



2012 Minerals Yearbook

AZERBAIJAN

THE MINERAL INDUSTRY OF AZERBAIJAN

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Azerbaijan produced a wide range of metals and industrial minerals, including alumina, aluminum, iron ore, and steel. Its major importance as a world mineral producer, however, was based on its crude oil industry and, more recently, its natural gas industry. The country had been a significant crude oil producer for more than a century, but the focus since independence in 1991 was on developing offshore resources in the Caspian Sea. Oilfield and gasfield development was concentrated in two projects—the Azeri-Chirag-Guneshli (ACG) offshore oilfield complex and the Shah-Deniz offshore gasfield (U.S. Energy Information Administration, 2013).

Minerals in the National Economy

In 2012, the real gross domestic product (GDP) of Azerbaijan decreased by 2.3%. The nominal GDP amounted to \$68.73 billion, and industrial production contributed 63.8% to the total GDP. Mining and quarrying accounted for 78.8% of the country's industrial output whereas the rest of the industrial output was produced by manufacturing (15.3%) and electricity, heating, and water production and distribution (5.9%). In 2012, industrial production decreased by 2.3% and production by the mining and quarrying sector decreased by 4.2% compared with that of 2011 primarily because of decreased production of oil and natural gas condensate (State Statistical Committee of the Republic of Azerbaijan, 2012, 2013; U.S. Central Intelligence Agency, 2013).

In 2012, Azerbaijan exported about \$34.2 billion worth of goods and services. Of that amount, \$29.5 billion (86%) came from crude oil exports; other significant export commodities were natural gas (4.7%), diesel fuel (2.8%), and kerosene (0.7%). The main export partners of Azerbaijan were Italy (which received 23.2% of Azerbaijan's total exports), India (7.9%), France and Indonesia (7.4% each), Israel (7.0%), the United States (6.7%), Germany and Russia (4.0% each), and Greece (3.5%). Azerbaijan's total imports in 2012 were valued at about \$9.7 billion, and the main imported commodities included chemicals, foodstuffs, machinery and equipment, metals, and petroleum products. The country's major import partners during the year were Turkey (which provided 15.8% of Azerbaijan's imports), Russia (14.3%), Germany (8.1%), the United States (7.4%), China (6.5%), Ukraine (5.6%), the United Kingdom (5.1%), and Kazakhstan (3.5%). With net exports of \$24.5 billion, Azerbaijan was able to continue investing in infrastructure, stabilizing the economy, and reducing poverty in the country (State Statistical Committee of the Republic of Azerbaijan, 2013; U.S. Central Intelligence Agency, 2013).

Production

In 2012, production of lime for construction in Azerbaijan increased by 2,100% because of the construction of a new modern

plant. Estimated primary and secondary aluminum production and alumina output increased by 175% and 142%, respectively, owing to the start of production at a new aluminum smelter. Output of sand for construction increased by 66%; that of gypsum, by 49%; cement, by 38%; crude steel, by 14%; bentonite, by 9.1%; and natural gas, by 5.4%. Production of caustic soda was reduced by more than 99% and essentially stopped. Production of marketable salt decreased by 72%; silver, by 46%; steel pipes, by 37%; metal content of copper ore, by 18%; and gold, by 12%. Other data on mineral production are in table 1.

Commodity Review

Metals

Aluminum.—In the middle of 2011, the OJSC Azerbaijan Aluminum (Azeral) plant in Sumqayit restarted production of primary aluminum. Prior to that, both the Azeral aluminum plant in Sumqayit and the Ganja alumina plant had been idle for several years. During 2012, Azerbaijan exported an estimated 50,000 metric tons (t) of primary aluminum and received \$94.9 million in revenue (Rustambekov, 2013).

In January, Azeral's new aluminum plant in Ganja started operations. The new plant has an annual smelter capacity of 50,000 metric tons per year (t/yr) of primary aluminum and cost \$230 million to build. Early in 2013, the company was expected to complete the second stage of the project, which would increase the plant's annual production capacity to 100,000 t/yr. The construction of the new plant started in 2008 but was delayed because of the global economic crisis (Kavkasia.net, 2012; Mamedov, 2012).

Gold, Silver, and Copper.—In 2009, Anglo Asian Mining PLC (Anglo Asian) of the United Kingdom began gold production at the Gedabek gold, silver, and copper mine, which is located about 55 kilometers (km) from the city of Ganja. In 2012, the company reported producing 1,562.8 kg of gold, 625.8 kg of silver, and 502 t of copper. Anglo Asian was controlled by R.V. Investment Group Services (51% interest), and the Government of Azerbaijan [through the Ministry of Ecology and Natural Resources (MENR)] owned a 49% interest. The original production-sharing agreement between Anglo Asian and the Government, which was signed in 1997, included development of six deposits in southwestern Azerbaijan—the Gedabek, the Gosha Bulag, the Gyzyt Bulag, the Ordubad, the Soyutlu, and the Vezhnali fields. The Ordubad, the Soyutlu, and the Vezhnali fields are located in the breakaway region of Nagorno-Karabakh where conflicts with ethnic Armenians took place from 1988 to 1994. According to the contract, Anglo Asian was planning to mine a total of 400 t of gold, 2,500 t of silver, and 1,500 t of copper. According to the agreement, the Government was to receive its share of profits in gold, which would help the country build up its gold reserves (Anglo Asian Mining PLC, 2013; Interfax.az, 2013a; News.mail.ru, 2013).

In April and then in June, the resource estimates for the Gedabek deposit were updated. According to the latest estimates, the Gedabek deposit contained 1.139 grams per metric ton (g/t) gold and 9.456 g/t silver. The total contained metal in the resources of Gedabek were estimated to be 23.1 t of gold and 39.7 t of silver. In 2012, the company started to build an agitation-leaching plant to complement an existing heap-leach processing operation for the purpose of increasing the gold recovery and processing rate at Gedabek. Regular mining operations at another deposit, the Gosha Bulag deposit, were expected to begin at the end of 2013. Annual gold production at Gosha Bulag was expected to reach between 500 and 650 kg (News.day.az, 2012a).

In November, another gold producer, Azerbaijan International Mineral Resources Operating Co. Ltd (AIMROC), began its operations in Azerbaijan. The company was mining the Chovdar polymetallic deposit which, in addition to gold, contained copper, lead, and silver. Gold resources of the deposit were estimated to be 40 t, and the company projected a mine life of between 8 and 10 years. AIMROC was a consortium of Fargate Mining Corp. of Panama, Globex International LLP of the United Kingdom, Londex Resources S.A. of Panama, Mitsui Mineral Development Engineering Co. Ltd. of Japan, and Willy & Meyris S.A. of Panama. In December 2006, the Government and AIMROC signed an agreement under which AIMROC would develop mining projects at the Chovdar, the Dagkesman, the Garadag, the Geydar, and the Kokhnyemadan ore fields and Kurekch ore basin; the Government owned a 30% interest in these projects (Mineral.ru, 2012e).

Industrial Minerals

Lime.—In 2012, the overall production of construction materials in Azerbaijan increased by 17%. Production of lime used in construction increased by 22-fold to 49,000 t. In December 2011, a new construction materials plant that was operated by AAC Company opened 50 kilometers (km) southwest of Baku. Two major products produced by the plant were aerated concrete and construction lime. Aerated concrete is a light, seismically resistant, thermoproof and soundproof, and environment-friendly material that was gaining popularity for a variety of construction projects. The plant had a combined annual lime production capacity of 65,000 t/yr and was expected to produce up to 180,000 cubic meters per year of aerated concrete. Raw materials used in production are mostly local quartz sand and limestone. In 2012, the plant employed 130 workers (1news.az, 2011; Trend.az, 2011; News.day.az, 2012b; Interfax.az, 2013b).

Mineral Fuels

Natural Gas.—In 2012, Azerbaijan produced and sold as a commodity 17,242 million cubic meters of natural gas, which was an increase of 5.4% compared with the level of output in 2011. As of January 2013, according to the Oil and Gas Journal, Azerbaijan's gas reserves were approximately 990 billion cubic meters. Almost all Azerbaijani gas was produced in two

offshore fields—the ACG complex and the Shah-Deniz field (U.S. Energy Information Administration, 2013).

The Shah-Deniz natural gas and condensate field started producing at the end of 2006. The field is located on the deepwater shelf of the Caspian Sea, where the water depth reaches 500 meters. The total resources of Shah-Deniz are estimated to be 1.2 trillion cubic meters of natural gas and 240 billion of gas condensate. The field was being developed by a consortium of companies led by BP p.l.c. of the United Kingdom. According to the initial agreement signed in 1996, BP (the project operator) and Statoil ASA of Norway each had a 25.5% interest. State Oil Corp. of the Republic of Azerbaijan (GNKAR), Naftiran Intertrade Co. (NICO), Total S.A. of France, and OAO Lukoil of Russia each had a 10% share, and Türkiye Petrolleri Anonim Ortaklığı (TPAO) had a 9% share. Shah-Deniz was expected to reach full production capacity in 2017 and to start supplying European customers with natural gas sometime in 2019. In March, Azerbaijan and Turkey signed an intergovernmental agreement regarding the construction of the Trans Anatolian Natural Gas Pipeline (TANAP), which would transport the Shah-Deniz gas to Europe through Turkey. TANAP was planned to have an annual capacity of 16 billion cubic meters and was expected to cost \$5 billion to build. It was expected that GNKAR and Botas of Turkey would form a TANAP consortium, and that later they might invite other participants to join the consortium. According to the preliminary plans, construction of the TANAP would begin in 2014 and be completed by 2018 (Mineral.ru, 2012a).

Azerbaijan was planning to increase its natural gas production rapidly in the next decade; it was expecting to produce 20 billion cubic meters per year by 2015 and to double production by 2025. In addition to ACG and Shah-Deniz, other promising natural gas fields in the country included the Absheron, the Babek, and the Umid fields. Babek reportedly had estimated resources of 400 billion cubic meters, followed by Absheron and Umid, which had 340 billion and 200 billion cubic meters, respectively. According to GNKAR, in 2012, a total of about 50 companies from 20 countries were involved in natural gas extraction from 40 different deposits in Azerbaijan (Lenta.ru, 2012; Mineral.ru, 2012b).

Petroleum.—In 2012, the production of crude oil in Azerbaijan decreased to 43.0 Mt, or by 5.8% compared with that of 2011. The major source of crude oil in the country was the ACG field, which had been in operation for 15 years. The ACG field is located about 100 km east of Baku in the Caspian Sea and covers 430 square kilometers. The ACG field had an estimated 5 billion barrels of reserves; it produced mostly Azeri Light, which is a medium-light and sweet crude that is valued for its middle-distillate yield. During the 15-year period, the total investment in ACG reached \$24.8 billion. As of 2012, the ACG complex had 86 drilling wells, of which 56 were used for oil extraction and the others were water and gas pressure wells. The ACG petroleum project was developed by a consortium of companies lead by BP, which had a 35.78% share in the project. Other participants included State Oil Company of Azerbaijan Republic (SOCAR) (11.65%), Chevron Corp. of the United States (11.27%), INPEX Corp. of Japan (10.96%), Statoil of Norway (8.56%), Exxon Mobil Corp. of

the United States (8.01%), TPAO of Turkey (6.75%), Itochu Corp. of Japan (4.3%), and Hess Corp. of the United States (2.72%) (Mineral.ru, 2012c, d).

Azeri crude oil was refined domestically at two refineries—the Azerneftiyag refinery and the Heydar Aliyev refinery. The total (combined) refining capacity of both refineries was about 400,000 barrels per day (about 20 Mt/yr). Modernization of both refineries was projected to cost between \$600 million and \$700 million. In May, Azerbaijan announced that the country had made the decision to switch to Euro 3 emission standards in its gasoline production starting in 2013; this upgrade in production standards would cost the country \$1 billion. The restrictions on auto imports to support the new gasoline standards began in 2012 (Rustambekov and Rzaev, 2012).

By 2018, Azerbaijan was planning to build a new oil refinery in Sangachaly that would have the capacity to produce 15 Mt/yr. Another oil refinery that would refine Azerbaijani oil was under construction by Azerbaijan in Ceyhan, Turkey; the planned capacity of the Ceyhan refinery was 10 Mt/yr. In 2012, only a small fraction of the crude oil was being refined at local refineries. Most of the crude oil was exported by way of pipelines. Azerbaijan had three export pipelines—the Baku-Tbilisi-Ceyhan (BTC), the Baku-Novorossiysk, and the Baku-Supsa—and about 80% of the petroleum was exported through the BTC pipeline (U.S. Energy Information Administration, 2013).

Outlook

Azerbaijan's strong economic growth from 2003 through 2008 was fueled by increased crude oil exports and opened new opportunities for the country. In the past few years, the country has made serious attempts to diversify its economy. It has started developing new polymetallic deposits containing gold, silver, and copper; it is reviving its steel and aluminum production capacities; and it has made great strides in continuing to develop its resources of natural gas. The country is also reinvesting the proceeds from exporting hydrocarbons in other economic sectors, such as in construction. Azerbaijan is investing resources in building petroleum processing and petroleum transporting facilities, both domestically and abroad, to provide export opportunities for Azerbaijani oil as well as to expand the national petroleum industry beyond extraction of crude oil.

In the next few years, it is likely that oil production will not increase as fast as it did in the previous 10 years but it will nonetheless have moderate and controlled growth rates. Natural gas production, on the other hand, has the potential to double in the next 10 years. Gold and copper mining is likely to increase when the Gedabek and the Gosha Bulag Mines reach their production capacities (U.S. Central Intelligence Agency, 2013).

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TABLE 1
 AZERBAIJAN: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity	2008	2009	2010	2011	2012
METALS					
Alumina	164,879	9,600	--	6,200	15,000 ^c
Aluminum, primary and secondary	61,607	--	--	20,000 ^c	55,000 ^c
Copper ore, metal content	--	--	184	611 ^r	502
Gold kilograms	--	333	1,900	1,775	1,563
Iron ore, marketable:					
Gross weight	28,100	--	57,800	214,300	215,000 ^c
Fe content ^c	14,900	--	32,900	113,600	114,000
Silver kilograms	--	--	1,500	1,217	653
Steel:					
Crude	74,800	78,874	128,600	234,000 ^r	267,700
Pipes	28,196	6,918	36,545	98,500	61,800
INDUSTRIAL MINERALS					
Bentonite	40,700	10,581	18,073	55,000 ^r	60,000
Bromine ^c	3,500	3,400 ^r	3,500	3,500	3,500
Caustic soda	20,635	7,041	6,220	9,800	86
Cement	1,594,900	1,286,300	1,278,800	1,425,000	1,966,000
Gypsum	38,375	45,630	49,200	100,800	150,500
Iodine ^c kilograms	300,000	300,000	300,000	350,000	350,000
Lime, construction	1,318	684	802	2,229	49,000
Limestone	1,363,978	1,228,775	1,173,863	1,200,000 ^c	1,100,000 ^c
Salt, marketable	7,527	5,466	4,449	18,848	5,345
Sand, construction	1,247,200	877,200	1,178,000	1,335,200	2,211,200
Sulfuric acid	39,400	12,400	10,100	15,500	15,100
MINERAL FUELS AND RELATED MATERIALS					
Natural gas million cubic meters	16,337	16,325	16,673	16,361 ²	17,242
Petroleum:					
Crude:					
In gravimetric units	44,720,275	50,416,000	50,838,000	45,626,000	42,982,000
In volumetric units ^c 42-gallon barrels	325,000,000	351,000,000	352,000,000	331,610,000 ³	320,667,000 ³
Refinery products:					
In gravimetric units	6,885,300	6,032,790 ^r	6,169,600 ^r	5,150,000 ^c	4,800,000
In volumetric units 42-gallon barrels	58,807,000	51,520,000 ^r	52,688,000 ^r	43,981,000 ^r	40,992,000

^cEstimated; estimated data are rounded to no more than three significant digits. ^rRevised. -- Zero.

¹Table includes data available through October 30, 2013.

²Only natural gas sold as a commodity.

³Reported figure.

TABLE 2
AZERBAIJAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2012¹

(Metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Locations or deposit names	Annual capacity ^e
Alumina		Ganja refinery	Ganja	450,000
Aluminum		OJSC Azerbaijan Aluminum [Azeraluminum (Azeral)] (Det. AL Aluminum)	Sumqayit	60,000
Do.		OJSC Azerbaijan Aluminum [Azeraluminum (Azeral)]	Ganja smelter	50,000
Alunite ore		Zaglik alunite mining directorate	Zaylik, Dashcasan region	600,000
Cement		NA	Plants in Karadagly and the Tavuzcay region	2,000,000 ²
Clays, bentonite		NA	Dash-Salakhinskoye deposit	100,000
Copper ore		Karadagskiy complex	Samkir region	30,000
Gold	kilograms	Anglo Asian Mining PLC [R.V. Investment Group Services, 51% and Government, 49%]	Gedabek	2,000
Do.		Azerbaijan International Mineral Resources Operating Co. Ltd. (AIMROC)	Chovdar deposit, near Ganja	NA
Iodine and bromine		NA	Plants in Baku, Karadagly, and Neftcala	NA
Iron ore, marketable		Dashkasan mining directorate	Daskasan region	50,000
Lime		AAC Co.	Plant in Baku region	65,000
Natural gas, processing		NA	Plant in Karadagly region	NA
Petroleum and natural gas:				
Crude petroleum and gas condensate		Azerbaijan International Operating Co. (AIOC), in conjunction with BP p.l.c., Chevron Corp., State Oil Company of Azerbaijan Republic (SOCAR), Total S.A., Inpex Corp., Statoil ASA, Exxon Mobil Corp., Türkiye Petrolleri A.O. (TPAO), Itochu Corp., Devon Energy Corp., and Delta Hess (joint venture of Delta Oil and Hess Corp.)	Azeri-Chirag-Guneshli (ACG) offshore oilfields in the Caspian Sea	55,000,000
Natural gas	billion cubic meters	International consortium consisting of BP p.l.c., Statoil ASA, OAO Lukoil, Oil Industries' Engineering and Construction (OIEC), State Oil Company of Azerbaijan Republic (SOCAR), Total S.A., and Türkiye Petrolleri A.O. (TPAO)	Shah-Deniz gas condensate field	17.5
Refined petroleum		NA	Azerneftiyag refinery in Baku	12,000,000 ³
Do.		NA	Heydar Aliyev Baku refinery	8,000,000 ³
Rock salt		NA	Hehram and Pusyan deposits, Naxcivan region	2,500,000
Steel:				
Crude		Baku Steel Works	Baku	400,000
Pipe, tubes		Azerboru JSC	Sumqayit	400,000
Ingots		Baku Steel Casting	Baku	NA

^eEstimated. Do. Ditto. NA Not available.

¹Many location names have changed since the breakup of the Soviet Union. Many enterprises, however, are still named or commonly referred to based on the former location name, which accounts for discrepancies in the names of enterprises and that of locations.

²Capacity estimates are totals for all enterprises that produce cement.

³Capacity for crude petroleum distillation.