



# 2013 Minerals Yearbook

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## IRAN

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# THE MINERAL INDUSTRY OF IRAN

By Staff

The mineral industry held a very prominent role in the economy of Iran, particularly the hydrocarbon sector, which included the production of natural gas and oil, the refining of crude oil, and the distribution of hydrocarbons. According to BP p.l.c., Iran was the world's third-ranked producer of natural gas. Iran also was the world's sixth-ranked producer of crude oil and condensate (natural gas liquids) and accounted for about 4.0% of the world's output (combined). About 2% of the world's crude-oil-refining capacity was located in the country, and Iran held 18.2% of proved worldwide natural gas reserves and 9.3% of proved crude oil reserves in 2013 (BP p.l.c., 2014, p. 6, 10, 16, 20, 22).

More than 40 mineral commodities were mined and about 20 metals or mineral-related commodities were refined or manufactured in Iran. The country was estimated to account for about 6% of the world's output of gypsum; about 3% each of the world's output of barite, feldspar, and sulfur; and more than 1% each of the world's output of cement, industrial (or glass) sand, molybdenum, and nitrogen. Mineral-related issues (specifically uranium enrichment and the potential to produce fissile material for the development of a nuclear weapon) negatively affected Iran's relations with the Governments of many countries (U.S. Government Accountability Office, 2013, p. 3–4; Apodaca, 2015a, b; Crangle, 2015; Dolley, 2015; McRae, 2015; Polyak, 2015; Tanner, 2015; van Oss, 2015).

## 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 about 16% of the country's nominal gross domestic product (GDP). The mining and manufacturing sector, of which the production of cement and steel were significant components, accounted for an additional 13% of the GDP, and the construction sector, 9% (tables 1, 2; Central Bank of the Islamic Republic of Iran, 2014, p. 2).

Various sanctions had been imposed by the U.S. Government on Iran since 1995. International sanctions related to uranium-enrichment and uranium-reprocessing activities were imposed beginning in 2006 owing to concerns about the potential for the diversion of nuclear technology and the potential for Iran to recover and disseminate nuclear material (such as plutonium) from spent fuel rods. The subsequent discovery of standalone uranium enrichment facilities in Iran, which potentially could produce highly enriched uranium for nuclear weapons, resulted in additional economic sanctions. In the past few years, international sanctions had begun to affect Iran's economy significantly, especially sanctions directed at mineral sector activities (such as the production, refining, and transport of crude petroleum and metal ores), which historically have required large investments to develop the deposits

and to construct facilities to process the mineral production (U.S. Government Accountability Office, 2013, p. 3–57).

In September, the Ministry of Foreign Affairs took charge of international negotiations concerning nuclear issues from the Supreme National Security Council. In November, Iran entered multilateral negotiations regarding sanctions relief with the P5+1 group of the United Nations (UN). The P5+1 group is made up of the five permanent members of the United Nations Security Council (China, France, Russia, the United Kingdom, and the United States) plus Germany; the consortium is also known as the E3+3 group. Also in November, the International Atomic Energy Agency (IAEA) and Iran signed a "Joint Statement on a Framework for Cooperation." In the joint statement, Iran agreed to cooperate with the IAEA to allow IAEA inspectors managed access to the Gchine uranium mine, to provide information on the proposed locations of 16 new nuclear powerplants, and to clarify a 2010 Iranian announcement about 10 additional uranium enrichment facilities (International Atomic Energy Agency, 2013a, 12; 2013b, p. 1–3; Rezaian and Gearan, 2013).

The U.S. sanctions included the Iran Sanctions Act of 1996, as amended; the Comprehensive Iran Sanctions, Accountability, and Divestment Act of 2010, as amended; Executive Order 13599 of February 5, 2012; Executive Order 13606 of April 22, 2012; Executive Order 13608 of May 1, 2012; Executive Order 13622 of July 30, 2012; Executive Order 13628 of October 9, 2012; and Executive Order 13645 of June 3, 2013. The National Defense Authorization Act for Fiscal Year 2013 (NDDA–2013) (Public Law 112–239), which was passed on January 2, 2013, included additional sanctions. Mineral sector activities affected by the subsection of NDAA–2013 titled the Iran Freedom and Counter-Proliferation Act of 2012 (Public Law 112–239, §§1245–1254) included the sale, supply, or transfer (directly or indirectly to or from Iran) of coal, graphite, precious metals, raw (which may include ore) or semifinished metals (such as aluminum and steel), and software for integrating industrial processes (U.S. Department of the Treasury, undated).

The European Union Council Regulation (EU) No. 267/2012 restricted European imports of Iranian crude oil and petroleum products; prohibited investment by member States in the Iranian petrochemical industry; prohibited trade by member States in diamond, gold, and precious metals with the Government of Iran; and prohibited the delivery of newly printed banknotes and coinage to the Government of Iran. The UN had adopted Resolution 1929 in 2010 in response to Iran's apparent lack of appropriate response to previous UN resolutions that obliged Iran to suspend uranium reprocessing and enrichment activities (United Nations Security Council, 2010; European Union, 2012; European Commission, 2016).

## 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, regulate the mineral sector. The Petroleum Act of 1987 clarifies the Government's authority in the oil sector.

## Production

Data on 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. In March 2013, the Iranian Center for Statistics reported that there were 5,316 active mines in Iran. Most of Iran's mines were privately owned, although the Government, primarily through the 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, and salt (table 2; Statistical Center of Iran, 2014).

## Mineral Trade

The Central Bank of the Islamic Republic of Iran reported that hydrocarbons accounted for about 68% of the total value of exports in 2013. Crude oil exports accounted for most of the total hydrocarbon exports, which included condensate, natural gas, and refined petroleum products. In 2013, total hydrocarbon exports were valued at about \$63 billion compared with about \$78 billion in 2012 and about \$118 billion in 2011. The decrease was attributed to the effect of international sanctions. Iran also imported petroleum condensate, natural gas, natural gas liquids, and refined oil products, which in 2013 were valued at about \$3 billion, or about 5% of total imports. In 2012, hydrocarbon imports were valued at about \$4.9 billion, or about 7% of total imports; in 2011, they were valued at about \$3.5 billion, or about 5% of total imports. The decrease in the value of hydrocarbon imports in 2013 was attributed to the Government's program to reduce domestic subsidies (Central Bank of the Islamic Republic of Iran, 2014, p. 13).

## Outlook

Numerous production-capacity expansion projects and new mineral commodity development projects in Iran's mineral sector are planned. Historically, the implementation of many of the mineral projects proposed in the 5-year national development plans are commissioned in the final year (the fifth 5-year national development plan ends in 2015). In recent years, the availability of international funding for capital-intensive development of mineral-related projects by Government-controlled and private companies operating in Iran has been impaired owing, in part, to international economic sanctions.

Some foreign investment continues to be made, primarily in the petroleum sector, by state-owned Chinese and Indian companies. Other issues (besides sanctions) that are expected to affect the Iranian mineral sector include high inflation and the relative lack of investment in the petroleum sector (Khajehpour, 2013; Rezaian, 2013; Trend News Agency, 2014; Melito, 2015, p. 3–4).

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

(Metric tons unless otherwise specified)

Commodity <sup>2</sup>	2009	2010	2011	2012	2013
<b>METALS</b>					
<b>Aluminum:</b>					
Bauxite, gross weight	522,018	687,000 <sup>r</sup>	847,000 <sup>r</sup>	892,000 <sup>r</sup>	788,600
Alumina <sup>e</sup>	210,400	236,000	233,000	227,000	245,000
Metal, primary ingot	281,300 <sup>r</sup>	303,000 <sup>r</sup>	321,900 <sup>r</sup>	336,500 <sup>r</sup>	295,000
Antimony	NA	600	600	--	400
<b>Chromium, mine output, chromite concentrate:</b>					
Gross weight	241,300 <sup>r</sup>	394,000 <sup>r</sup>	440,000 <sup>r</sup>	412,000 <sup>r</sup>	410,000
Cr <sub>2</sub> O <sub>3</sub> content	118,250 <sup>r</sup>	169,400 <sup>r</sup>	189,200 <sup>r</sup>	192,200 <sup>r</sup>	191,100
<b>Copper:</b>					
<b>Mine output:</b>					
<b>Ore mined (0.6% to 1.2% Cu):</b>					
Gross weight	27,000	27,470 <sup>r</sup>	37,290 <sup>r</sup>	34,780 <sup>r</sup>	32,420
Cu content	263,000	256,700 <sup>r</sup>	258,900 <sup>r</sup>	238,000 <sup>r</sup>	222,900
<b>Concentrate (29% to 35% Cu):</b>					
Gross weight	750,000	760,000	940,000	950,000	750,000
Cu content	250,000	255,000	255,000	260,000	210,000
<b>Metal:</b>					
Smelter output, blister or anode	262,000	279,000	270,000 <sup>r</sup>	271,000 <sup>r</sup>	224,000
Refined output, cathode	210,254	221,000 <sup>r</sup>	235,000 <sup>r</sup>	213,000 <sup>r</sup>	189,000
Gold, mine output, Au content <sup>3</sup>	2,000	2,000	2,200 <sup>r</sup>	2,800 <sup>r</sup>	2,500
<b>Iron and steel:</b>					
<b>Iron ore and concentrate:</b>					
Gross weight	27,435 <sup>r</sup>	31,029 <sup>r</sup>	35,843 <sup>r</sup>	39,783 <sup>r</sup>	48,175
Fe content	13,515 <sup>r</sup>	15,200 <sup>r</sup>	17,600 <sup>r</sup>	19,500 <sup>r</sup>	23,600
<b>Metal:</b>					
Pig iron	2,400	2,540 <sup>r</sup>	2,242 <sup>r</sup>	2,143 <sup>r</sup>	2,007
Direct-reduced iron	8,200	9,350 <sup>r</sup>	10,368 <sup>r</sup>	11,582 <sup>r</sup>	14,458
Steel, crude, ingots and castings	11,000 <sup>r</sup>	11,995 <sup>r</sup>	13,197 <sup>r</sup>	14,463 <sup>r</sup>	15,422
<b>Lead, mine output, concentrate:</b>					
Gross weight	56,000 <sup>r</sup>	67,000 <sup>r</sup>	62,000 <sup>r</sup>	75,000 <sup>r</sup>	85,000
Pb content	27,000 <sup>r</sup>	32,000	29,600 <sup>r</sup>	35,600 <sup>r</sup>	40,300
<b>Manganese, mine output (30% to 35% Mn):</b>					
Gross weight	125,506	126,000 <sup>r</sup>	228,000 <sup>r</sup>	195,000 <sup>r</sup>	207,000
Mn content	45,000	42,500 <sup>r</sup>	77,200 <sup>r</sup>	66,100 <sup>r</sup>	70,200
Mercury	NA	2	2	--	10
<b>Molybdenum, mine output, concentrate:</b>					
Gross weight	4,447	6,600 <sup>r</sup>	6,000 <sup>r</sup>	6,300 <sup>r</sup>	6,200
Mo content	2,500	3,676 <sup>r</sup>	3,365 <sup>r</sup>	3,516 <sup>r</sup>	3,471
Silver	106	106	101	96	85
<b>Zinc:</b>					
<b>Mine output, concentrate:</b>					
Gross weight	150,000	260,000 <sup>r</sup>	280,000 <sup>r</sup>	280,000 <sup>r</sup>	264,000
Zn content	72,048	128,000 <sup>r</sup>	138,000 <sup>r</sup>	138,000 <sup>r</sup>	130,000
Metal	65,000	120,000 <sup>r</sup>	132,000 <sup>r</sup>	132,000 <sup>r</sup>	120,000
<b>INDUSTRIAL MINERALS</b>					
Arsenic	100	13	98	101	110
Barite	365,000 <sup>r</sup>	322,000 <sup>r</sup>	300,000 <sup>r</sup>	315,000 <sup>r</sup>	360,000
Boron, borax	1,000 <sup>r</sup>	1,060 <sup>r</sup>	1,044	3,000 <sup>r</sup>	914
Cement, hydraulic	50,000	55,000	66,000	70,250 <sup>r</sup>	68,700

See footnotes at end of table.

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

(Metric tons unless otherwise specified)

Commodity	2009	2010	2011	2012	2013
<b>INDUSTRIAL MINERALS—Continued</b>					
Clays:					
Bentonite	387,437	542,900 <sup>r</sup>	422,000 <sup>r</sup>	427,000 <sup>r</sup>	397,100
Industrial clays	530,000	550,000	550,000	550,000	550,000
Kaolin	907,487	761,500 <sup>r</sup>	762,000 <sup>r</sup>	800,000 <sup>r</sup>	946,400
Diatomite	2,000 <sup>r</sup>	3,000 <sup>r</sup>	--	--	9,500
Feldspar	634,503	533,100 <sup>r</sup>	576,600 <sup>r</sup>	1,100,000 <sup>r</sup>	1,313,200
Fluorspar	71,409	59,831 <sup>r</sup>	55,976	80,000 <sup>r</sup>	69,828
Gemstones, turquoise <sup>c</sup>	19,000	20,000	20,000	21,000	21,000
Graphite	NA	360	360	--	--
Gypsum	17,700 <sup>r</sup>	13,672 <sup>r</sup>	15,353 <sup>r</sup>	14,179 <sup>r</sup>	15,800
Industrial or glass sand (quartzite and silica) <sup>c</sup>	1,500	1,500	1,500	1,500	1,500
Lime <sup>c</sup>	2,600	2,700	2,800	2,800	2,800
Magnesite	130,575	173,500 <sup>r</sup>	172,700 <sup>r</sup>	143,000 <sup>r</sup>	170,700
Mica	6,797	2,860	7,130	7,000	7,000
Nitrogen:					
N content of ammonia	2,000,000	2,500,000	2,500,000	2,500,000	2,500,000
N content of urea	1,300,000	1,600,000	1,600,000	1,600,000	1,600,000
Perlite	47,000	19,200	20,000	30,000	55,100
Phosphate rock:					
Ore	250,000 <sup>r</sup>	362,000 <sup>r</sup>	370,000 <sup>r</sup>	370,000 <sup>r</sup>	380,000
P <sub>2</sub> O <sub>5</sub> content	75,000 <sup>r</sup>	108,700 <sup>r</sup>	110,000 <sup>r</sup>	110,000 <sup>r</sup>	113,600
Salt	2,816,235	2,997,400 <sup>r</sup>	2,714,700 <sup>r</sup>	2,962,000 <sup>r</sup>	2,078,682
Stone, construction and building, crushed <sup>c,4</sup>	25,000	26,000	26,000	27,000	27,000
Strontium minerals, celestite	15,396	--	40,000	20,000	--
Sulfur:					
Byproduct of petroleum and natural gas	1,500,000	1,780,000 <sup>r</sup>	1,575,000 <sup>r</sup>	2,000,000 <sup>r</sup>	2,100,000
Byproduct of metallurgical processing, S content of acid	70,000	80,000	75,000 <sup>r</sup>	90,000	95,000
Total	1,570,000	1,860,000 <sup>r</sup>	1,650,000 <sup>r</sup>	2,090,000 <sup>r</sup>	2,195,000
Talc	66,383	62,672 <sup>r</sup>	58,987	116,000 <sup>r</sup>	92,958
Vermiculite <sup>c</sup>	--	1,200	1,200	1,200	1,200
<b>MINERAL FUELS AND RELATED MATERIALS</b>					
Coal:					
Hard	2,181	1,045 <sup>r</sup>	1,066 <sup>r</sup>	1,044 <sup>r</sup>	858
Lignite	1,212 <sup>r</sup>	2,324 <sup>r</sup>	2,327 <sup>r</sup>	2,820 <sup>r</sup>	2,800
Coke	1,048 <sup>r</sup>	984 <sup>r</sup>	1,052 <sup>r</sup>	940 <sup>r</sup>	1,059
Gas, natural:					
Gross	210,335 <sup>r</sup>	220,123 <sup>r</sup>	224,122 <sup>r</sup>	231,332 <sup>r</sup>	228,887
Dry	175,742 <sup>r</sup>	187,357 <sup>r</sup>	188,753 <sup>r</sup>	202,431 <sup>r</sup>	199,293
Gas plant liquids	140,000	145,000	145,000	150,000	156,000
Petroleum:					
Crude	1,298,342 <sup>r</sup>	1,293,560 <sup>r</sup>	1,305,240 <sup>r</sup>	1,365,027 <sup>r</sup>	1,304,985
Refinery products:					
Motor gasoline	121,399 <sup>r</sup>	126,400 <sup>r</sup>	112,603 <sup>r</sup>	152,789 <sup>r</sup>	166,331
Kerosene	43,508 <sup>r</sup>	47,523 <sup>r</sup>	42,669 <sup>r</sup>	45,443 <sup>r</sup>	45,443
Distillate fuel oil	203,050 <sup>r</sup>	206,408 <sup>r</sup>	218,307 <sup>r</sup>	202,794 <sup>r</sup>	214,839
Residual fuel oil	180,456 <sup>r</sup>	172,280 <sup>r</sup>	177,828 <sup>r</sup>	173,850 <sup>r</sup>	187,172
Other	81,650 <sup>r</sup>	83,695 <sup>r</sup>	86,870 <sup>r</sup>	86,505 <sup>r</sup>	86,505
Total	630,063 <sup>r</sup>	636,306 <sup>r</sup>	638,277 <sup>r</sup>	661,381 <sup>r</sup>	700,290
Uranium	7 <sup>c</sup>	7	12	15	40

<sup>c</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 April 14, 2016.

<sup>2</sup>In addition to the commodities listed, the following may have been produced, but information is inadequate to make reliable estimates of output: bromine, caustic soda, crude construction materials (such as sand and shell), dimension stone, dolomite, ferroalloys, hafnium oxide, ilmenite, iron oxide pigments, refined lead, limestone, nepheline syenite, pumice, selenium, silicomanganese, soda ash, uranium, zeolites, and zirconium metal.

<sup>3</sup>Includes gold recovered from the Moutheh gold mine and from the Sarcheshmeh copper complex.

<sup>4</sup>Includes marble and travertine.

TABLE 2  
IRAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2013<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-e Shomali 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 Hormozal Aluminium Co.	Bandar Abbas, Hormozgan Province	257
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 & Khuzestan 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, Ardabil Province	1,050
Do.	Ardestan Cement Co.	North of Esfahan, Esfahan Province	1,000
Do.	Azar-Abadegan Khoy Cement Co.	West Azerbaijan Province	1,095
Do.	Behbahan Cement Co. (Fars & Khuzestan 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 & Khuzestan Cement Co.)	About 37 kilometers from Bojnourd, Khorasan-e Shomali 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 & Khuzestan 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 Firouzkuh Cement Co. (Espandar Cement Investment Co.)	About 180 kilometers northeast of Tehran	1,200
Do.	Fars Cement Co. (Fars & Khuzestan Cement Co.)	Shiraz, Fars Province	2,000
Do.	Fars Nov Cement Co. (Fars & Khuzestan 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-e Jonubi Province	770
Do.	Gharb Cement Co. (Fars & Khuzestan Cement Co.)	Kermanshah, Kermanshah Province	700
Do.	Hegmatan Cement Co. (Tehran Cement Co., 79%)	East of Razan, Hamadan 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, Khuzestan 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 & Khuzestan Cement Co.)	Khash, Sistan va Baluchestan Province	730 <sup>e</sup>
Do.	Khazar Cement Co. (Fars & Khuzestan Cement Co.)	About 80 kilometers northwest of Qazvin, Qazvin Province	1,200
Do.	Khuzestan Cement Co. (Fars & Khuzestan Cement Co.)	Ramhormoz, Khuzestan Province	1,100 <sup>e</sup>
Do.	Kohkiloye Yasuj Cement (State Retirement Organization <sup>3</sup> and Fars & Khuzestan Cement Co.)	Behbahan, near Deh Dasht, Kohkiloye, Kohgiluyeh va Bowyer Ahmad Province	240
Do.	Kordestan Cement Co. (Ghadir Investment Co.)	North of Bijar, Kordistan Province	1,000
Do.	Lamerd Cement Co.	Lamerd, Fars Province	1,205
Do.	Lar-e Sabzevar Cement Co.	Sabzevar, Khorasan-e Razavi 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 & Khuzestan Cement Co.)	Neyriz, Fars Province	160
Do.	Omran Anarak Cement Co.	Delijan, Markazi Province	1,030
Do.	Qeshm Cement Co.	Qeshm Island, Hormozgan Province	250

See footnotes at end of table.

TABLE 2—Continued  
 IRAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2013<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	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.)	do.	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-e Razavi 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.	Tis Chababar Cement Co.	Chababar, Sistan and Baluchestan Province	6,000
Do.	Urmia Cement Co. (Fars & Khouzestan Cement Co.)	Orumiyeh, West Azerbaijan Province	1,000
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-e Razavi 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	Esfahan 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.	Middle East Coke Production Co. [[Iranian Mines and Mining Industries Development and Renovation Organization (IMIDRO)] <sup>3</sup>	NA	800
Do.	Tabas Coke Production Co. [Iranian Mines and Mining Development and Renovation Organization (IMIDRO)] <sup>3</sup>	NA	450
Do.	Zarand Iranian Steel Co.	Zarand, Kerman Province	400
Coal			
Do.	National Iranian Copper Industries Co. (NICICO) [Iranian Mines and Mining Industries Development and Renovation Organization (IMIDRO)] <sup>3</sup>	Eastern Parvadeh Mine, Tabas Province	600
Do.	do.	Khomroud Mine, Kerman Province	450
Do.	do.	Parvadeh 4 Mine, Tabas Province	450
Do.	do.	Parvadeh 2 and 3 Mines, Tabas Province	500
Do.	do.	Kordobad Mine, Savadkouh Province	230
Do.	do.	Hashouni and Pabdana Mines, Kerman Province	150
Do.	do.	Takht and Vatan Mines, Alborz Province	150
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-e Jonubi Province	10
Do.	do.	Chah Firozeh, Chah Messi, Darehzar, and Eijo copper mines, Kerman Province	NA
Do.	Private cooperatives	Chah Musa Mine and Qal'eh Sukhteh, Semnan Province	5

See footnotes at end of table.

TABLE 2—Continued  
 IRAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2013<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>Copper—Continued:</b>				
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	158
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-e Razavi Province	6 <sup>e</sup>
<b>Gold:</b>				
Ore	kilograms	Iran Gold Co.	Muteh Mine (Chah Khaton and Senjedeh pits), Esfahan Province, and Kuh-e-Zar Mine, Semnan Province	600
Do.	do.	Iranian Mines and Mining Industries Development and Renovation Organization (IMIDRO)] <sup>3</sup>	Zarshouran Mine, 31 km north of Takab, West Azerbaijan Province	NA
Do.	do.	National Iranian Copper Industries Co. (NICICO) [Iranian Mines and Mining Industries Development and Renovation Organization (IMIDRO)] <sup>3</sup>	Coproduct of production from various copper mines	600
Do.	do.	Pooya Zarcan Agh Darreh	Agh Darreh	1,000 <sup>4</sup>
Do.	do.	Artisanal placer operations	Neyshabur area, Khorasan-e Razavi Province	NA
Metal <sup>5</sup>	do.	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		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.		Iran Central Plateau Iron Ore Co. [National Iranian Steel Co. (NISCO), 100%] <sup>6</sup>	Choghart Mine, Bafgh, Yazd Province	7,400
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.		NA	Chah Gaz Mine, Yazd Province	NA
Do.		NA	Mishdovan Mine, Yazd Province	NA
Do.		Sangan Iron Ore Co. (National Iranian Steel Co., 100%) <sup>3</sup>	Sangan (Songun) Mine, about 140 kilometers southeast of Torbat e-Heidariyeh, Khorasan-e Razavi Province	2,000
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 Kordistan 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 <sup>®</sup> 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 <sup>®</sup> , and Purofer processes), Ahwaz, Khuzestan Province	3,200

See footnotes at end of table.



TABLE 2—Continued  
 IRAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2013<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:				
Iron—Continued:				
Iron metal—Continued	Hormozgan Steel Complex [National Iranian Steel Co. (NISCO) <sup>6</sup> and partners]	Direct-reduction iron plant (Midrex <sup>®</sup> 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%; the Steel Employees Fund, 5%]	Plant about 50 kilometers southwest of Esfahan, Esfahan Province	4,200	
Do.	Khuzestan 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	
Do.	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-e Razavi 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, Khorasan-e Jonubi Province	NA	
Molybdenum, concentrate	National Iranian Copper Industries Co. (NICICO) [Iranian Mines and Mining Industries Development and Renovation Organization (IMIDRO)] <sup>3</sup>	Molybdenum plant, Sarcheshmeh copper complex, south of Rafsanjan, Kerman Province	8	
Do.	do.	Molybdenum plant, Sungun copper complex, East Azerbaijan Province	3	
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>7</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

See footnotes at end of table.

TABLE 2—Continued  
 IRAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2013<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>Petroleum:</b>				
Refined products	thousand 42-gallon barrels per day	National Iranian Oil Refining and Distribution Co. (NIORDC) (Government, 100%)	Refinery at Abadan	399
Do.	do.	do.	Refinery at Esfahan	375 <sup>8</sup>
Do.	do.	do.	Refinery at Bandar Abbas	284 <sup>8</sup>
Do.	do.	do.	Refinery at Tehran	245 <sup>8</sup>
Do.	do.	do.	Refinery at Arak	242
Do.	do.	do.	Refinery at Borzuyeh	120
Do.	do.	do.	Refinery at Tabriz	110
Do.	do.	do.	Refinery at Shiraz	56 <sup>8</sup>
Do.	do.	do.	Refinery at Lavan Island	48 <sup>8</sup>
Do.	do.	do.	Refinery at BooAli Sina	34
Do.	do.	do.	Refinery at Kermanshah	22
Do.	do.	do.	Refinery at Aras 2	10
Do.	do.	do.	Refinery at Booshehr	10
Do.	do.	do.	Refinery at Aras 1	5
Do.	do.	do.	Refinery at Yazd	3
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	58
Do.	do.	do.	Gchine Mine, near Bandar Abbas, Hormozgan Province	21 <sup>e</sup>
<b>Zinc:</b>				
Ore		Iran Zinc Mine Development Co.	Angouran open pit mine, Dandi, Zanjan Province	500 <sup>9</sup>
Do.		BAMA Co. (IranKouh)	Irankouh complex (Gooshfil underground 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>9</sup>
Do.		Bafgh Mining Co.	Kushk Mine, Yazd Province	120 <sup>9</sup>
Do.		Ber-Oner Tehran Co.	Emarat Mine, about 25 kilometers southwest of Arak, Markazi Province	100 <sup>9</sup>
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>e</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 were augmented by input from the Iranian National Committee of the World Mining Congress.

<sup>3</sup>Government owned.

<sup>4</sup>Operations suspended.

<sup>5</sup>Recovered from Sar Chemesh copper plant slimes.

<sup>6</sup>A subsidiary of state-owned Iranian Mines and Mining Industries Development and Renovation Organization (IMIDRO).

<sup>7</sup>May include basic sediment and condensate.

<sup>8</sup>Held 95% equity interest.

<sup>9</sup>Includes lead and zinc ores.