iranian Refractories Procurement & Production Co.)	Hoz Sefid, Shirkuhak, and Torshak Mohammadi Mines, about 50 kilometers southeast of Birjand, South Khorasan Province	NA
Natural gas	billion cubic meters	National Iranian Oil Co. (Government, 100%)	Associated gas from company oilfields	96
Do.	do.	do.	Aghar, Dalan, Kangan, and Nar gasfields	57
Do.	do.	Pars Oil and Gas Co. (National Iranian Oil Co., 100%) <sup>3</sup>	South Pars gasfields, offshore	32 <sup>6</sup>
Petroleum:				
Crude	million 42-gallon barrels	National Iranian Oil Co. (Government, 100%)	Onshore oilfields include the Agha Jari, the Ahwaz-Asmari, the Bangestan, the Hakimeh, the Gachsaran, the Karanj, the Marun, the Pazanan, and the Rag-e-Safid. Offshore oilfields include the Abouzar, and the Salman	1,400
Do.	do.	National Iranian Oil Co. and buyback contract joint venture of Shell Iran Nowrooz/Soroosh Development (70%), JJI S&N B.V. (20%), and Iranian Offshore Engineering & Construction Co. (10%)	Nowrooz and Soroosh fields, offshore	75
Do.	do.	National Iranian Oil Co. and buyback contract joint venture of Total S.A. (55%) and Eni SpA (45%)	Doroud field, offshore	65
Do.	do.	National Iranian Oil Co. and buyback contract joint venture of Total S.A. (70%) and PETRONAS Carigali International Sdn Bhd (30%)	Sirri A and E fields, offshore	40
Do.	do.	National Iranian Oil Co. and buyback contract joint venture of Total S.A. (60%) and Naftiran Intertrade Co. (40%)	Darquain field, onshore	17
Refined products	thousand 42-gallon barrels per day	National Iranian Oil Refining and Distribution Co. (NIORDC) (Government, 100%)	Refineries at Abadan, Arak, Bandar Abbas, Esfahan, <sup>7</sup> Kermanshah, Lavan, Shiraz, Tabriz, and Tehran	1,728
Phosphate rock		Esfordi Phosphate Complex (Iran Minerals Production & Supply Co.) <sup>3</sup>	About 35 kilometers northeast of Bafgh, Yazd Province	500
Titanium, ilmenite		Kahnuj pilot plant [Iranian Mines and Mining Industries Development and Renovation Organization (IMIDRO)] <sup>3</sup>	Daregaz placer and Kahnuj titanium dioxide processing plant	NA
Uranium	metric tons	Atomic Energy Organization of Iran (Government)	Saghand Mine, about 125 kilometers northeast of Yazd, Yazd Province	50 <sup>e</sup>
Do.	do.	do.	Gchine Mine, near Bandar Abbas, Hormozgan Province	21 <sup>e</sup>
Zinc:				
Ore		Iran Zinc Mine Development Co.	Angouran open pit mine, Dandi, Zanjan Province	500 <sup>8</sup>
Do.		BAMA Co. (IranKoooh)	Irakouh complex (Gooshfil and Tappeh Sorkh open pit mines, about 20 kilometers southeast of Esfahan, Esfahan Province, and Kolah Darvazeh Mine, south of Esfahan, Esfahan Province)	190 <sup>8</sup>
Do.		Bafgh Mining Co.	Kushk Mine, Yazd Province	120 <sup>8</sup>
Do.		Beroner Tehran Co.	Emarat Mine, about 25 kilometers southwest of Arak, Markazi Province	100 <sup>8</sup>

See footnotes at end of table.

TABLE 2—Continued  
 IRAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2009<sup>1,2</sup>

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Zinc—Continued:			
Refined metal	Bafgh Zinc Co. (Iran Zinc Mine Development Co.)	West of Bafgh, Yazd Province	30
Do.	Qeshm Zinc Smelter Co. (affiliate of Calcimine Co.)	Kaveh Industrial Zone, Qeshm Island, Hormozgan Province	20
Do.	Calcimine Co. (Iran Zinc Mine Development Co.)	Dandi (Angouran) plant, Zanjan Province	18
Do.	Faravari Mavad Madani Iran Co. (Iran Zinc Mine Development Co.)	Dandi, Zanjan Province	18
Do.	National Iranian Lead and Zinc Co. (Iran Zinc Mine Development Co.)	About 12 kilometers east of Zanjan, Zanjan Province	15
Do.	Bandar Abbas Zinc Production Co. (affiliate of Calcimine Co.)	Bandar Abbas, Hormozgan Province	13
Do.	Zanjan Zinc Smelter Co. (affiliate of Calcimine Co.)	Zanjan, Zanjan Province	5

<sup>6</sup>Estimated. Do., do. Ditto. NA Not available.

<sup>1</sup>About 3,000 mines that are located in Iran are active. About 65% of the active mines and quarries produce building and construction materials, such as aggregate, sand, and stone.

<sup>2</sup>Data was augmented by input from the Iranian National Committee of the World Mining Congress.

<sup>3</sup>Government owned.

<sup>4</sup>Recovered from Sar Chemesh copper plant slimes.

<sup>5</sup>A subsidiary of state-owned Iranian Mines and Mining Industries Development and Renovation Organization (IMIDRO).

<sup>6</sup>May include basic sediment and condensate.

<sup>7</sup>Held 95% equity interest.

<sup>8</sup>Includes lead and zinc ores.