



2008 Minerals Yearbook

AFGHANISTAN

THE MINERAL INDUSTRY OF AFGHANISTAN

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Afghanistan has abundant mineral resources, including copper, gold, iron ore, lead, marble, nickel, rubies, sulfur, and talc. Construction minerals included clay for bricks, dimension stone, limestone for cement, rock aggregate, and sand and gravel. Poor infrastructure, a shortage of skilled labor, and security problems have been a hindrance to the development and mining of these resources and to investment by local and foreign companies. To rebuild its infrastructure, the country would most likely need to open market opportunities for construction minerals and equipment. The country's output of construction and other industrial minerals did not keep pace with the strong domestic demand for them.

According to the U.S. Geological Survey (USGS), Afghanistan has significant amounts of undiscovered nonfuel mineral resources. Copper resources (identified and undiscovered) were estimated to be nearly 60 million metric tons (Mt) of copper. The Aynak copper deposit was estimated to contain 12.3 Mt of copper. Iron ore resources (identified) were estimated to be more than 2,200 Mt of ore. The Haji Gak area was the largest unexploited iron ore deposit in Asia with 2,100 Mt of ore. The country has abundant deposits of colored stones and gemstones, including emerald, garnet, kunzite, lapis, peridot, ruby, sapphire, spinel, and tourmaline. Chromite, gold, graphite, magnesite, mercury, potash, sand and gravel, sulfur, and talc are also available for extraction. Afghanistan was estimated to have undiscovered deposits containing 27.5 Mt of potash (Peters, 2007).

Production

Owing to the lack of mineral production data published by the Government, Afghanistan's mining activities were not readily known but appeared to be limited in scope. In 2008, the production level was estimated to be about 50,000 metric tons (t) of cement, 7,000 t of chromite, 150,000 t of coal, 20,000 barrels of crude oil, and 50 million cubic meters of natural gas. In the process of reconstruction and infrastructure development, output of construction minerals was estimated to have increased to meet the domestic requirements.

Structure of the Mineral Industry

The Ministry of Mines is responsible for a number of functions relating to mineral exploration, licensing, development, and mining. The Afghanistan Geological Survey (AGS) is the national custodian of geoscientific information. It assists and advises the Ministry of Mines on policies related to coal, environmental geology, geotechnology, hydrocarbons, industrial and metalliferous minerals, precious and semiprecious stones, and water resources. In the past several years, the USGS has assisted the AGS in assessing the country's nonfuel mineral resources, as well as its petroleum resources. The British Geological Survey has assisted the AGS in exploring

for deposits of copper, gemstones, gold, industrial minerals (mainly marble), iron ore, and rare metals. Foreign and domestic companies began to invest and develop copper and gold deposits, respectively (table 1).

Commodity Review

Metals

The Government signed a contract with Metallurgical Group Corp. (MGC) of China for extraction of copper at the Aynak deposit in the Province of Logar in November 2007. MGC would invest \$2.8 billion in the mine, which was estimated to have a resource of more than 12 Mt of contained copper. The mine was leased to MGC for 30 years and MGC would pay \$400 million per year in tax to the Government as compensation (Pak Tribune, The, 2008).

An unnamed Afghan private company won the bidding to mine placer gold in the Province of Takhar and planned to invest \$40 million for extraction of gold. The project would employ more than 4,000 people in the region. The level of gold production was not specified but the Government would receive 50% of the income from the extracted gold (Pak Tribune, The, 2008).

Afghanistan is known to have a total of 49 recorded occurrences of rare metals found in pegmatitic rocks. Beryllium mineralization in pegmatites was identified in the Provinces of Laghman and Nangarhar and was related to either Oligocene or Early Cretaceous magmatism in metasediments. The Darrahe-Pech deposit in Nangarhar was estimated to have a resource of 12,000 t of beryl (containing 1,480 t of beryllium oxide). Lithium mineralization in pegmatites is found in the Provinces of Badakhshan and Oruzgan in addition to the Provinces of Laghman and Nangarhar. The spodumene-albite pegmatite in the Parun prospect in Nangarhar Province has a grade of 1.5% lithium oxide whereas the pegmatite dykes in the Taghawkor prospect in Oruzgan Province have a grade of between 1.7% and 2.8% lithium oxide. Tantalum and niobium mineralization is found in the Provinces of Badakhshan and Parvan. The prospect with the most potential was Nilaw in Laghman Province (Afghanistan Geological Survey, 2007).

Industrial Minerals

Afghanistan's limestone resources occur in the Provinces of Badakhshan (the Jamarchi-Bolo deposit), Baghlan (the Pul-i-Khumri deposit), Bamyan, and Herat (the Benosh-Darrah, the Darra-i-Chartagh, and the Rod-i-Sanjur deposits). The Sabz quarry in Badakhshan worked on a Lower Carboniferous limestone resource, which was estimated to be 1,300 Mt (Industrial Minerals, 2008). The country's cement plants were outdated and no investment in the industry had been made since the 1970s. Cement output was reported to be 16,000 t,

and cement consumption was reported to be 2.5 Mt in 2005 (the latest year for which data were available). In the same year, Afghanistan imported 1.8 Mt of cement from Pakistan, 400,000 t from Iran, and the remaining 300,000 t from Turkmenistan and Uzbekistan. Cement was produced by the only operating Ghuri cement plant at Pul-i-Khumri in the Province of Baghlan. Afghan Investment Co. was in the process of refurbishing the Ghuri plant. The Ghuri I plant had been renovated, the Ghuri II was completed in mid-2008, and the new Ghuri III would be ready by the end of 2009. Cement output was expected to increase to 1.6 million metric tons per year in the next 2 years. Jebel Seraj Cement Enterprise in the Province of Parvan produced cement using clinker purchased from the Ghuri cement plant. Other raw materials for cement, such as clay and gypsum, occurred in the Provinces of Baghlan (the Surkhab clay deposit and the Dodkash gypsum deposit) and Parvan. Consumption of gypsum for use in cement and plaster manufacture was projected to increase to 100,000 metric tons per year (t/yr) from 25,000 t/yr during the next 2 years (Industrial Minerals, 2008).

Mineral Fuels

India joined the Turkmenistan-Afghanistan-Pakistan-India (TAPI) natural gas pipeline project in April 2008; the pipeline would carry natural gas 1,800 kilometers from Central Asia to India. The Asia Development Bank, the Governments of the four participating countries, and the United States had

emerged as supporters of the project since 2001. In addition to an estimated cost for the project of \$7.6 billion, there remained the question of whether Turkmenistan had enough natural gas to fill the pipeline. Turkmenistan's Dauketabad Field could supply 3 billion cubic meters per year of natural gas but the field was not expected to come onstream until 2018. Turkmenistan had existing supply agreements with China and Russia and planned to resume sales to Iran and to send natural gas to Europe through a trans-Caspian pipeline. India's interest in joining the TAPI project was in opening exploration and development opportunities for Turkmenistan's gas reserves in addition to receiving gas from Turkmenistan. Afghanistan would be a beneficiary of India's participation in the pipeline and the gas production in Turkmenistan (Petroleum Economist, 2008).

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TABLE 1
AFGHANISTAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2008

(Metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity ^e
Aluminum:			
Extrusion and powder coating	Qader Najib Ltd.	Kabul	NA
Manufacture	Salam Bilal Ltd.	Kandahar	360
Steel, manufacture	Khalil Najeed Steel Mills Ltd.	Jalalabad, Kabul, and Mazar-i-Sharif	36,000

^eEstimated; estimated data are rounded to no more than three significant digits. NA Not available.