



# 2005 Minerals Yearbook

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## IRAN

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# THE MINERAL INDUSTRY OF IRAN

By Philip M. Mobbs

Iran had an extensive mineral production and processing sector. Most of the country's active mines were privately owned, although the Government retained control of many of the larger mineral commodity companies, especially those that produced aluminum, ammonia, cement, coal, copper, iron and steel, natural gas and oil, salt, and sulfur. 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. Production, processing, transportation, and sales of crude oil and natural gas accounted for about 11% of the country's gross domestic product (GDP) and about 60% of Government revenues. According to the U.S. Energy Information Administration (2006), Iranian crude oil production averaged about 4.1 million barrels per day in 2005; Iran was the world's fourth ranked producer of crude oil after Saudi Arabia, Russia, and the United States.

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. Other mineral commodities, which included coal, industrial minerals, and metals, accounted for about 2% of the GDP.

The International Monetary Fund (2006<sup>§1</sup>) estimated that Iran's GDP in 2005 was about \$555 billion (based on purchasing power parity), the GDP per capita based on purchasing power parity was about \$7,980, and the real GDP increased by about 5.4%.

## Trade

The Central Bank of the Islamic Republic of Iran (2006, p. 13) reported that hydrocarbon exports were valued at \$48.8 billion<sup>2</sup> in Iranian year 1384 (the period from March 21, 2005, to March 20, 2006) compared with a revised value of \$36.3 billion in Iranian year 1383 and about \$27.4 billion in Iranian year 1382. Crude oil exports accounted for more than 85% of hydrocarbon exports; natural gas and refined petroleum products accounted for the remainder. In Iranian year 1384, hydrocarbons accounted for 81% of total exports, which were valued at \$60 billion. Exports to the United States were limited by the U.S. Government embargo on goods and services of Iranian origin. For the 2005 calendar year, Iranian exports to the United States were valued at \$168 million, of which mineral-commodity trade accounted for less than \$40,000 (U.S. International Trade Commission, 2006b<sup>§</sup>; U.S. Office of Foreign Assets Control, undated).

<sup>1</sup>References that include a section mark (§) are found in the Internet References Cited section.

<sup>2</sup>Where necessary, values have been converted from Iranian rials (RI) to U.S. dollars (US\$) at the average exchange rate of RI9,026=US\$1.00.

Total Iranian imports in Iranian year 1384 were valued at about \$41 billion. Mineral-commodity imports from the United States were negligible (Central Bank of the Islamic Republic of Iran, 2006, p. 13; U.S. International Trade Commission, 2006a<sup>§</sup>).

## Outlook

Numerous development or expansion projects are planned or underway in the metals sector, especially in the aluminum, copper, ferroalloys, gold, iron and steel, and zinc industries. In the industrial minerals sector, development or expansion projects in the cement, magnesium compounds, potash, and stone industries are expected to be completed within the next 5 years. The acquisition of funding for capital-intensive development of mineral-related projects by Government-controlled and private companies operating in Iran, however, was impaired by the Government's continued development of a nuclear reactor at Bushehr, which adversely affected the country's international relations. The stated objective of the Bushehr plant to provide low-cost nuclear-powered electrical energy to the domestic market, which would allow natural gas and oil to be exported for income instead of burned for fuel in Iran, was overshadowed by international concern about the potential for the development of nuclear weapons in Iran. The electricity-generating plant at Bushehr was expected to become operational in 2007.

More than 60% of Iranian oil production was exported in 2005. Domestic and international demand for crude oil is expected to increase in the future, which will require Iran to increase production to meet demand. State-owned oil companies are expected to continue to increase offshore and onshore petroleum exploration efforts; in the future, these efforts may be supplemented by funding and work by international firms and foreign-government-owned oil companies. The development of identified natural gas and oil resources is expected to continue, subject to limitations imposed by the economic sanctions of the United States, which prohibit companies and persons from the United States from performing services or supplying goods or technology that could benefit the Iranian oil industry. The development of the multiphase South Pars natural gas project is expected to continue for a number of years. New construction and renovation of existing oil refineries is expected to begin during the next 5-year plan (2005 to 2009).

Additional information on the mineral industry of Iran can be found in the 2004 U.S. Geological Survey Minerals Yearbook, volume III, Area reports—International—Africa and the Middle East.

## References Cited

Central Bank of the Islamic Republic of Iran, 2006, Economic trends No. 43—Fourth quarter 1384 (2005/06): Tehran, Iran, Central Bank of the Islamic Republic of Iran, June, 28 p.

- U.S. Energy Information Administration, 2006, Table 11—World crude oil production, *in* Monthly Energy Review: Washington, DC, U.S. Energy Information Administration, December, p. 150-151.
- U.S. Office of Foreign Assets Control, [undated], Iran—What you need to know about U.S. economic sanctions: Washington, DC, U.S. Department of the Treasury, 4 p.

### **Internet References Cited**

- International Monetary Fund, 2006 (September), Iran, World Economic Outlook Database, accessed September 15, 2006, via URL <http://www.imf.org/external/pubs/ft/weo/2006/02/data/index.aspx>.
- U.S. International Trade Commission, 2006a, US domestic exports at FAS value to Iran, accessed June 30, 2006, at URL [http://dataweb.usitc.gov/scripts/cy\\_m3\\_run.asp?Fl=x&Phase=HTS2&cc=5070&cn=Iran](http://dataweb.usitc.gov/scripts/cy_m3_run.asp?Fl=x&Phase=HTS2&cc=5070&cn=Iran).
- U.S. International Trade Commission, 2006b, US imports for consumption at customs value from Iran, accessed June 30, 2006, at URL [http://dataweb.usitc.gov/scripts/cy\\_m3\\_run.asp?Fl=m&Phase=HTS2&cc=5070&cn=Iran](http://dataweb.usitc.gov/scripts/cy_m3_run.asp?Fl=m&Phase=HTS2&cc=5070&cn=Iran).

### **Major Sources of Information**

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### **Major Publication**

Iranian Mines and Mining Industries Development and Renovation Organization: Mines & Mining in Iran, 2005.

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

(Metric tons unless otherwise specified)

Commodity <sup>3</sup>	2001	2002	2003	2004	2005 <sup>e</sup>
<b>METALS</b>					
<b>Aluminum:</b>					
Bauxite, gross weight	273,677	57,254	364,306 <sup>r</sup>	366,000 <sup>r</sup>	365,000
Alumina	--	101,339	102,785	137,002	150,000
Metal, primary ingot	146,000	168,715	182,477	212,602	220,000
Arsenic, orpiment and realgar, concentrates <sup>c</sup>	400	400	275	89 <sup>4</sup>	100
<b>Chromite, mine output, concentrate</b>					
Gross weight	145,170	512,640	97,328	138,755	223,563 <sup>4</sup>
Cr <sub>2</sub> O <sub>3</sub> content <sup>c</sup>	69,000	250,000	48,000	68,000	110,000
<b>Copper:</b>					
<b>Mine output:</b>					
<b>Ore mined (0.6% to 1.2% Cu):</b>					
Gross weight	16,140	15,529	15,084	18,885	19,000
Cu content <sup>c</sup>	170,000	160,000	160,000	190,000	190,000
<b>Concentrate (29% to 35% Cu):</b>					
Gross weight	414,133	394,061	395,036	448,689	620,000
Cu content <sup>c</sup>	121,000	121,000	130,000	150,000	208,000
<b>Metal:</b>					
Smelter output, blister or anode	181,526	171,591	168,613	184,814	185,000
Refined output, cathode	152,703	143,438	145,669	152,463	152,000
Gold, mine output, Au content <sup>5</sup>	192	210	203	195	200
<b>Iron and steel:</b>					
<b>Ore and concentrate:</b>					
Gross weight	13,978	16,906	18,287	18,205	19,000
Fe content <sup>c</sup>	6,400	8,000	9,000	8,900	9,000
<b>Metal:</b>					
Pig iron <sup>c</sup>	2,300	2,400	2,709 <sup>4</sup>	2,136 <sup>4</sup>	2,300
Direct-reduced iron	5,000 <sup>e</sup>	5,280	5,620	6,410	6,850
Ferrochromium <sup>c</sup>	8,430	8,000	10,000	7,750 <sup>4</sup>	8,000
Ferrosilicon <sup>c</sup>	40,000	40,000	40,297 <sup>4</sup>	50,140 <sup>4</sup>	50,000
Steel, crude, ingots and castings	6,890	7,293	7,869	8,382	7,405 <sup>4</sup>
<b>Lead:</b>					
<b>Mine output, concentrate:</b>					
Gross weight	39,093	38,054	39,093	42,018	43,000
Pb content <sup>c</sup>	19,000	19,000	20,000	22,000	22,000
Refinery output, includes secondary <sup>c</sup>	50,000 <sup>r</sup>	51,000 <sup>r</sup>	58,000 <sup>r</sup>	68,000 <sup>r</sup>	68,000
<b>Manganese, mine output (30% to 35% Mn):</b>					
Gross weight	120,994	123,148	115,680	128,924	125,000
Mn content <sup>c</sup>	40,000	42,000	38,000	43,000	42,000
<b>Molybdenum, mine output, concentrate:</b>					
Gross weight	4,506	4,271	4,084	3,367	3,800
Mo content <sup>c</sup>	2,400	2,300	2,200	1,800	2,000
Silver, mine output, Ag content	22	23	23	25	25
<b>Zinc:</b>					
<b>Mine output, concentrate:</b>					
Gross weight	250,000	220,000	222,000	244,006	250,000
Zn content <sup>c</sup>	120,000	120,000	110,000	121,000	125,000
Metal	73,000	82,571	78,428	109,400	120,000
<b>INDUSTRIAL MINERALS</b>					
<b>Asbestos:</b>					
Concentrate (3% to 8% marketable fiber)	75,000	70,000	98,000 <sup>r, e</sup>	82,018	80,000
Marketable fiber <sup>c</sup>	2,000	1,500	1,470 <sup>4</sup>	6,000	5,000

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>	2001	2002	2003	2004	2005 <sup>e</sup>	
<b>INDUSTRIAL MINERALS--Continued</b>						
Barite	195,539	178,652	196,169	275,607	280,000	
Boron, borax	3,212	2,079	3,361	2,142	2,500	
Cement, hydraulic	thousand metric tons	26,640	28,600	30,460	32,198	32,650 <sup>4</sup>
Clays:						
Bentonite	113,299	125,510	140,528	193,046	200,000	
Industrial clays <sup>c</sup>	485,000 <sup>4</sup>	450,000 <sup>r</sup>	388,543 <sup>r,4</sup>	578,750 <sup>r,4</sup>	550,000	
Kaolin	635,888	553,782	484,501	531,109	500,000	
Diatomite	--	1,879	9,500	8,028	8,000	
Feldspar	204,078	191,316	242,898	252,713	250,000	
Fluorspar	54,486 <sup>r</sup>	32,006	47,730 <sup>r</sup>	54,052 <sup>r</sup>	54,000	
Gemstones, turquoise <sup>c</sup>	kilograms	20,000	20,000	20,000	20,000	
Gypsum	thousand metric tons	10,382	13,535	13,828	12,594	13,000
Industrial or glass sand (quartzite and silica)	1,781,532 <sup>r</sup>	1,878,867 <sup>r</sup>	1,964,965 <sup>r</sup>	1,880,093 <sup>r</sup>	1,900,000	
Lime	thousand metric tons	2,000 <sup>r</sup>	2,200 <sup>r</sup>	2,300 <sup>r</sup>	2,500 <sup>r</sup>	2,500
Magnesite	133,778	128,565	87,795	88,194	88,000	
Mica	3,255	2,845	5,500	7,032	7,000	
Nepheline syenite	6,650	75,000	75,500	63,798	65,000	
Nitrogen:						
N content of ammonia	1,086,700	1,119,100	1,115,100	1,087,700	1,020,000	
N content of urea	651,000 <sup>e</sup>	732,700	734,200	717,800	670,000	
Perlite	18,130	20,000	26,495	31,259	31,000	
Phosphate rock:						
Ore	213,338	303,000	194,000	229,575	250,000	
P <sub>2</sub> O <sub>5</sub> content <sup>c</sup>	26,000	36,000	23,000	28,000	30,000	
Pigments, mineral, natural iron oxide, ochre <sup>c</sup>	1,000 <sup>4</sup>	2,300 <sup>4</sup>	2,300	2,500	2,500	
Pumice and related volcanic materials <sup>c</sup>	843,912 <sup>r,4</sup>	1,181,543 <sup>r,4</sup>	1,228,388 <sup>r,4</sup>	1,536,448 <sup>r,4</sup>	1,500,000	
Salt	1,558,668	1,664,496	2,002,899	1,790,669	2,000,000	
Soda ash <sup>c</sup>	120,000	120,000	120,000	130,000 <sup>r</sup>	130,000	
Sodium compound, caustic soda <sup>c</sup>	20,000	22,000	22,000	22,000	22,000	
Stone:						
Construction and building, crushed <sup>6</sup>	thousand metric tons	16,450	19,809	21,383	25,369	25,000
Dimension and decorative:						
Granite	do.	401	620	838	1,019	1,000
Marble, blocks and slabs <sup>7</sup>	do.	3,460	3,462	4,014	4,068	4,000
Travertine, blocks	do.	678	728	935	1,360	1,400
Total	do.	4,540	4,810	5,790	6,450	6,400
Dolomite	do.	223	439	522	609 <sup>r</sup>	600
Limestone <sup>c</sup>	do.	41,800	41,100	46,170 <sup>r,4</sup>	50,380 <sup>r,4</sup>	50,000
Strontium, celestite <sup>c</sup>	2,000	2,000	2,100 <sup>4</sup>	7,500 <sup>4</sup>	7,500	
Sulfates, natural: <sup>c</sup>						
Aluminum potassium sulfate (alum)	10,000	10,000	1,000	1,000	1,000	
Sodium sulfate	387,000 <sup>4</sup>	580,000	580,000	600,000	600,000	
Sulfur: <sup>c</sup>						
Byproduct of petroleum and natural gas	880,000 <sup>4</sup>	1,200,000 <sup>4</sup>	1,310,000	1,400,000	1,400,000	
Byproduct of metallurgical processing, S content of acid	50,000	50,000	50,000	60,000	60,000	
Total	930,000	1,250,000	1,360,000	1,460,000	1,460,000	
Talc	60,282	68,007	65,833 <sup>r</sup>	187,465 <sup>r</sup>	190,000	
<b>MINERAL FUELS AND RELATED MATERIALS</b>						
Coal	thousand metric tons	1,981	2,076	1,902	2,498	2,500
Coke	do.	1,095	1,055	1,004	1,021	1,020

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>		2001	2002	2003	2004	2005 <sup>e</sup>
MINERAL FUELS AND RELATED MATERIALS--Continued						
Gas, natural: <sup>e</sup>						
Gross	million cubic meters	120,000	120,000	125,000	137,000	140,000
Dry	do.	66,000	75,000	81,500	89,663 <sup>4</sup>	90,000
Plant liquids	thousand 42-gallon barrels	25,000	25,000	25,000	25,000	27,000
Petroleum:						
Crude	do.	1,350,000	1,250,000	1,366,000	1,399,000	1,350,000
Refinery products: <sup>e</sup>						
Liquefied petroleum gases	do.	16,000	16,000	16,000	17,000	17,000
Motor gasoline	do.	67,000	67,000	67,000	68,000	68,000
Jet fuel	do.	13,000	14,000	14,000	14,000	14,000
Kerosene	do.	44,000	46,000	46,000	46,000	46,000
Distillate fuel oil	do.	130,000	135,000	140,000	140,000	140,000
Residual fuel oil	do.	145,000	152,000	160,000	160,000	160,000
Other	do.	65,000	95,000	100,000	100,000	100,000
Total	do.	480,000	525,000	543,000	545,000	545,000

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

<sup>1</sup>Table includes data available through December 1, 2006.

<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, ferromolybdenum, nepheline syenite, phosphate rock, selenium, shell, silicomanganese, and zeolite.

<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 2005<sup>1,2</sup>

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Aluminum	Iran Aluminium Co. (Iranian Mines and Mining Development and Renovation Organization) <sup>3</sup>	Arak	120
Do.	Almahdi Aluminium Corp. (Iranian Mines and Mining Industries Development and Renovation Organization, <sup>3</sup> 59.34%, and International Development Corp., 20.78%)	Bandar Abbas	110
Cement	Abadeh Cement Co.	Abadeh	175
Do.	Abyek Cement Co. (Fars & Khuzestan Cement Co.)	Abyek, 80 kilometers northwest of Tehran	2,600
Do.	Ardebil Cement Co. (Ehdasse Sanat Corp. <sup>4</sup> and Holcim Ltd.)	About 20 kilometers from Astara	800
Do.	Behbahan Cement Co. (Fars & Khuzestan Cement Co.)	Behbahan	960
Do.	Benvid White Cement Co.	Benvid, Isfahan	175
Do.	Bojnourd Cement Plant (Fars & Khuzestan Cement Co.)	About 37 kilometers from Bojnourd	700
Do.	Bushehr Cement Co. (Ehdasse Sanat Corp.) <sup>4</sup>	Borazjan	1,100
Do.	Darab Cement Co. (Ehdasse Sanat Corp.) <sup>4</sup>	Near Shiraz	1,100
Do.	Doroud Cement Co. (Fars & Khuzestan Cement Co.)	Doroud	1,400
Do.	Ekbatan Cement Co.	Ekbatan	175
Do.	Estahban Cement Co.	Estahban	350
Do.	Fars Cement Co. (Fars & Khuzestan Cement Co.)	Fars	2,000
Do.	Ghaen Cement Co. (Fars & Khuzestan Cement Co.)	Ghaen	770
Do.	Gharb Cement Co. (Fars & Khuzestan Cement Co.)	Kermanshah	700
Do.	Gorgon Cement Co.	NA	640 <sup>c</sup>
Do.	Hegmatan Cement Co. (Tehran Cement Co.)	East of Razan	1,120
Do.	Hormozgan Cement Co. (Sepahan Cement Co.)	About 52 kilometers west of Bandar Abbas	2,200
Do.	Ilam Cement Co. (Tehran Cement Co.)	Ilam	700
Do.	Isfahan Cement Co.	Esfahan	1,100
Do.	Karoon Cement Co.	Karoon	1,050
Do.	Kerman Cement Co. (Bank Melli Iran Investment Co.)	Kerman	1,260
Do.	Khash Cement Co. (Fars & Khuzestan Cement Co.)	Khash	730 <sup>c</sup>
Do.	Khazar Cement Co. (Fars & Khuzestan Cement Co.)	Khazar	640 <sup>c</sup>
Do.	Khuzestan Cement Co. (Fars & Khuzestan Cement Co.)	Ramhormoz	1,100 <sup>c</sup>
Do.	Kordestan Cement Co. (Sepahan Cement Co.)	North of Bijar	800 <sup>c</sup>
Do.	Mazandaran Cement Co. (Bank Melli Iran Investment Co.)	Neka	700
Do.	Mashad Cement Co.	Mashad	1,000 <sup>c</sup>
Do.	Qayen Cement Co.	Qayen	NA
Do.	Qeshm Cement Co.	Qeshm Island	250
Do.	Oroumīyeh Cement Co.	Uroumīyeh (Urumia)	740
Do.	Oroumīyeh White Cement Co.	do.	180 <sup>c</sup>
Do.	Neyriz White Cement Co. (Fars & Khuzestan Cement Co.)	Neyriz	160
Do.	Saveh White Cement Co. (State Retirement Organization) <sup>3</sup>	Saveh	350
Do.	Sepahan Cement Co.	Sepahan	2,300
Do.	Shahrūd Cement Co. (Sepahan Cement Co.)	Sharoud	600
Do.	Sharg Cement Co. (Sepahan Cement Co.)	Mashhad	1,600
Do.	Shomal Cement Co. (Bank Melli Iran Investment Co.)	Shomal	880
Do.	Simansaz (Loshan) Cement Co. (Tehran Cement Co.)	Loshan	200 <sup>c</sup>
Do.	Soufian Cement Co. (Tehran Cement Co.)	Sufiyan	1,500
Do.	Tehran Cement Co.	Tehran	6,000
Do.	Yazd Bohrouk Cement Co.	Yazd	1,260
Chromite	Faryab Mining Co.	Faryab Mine and processing plant, Minab, Hormuzgan	180 <sup>c</sup>
Do.	Esfandaghe Mines Co.	Abdasht Mine, Baft, Kerman and Suqan (Saboughan) Mine, Kerman; Processing plant at Esfandaghe, Kerman	30

See footnotes at end of table.

TABLE 2--Continued  
 IRAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2005<sup>1, 2</sup>

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Chromite--Continued	NA	Furumad Mine, Shahrud, Semnan; Gaft processing plant, Semnan	6
Do.	NA	Mir Mahmud Mine, Mayami, Seman	6
Do.	NA	Dumak Mine, Zahedan, Sistan va Baluchestan	2
Do.	Other companies	Other mines	30 <sup>e</sup>
Coal	Kerman Coal Co. (Iranian Mineral Production & Supply Co., 100%) <sup>4</sup>	Includes the Ashkli, the Babnizo, the Badamouiyeh, the Eshkeli, the Hamkar, the Hojedk, the Kamsar, the Khoshooni (Hashouni), and the Pabdana Mines	1,300
Do.	Iranian Mineral Production & Supply Co. <sup>4</sup>	Parvadeh 3 and 4 Mines, Tabass, Khorasan	750 <sup>5</sup>
Do.	Zirab Coal Co. (Iranian Mineral Production & Supply Co., 100%) <sup>4</sup>	Gajereh, Goliran, and Zirab Mines, Mazandaran	600
Do.	Shahroud Coal Co. (Iranian Mineral Production & Supply Co., 100%) <sup>4</sup>	Shahroud Mine, Mazandaran; Razi and Tazareh Mines, Semnan	280
Do.	Western Alborz Coal Co. (Iranian Mineral Production & Supply Co., 100%) <sup>4</sup>	Abyek Mine, Qazvin; Sangroud Mine, Gilan	150
Do.	Fajr Mazinoy Cooperative Co.	East Mazinoy and West Mazinoy, Khorasan	8
<b>Copper:</b>			
Concentrate	National Iranian Copper Industries Co. (Iranian Mines and Mining Industries Development and Renovation Organization) <sup>3</sup>	Sar Cheshmeh Mine, 60 kilometers south of Rafsanjan, Kerman	179
Do.	do.	Songun copper mine, Azarbaijan	45 <sup>5</sup>
Do.	do.	Meiduk copper mine, Kerman	34
Do.	do.	Qal'eh Zari Mine, near Birjand, Khorsan	10
Do.	Private cooperatives	Chah Musa Mine and Qal'eh Sukhteh, Semnan	5
Smelter output	National Iranian Copper Industries Co. (Iranian Mines and Mining Industries Development and Renovation Organization) <sup>3</sup>	Smelter, Sar Cheshmeh copper complex	197
Do.	do.	Smelter, Khatounabad	96
Refined metal	do.	Refinery, Sar Cheshmeh copper complex	200
Do.	do.	Electrowon plant, Sar Cheshmeh copper complex	14
<b>Ferroalloys:</b>			
Ferromanganese	Kerman Ferrochrome Co.	Kerman	25
Do.	Iranian Mineral Production & Supply Co. <sup>4</sup>	Sabzevar, Khorasan	25
Do.	Faryab Mining Co.	Faryab, Kerman	15
Do.	Navid Alloy Co.	NA	2
Ferromanganese	Faryab Mining Co.	Faryab, Kerman	15 <sup>e</sup>
Ferromolybdenum	Pars Molybden Co.	Yazd, Yazd	1
Do.	National Iranian Copper Industries Co. (Iranian Mines and Mining Industries Development and Renovation Organization) <sup>3</sup>	Khatounabad smelter	1.5 <sup>e</sup>
Do.	Zanjan Bronze Co.	NA	0.5 <sup>e</sup>
Ferrosilicon	Iran Ferroalloy Industries Co. (Bank of Industry and Mines, 100%) <sup>3</sup>	Azna, Lorestan	25
Do.	Iran Ferrosilice Co.	Semnan	25
Fluorspar	Private cooperative	Kamar Mehdi Mine, 165 kilometers southwest of Tabas	20 <sup>e</sup>
Do.	NA	Delijan Region Mines, 10 kilometers from Delijan, Markazi	6 <sup>e</sup>
Do.	NA	Kamarposht Mine, 20 kilometers from Zirab	5 <sup>e</sup>
Do.	NA	Emaft Mine, 30 kilometers from Zirab, Mazandaran	3 <sup>e</sup>
Do.	NA	Helali Gonabad Mine, 27 kilometers from Gonabad-Bajestan road	2 <sup>e</sup>
Do.	NA	Mahalat Mine, 5 kilometers from Mahalat, Markazi	2 <sup>e</sup>
Do.	NA	Pachi Miyana Mine, 30 kilometers from Zirab	2 <sup>e</sup>
Do.	NA	Jouimand Mine, 23 kilometers northwest of Gonabad, Khorasan	NA
Do.	NA	Derasele deposit	NA

See footnotes at end of table.



TABLE 2--Continued  
 IRAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2005<sup>1, 2</sup>

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Gemstones, turquoise		NA	Neyshabour Mine	6 <sup>e</sup>
Gold:				
Ore	kilograms	Iran Gold Co.	Muteh Mine (Chah Khaton and Senjedeh pits), Esfahan, and Kuh-e-Zar Mine, Semnan	600
Do.	do.	Artisanal placer operations	Neyshabour area	NA
Metal <sup>6</sup>	do.	National Iranian Copper Industries Co. (Iranian Mines and Mining Industries Development and Renovation Organization) <sup>3</sup>	Sarcheshmeh Copper Complex, Kerman	500
Iron:				
Ore		Iran Central Iron Ore Co. (National Iranian Steel Co., 100%) <sup>4</sup>	Choghart Mine, Bafgh, Yazd	7,400
Do.		Chadormalou Mining and Industrial Co. (National Iranian Steel Co., 100%) <sup>4</sup>	Chadormalou Mine, 90 kilometers north of Tchogart	6,500
Do.		Gol-e-Gohar Iron Ore Co. (National Iranian Steel Co., 100%) <sup>4</sup>	Gol-e-Ghar Mine, Kerman	3,800
Do.		Sangan Iron Ore Co. (National Iranian Steel Co., 100%) <sup>4</sup>	Sangan (Songun) Mine, Golestan	300
Do.		About 50 small privately owned mines	NA	1,000 <sup>e</sup>
Metal		Mobarekeh Steel Co. (Iranian Mines and Mining Industries Development and Renovation Organization) <sup>3</sup>	Direct-reduction iron plant (Midrex process) at Esfahan	3,200 <sup>7</sup>
Do.		Khouzestan Steel Co. (Iranian Mines and Mining Industries Development and Renovation Organization) <sup>3</sup>	Direct-reduction iron plant (HYL I, Midrex, and Purofer processes), Ahwaz	3,200
Do.		Ispahan Steel Co. (Iranian Mines and Mining Industries Development and Renovation Organization) <sup>3</sup>	Direct-reduction iron plant (Ghaem process) at Esfahan	600
Manganese		Iran Manganese Mines Co. (Takado Co.)	Venarch Manganese Mine, Qom	70
Do.		Taamin-e-Sange Manganze Foolad-e-Iran	Robot Karin Mine, Tehran	NA
Do.		Qom Manganese Mines Co.	Shahrestouak Mine, Qom	3
Molybdenum		National Iranian Copper Industries Co. (Iranian Mines and Mining Industries Development and Renovation Organization) <sup>3</sup>	Sarcheshmeh Copper Complex, Kerman	NA
Natural gas	billion cubic meters	National Iranian Oil Co. (Government, 100%)	Associated gas from company oilfields	96
Do.	do.	National Iranian Gas Co. (Government, 100%)	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	32 <sup>8</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 buy-back 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 buy-back contract joint venture of Total S.A. (55%) and Eni SpA (45%)	Doroud Field, offshore,	65
Do.	do.	National Iranian Oil Co. and buy-back 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 buy-back 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 Oil Refining and Distribution Co. (Government, 100%)	Refineries at Abadan, Arak, Bandar Abbas, Esfahan, Kermanshah, Lavan, Shiraz, Tabriz, and Tehran	1,728

See footnotes at end of table.

TABLE 2--Continued  
 IRAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2005<sup>1,2</sup>

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Phosphate rock	Phosphate Mines Development Co. (Iranian Mines and Mining Industries Development and Renovation Organization, 100%) <sup>3</sup>	Esfordi Mine, Yazd	360
Do.	Chadormalou Mining and Industrial Co. (National Iranian Steel Co., 100%) <sup>4</sup>	Chador Malu Mine	NA
Do.	Other companies	Other mines	29
Steel, crude	Mobarekeh Steel Co. (Iranian Mines and Mining Industries Development and Renovation Organization) <sup>3</sup>	Plant at Esfahan	4,200
Do.	Isfahan Steel Co. (Iranian Mines and Mining Industries Development and Renovation Organization) <sup>3</sup>	Plant at Esfahan	2,900
Do.	Khuzestan Steel Co. (Iranian Mines and Mining Industries Development and Renovation Organization) <sup>3</sup>	Plant at Ahwaz	2,600
Do.	National Iranian Steel Co. (Iranian Mines and Mining Industries Development and Renovation Organization) <sup>3</sup>	Includes subsidiaries Iran National Steel Industrial Group plant at Ahwaz, and Khorasan Steel Co. plant near Neyshabur	1,500
<b>Zinc:</b>			
Ore	Angouran Mining Company (Iran Zinc Mine Development Co.)	Angouran Mine, Zanjan	500 <sup>9</sup>
Do.	BAMA Co.	Irankouh complex (Goosh-e-feel, Gowd-e-Zendan, Khaneh Gorgi, Kolah Darwazeh, and Tappeh Sorkhi Mines), Esfahan	190 <sup>9</sup>
Do.	Bafgh Mining Co.	Kushk Mine, Yazd	120 <sup>9</sup>
Refined metal	Bafgh Zinc Co. (Iran Zinc Mine Development Co.)	Bafgh, Yazd	30
Do.	Qeshm Zinc Smelter Co. (affiliate of Calcimin Co.)	Qeshm Island, Hormozgan	20
Do.	National Iranian Lead and Zinc Co. (Iran Zinc Mine Development Co.)	Zanjan	15
Do.	Calcimin Co. (Iran Zinc Mine Development Co.)	Dandi (Angouran) plant, Zanjan	14
Do.	Faravari Mavad Madani Iran Co. (Iran Zinc Mine Development Co.)	Zanjan	14
Do.	Bandar Abbas Zinc Production Co. (affiliate of Calcimin Co.)	Bandar Abbas	13
Do.	Zanjan Zinc Smelter Co. (affiliate of Calcimin Co.)	Zanjan	5

<sup>6</sup>Estimated. NA Not available.

<sup>1</sup>About 2,700 mines are located in Iran, about 2,000 of which 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>A subsidiary of state-owned Iranian Mines and Mining Industries Development and Renovation Organization.

<sup>5</sup>Under construction.

<sup>6</sup>Recovered from Sar Chemesh copper plant slimes.

<sup>7</sup>An additional 800,000-metric-ton-per-year-capacity Midrex plant is under construction and expected to be operational in 2006.

<sup>8</sup>May include basic sediment and condensate.

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