



2014 Minerals Yearbook

BOSNIA AND HERZEGOVINA

THE MINERAL INDUSTRY OF BOSNIA AND HERZEGOVINA

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Bosnia and Herzegovina is a mountainous, largely landlocked federation located on the western Balkan Peninsula in southeastern Europe. The country borders the other former Yugoslavian republics of Croatia, Montenegro, and Serbia and has a very narrow strip of land on the Adriatic Sea. Much of the country's territory consists of karst limestone. Despite its relatively small size, Bosnia and Herzegovina has substantial mineral resources; the most significant among these are bauxite, copper, iron ore, lead, lignite, and zinc. The country also has significant hydropower and coal-powered thermal energy potential and prospective petroleum and natural gas resources; it was one of only two exporters of electrical energy among the Balkan countries (Trubelja and Baric, 2011, p. 3–5; United Nations Environment Programme, 2012, p. 56; Foreign Investment Promotion Agency, 2014a, p. 7, 10; U.S. Department of Commerce, 2014, p. 4; Marinkovic and Dzaferovic, 2015, p. 47, 49; U.S. Department of State, 2015, p. 3).

The metal-processing sector, which included both ferrous and nonferrous metals, was the most valuable segment of Bosnia and Herzegovina's mineral industry. The sector was the country's largest exporter of goods by value and had registered a substantial increase in production in recent years. The main mineral outputs of the metal-processing sector were alumina, aluminum, iron, lead, steel, and zinc. The mineral extraction sector was dominated by the mine output of bauxite, coal, copper, iron ore, lead, and zinc. Mineral fuels produced in the country were coke, lignite, and subbituminous coal; coal accounted for most of the domestic energy production. Mineral output also included barite, dimension stone, limestone, salt, and sand and gravel. In the former Yugoslavia, Bosnia and Herzegovina was a major metallurgical center and a major source of asbestos, barite, construction aggregates, gypsum, and salt until Yugoslavia's dissolution in 1989, but none of those mineral commodities were produced on a regionally or globally significant level in 2014 (United Nations Environment Programme, 2012, p. 57–59; Dragnic-Krisovic and Nanu, 2013, p. 3; Foreign Investment Promotion Agency, 2013, p. 6–7; Energy Community, 2014, p. 48; U.S. Department of Commerce, 2014, p. 16).

Minerals in the National Economy

Bosnia and Herzegovina's real gross domestic product (GDP) increased by 1.05% in 2014, which was a lower rate of growth than that of 2013. The nominal GDP in 2014 was \$18.3 billion. The slowdown in economic activity was in large part owing to record floods in May that were estimated to have cost the country the equivalent of 15% of the GDP in loss of output; the energy sector was among the sectors that were most negatively affected. Investment and consumption (both private and public) increased, whereas net exports (defined as exports minus imports) decreased (Agency for Statistics of Bosnia and

Herzegovina, 2015b, p. 1; International Monetary Fund, 2015, p. 24; World Bank, The, 2015a, p. 2; 2015b).

Mining and quarrying accounted for about 2.0% of the country's GDP in 2014 compared with about 2.2%, revised, in 2013. The mining of coal and lignite made up about 68% of the mining and quarrying sector's total production in terms of value, whereas the mining of metal ores accounted for about 21%. Manufacturing made up about 10.9% of the GDP in 2014, which was unchanged from its share in 2013. The manufacture of base metals accounted for about 15.0% of the manufacturing sector's total output in terms of value; the manufacture of coke and refined petroleum products, 12.9%; and the manufacture of nonmetallic mineral products, 3.8%. The gross value added by mining and quarrying decreased by about 3.5% in real terms, whereas that of manufacturing increased by about 4.1% in 2014 (Agency for Statistics of Bosnia and Herzegovina, 2015b, p. 3; 2015d, p. 2).

In 2014, mining and quarrying output decreased by 2.1% compared with that of 2013. Industrial production increased by 0.1%, and manufacturing output, by 3.8%. Total output of metal ores decreased by 3.9%, and coal and lignite output, by 0.7%. Output of nonmetallic mineral products decreased by 6%, and base metals output, by 1.9%. Output of chemicals and chemical products increased by 12.4%, and coke and refined petroleum products, by 7.3%. Energy production including electricity generation decreased by 6.9% in 2014 compared with that of 2013 (Agency for Statistics of Bosnia and Herzegovina, 2015e, p. 5).

Government Policies and Programs

Each of the three constituent entities of Bosnia and Herzegovina—the Federation of Bosnia and Herzegovina, the Republic of Srpska, and the District of Brcko—formulates and implements its own mineral legislation and relevant regulations. Each of the two main political entities has its own government regulatory agency for mineral- and energy-related activities, including environmental protection—the Federal Ministry of Energy, Mining, and Industry in the Federation of Bosnia and Herzegovina and the Ministry of Industry, Energy, and Mining in the Republic of Srpska (United Nations Environment Programme, 2011, p. 4; 2012, p. 56).

The Federal Ministry of Energy, Mining, and Industry is responsible for drafting mining and energy legislation, enacting regulations for implementation of the laws, and overseeing mineral extraction and processing in the Federation of Bosnia and Herzegovina. Relevant laws governing the mineral industry in the Federation include the Mining Law, No. 26/10 of 2010; the Law on Geological Survey, No. 9/10 of 2010; the Law on Concessions, No. 40/02 of 2002, as amended by law No. 61/06 of 2006; and the Law on Environmental Protection, No. 33/03 of 2003, as amended by law No. 38/09 of 2009. The Ministry of Industry, Energy, and Mining is responsible for overseeing the

use of minerals and setting electricity policies in the Republic of Srpska. It regulates the extraction and use of minerals for electricity generation and the production and use of biofuel. Relevant regulations governing the mineral industry in the Republic include the Law on Mining, No. 107/05 of 2005, as amended by law No. 75/10 of 2010; the Law on Energy, No. 49/09 of 2009; and the Law on Concessions, No. 25/02 of 2002, as amended by the laws No. 91/06 of 2006 and No. 92/09 of 2009 (United Nations Environment Programme, 2011, p. 12; 2012, p. 20–24; Federal Ministry of Energy, Mining, and Industry, 2015; United Nations Environment Programme, 2015a; b).

Hydrocarbon exploration and production is governed by the Federation of Bosnia and Herzegovina Law on Research and Exploitation of Oil and Gas of 2013. The country did not have a national strategy regarding energy supply security. There was no development of renewable energy sources either, despite the existence of a national target for energy generation from such sources (European Commission, 2014, p. 48–49; Marinkovic and Dzaferovic, 2015, p. 49).

Production

In 2014, Bosnia and Herzegovina's production of bentonite increased more than fourfold; ecaussine and other calcareous stone (types of monumental or building stone), by about 81%; granite, by 60%; coke, by 21%; pig iron, by 13%; lime and sodium compounds, by 11% each; silicon metal and crude steel, by 10% each; and salt, by 8%. The production of slate decreased by about 87%; crude kaolin, by 52%; marble and travertine, by 45%; construction sand, by 44%; limestone (crushed and powdered), by 21%; silica sand, by 19%; aluminum (unwrought), by 17%; sand and gravel, by 15%; zinc (ores and concentrate), by 13%; bauxite and gypsum and anhydrite, by 8% each; cement, by 5%; and alumina, by 3%. Output for iron ore and coal remained about the same in 2014 as in 2013. The production of ferrosilicon and graphite were estimated to be zero (table 1).

Structure of the Mineral Industry

The leading production companies in the mineral industry were privately owned, with the exception of the two coal-producing power-generation companies, Elektroprivreda BiH, in which the government of the Federation of Bosnia and Herzegovina held a 90.4% ownership stake, and Elektroprivreda Republike Srpske, which was wholly owned by the government of the Republic of Srpska (100%). The Government of Bosnia and Herzegovina continued to hold a 44% ownership stake in the aluminum producer Aluminij d.d. Mostar (Aluminij Mostar), which was not fully privatized as of yearend 2014 as previously planned (European Bank for Reconstruction and Development, 2014b; Elektroprivreda BiH, 2015b; U.S. Department of State, 2015, p. 5).

The majority (80%) of companies in the metal processing sector were small-sized companies in terms of employment and revenue; medium-sized companies made up 15% of the total number of metallurgical companies, while large companies accounted for 5% of the total. The two leading

large-scale mineral commodity producers, Aluminij Mostar, and the steel producer ArcelorMittal Zenica, accounted for most of the metal sector's output and employment. Table 2 is a list of major mineral industry facilities operating in Bosnia and Herzegovina in 2014 (table 2; Foreign Investment Promotion Agency of Bosnia and Herzegovina, 2014b; U.S. Department of Commerce, 2014, p. 16).

Mineral Trade

The value of Bosnia and Herzegovina's total exports in 2014 increased by 3.6% to \$5.9 billion¹ and the value of the country's total imports increased by 6.8% to about \$11 billion. As a result, the ratio of exports to imports by value decreased to 53.6%. Bosnia and Herzegovina's exports, in particular exports of the metal processing sector, were purchased primarily by member states of the European Union (EU) and the Central European Free Trade Agreement (CEFTA). The decrease in the global prices of base metals and electrical energy, which were two key export categories for Bosnia and Herzegovina, as well as low demand from its primary trading partners in the EU, limited the growth of the country's exports. Its imports increased significantly owing to an increase in the demand for imported goods in the aftermath of the floods, in particular for goods to rebuild public infrastructure. A significant decrease in the country's mineral commodity imports was largely owing to the decrease in the global price of petroleum (U.S. Department of Commerce, 2014, p. 16; Agency for Statistics of Bosnia and Herzegovina, 2015a, p. 1, 22–23; Central Bank of Bosnia and Herzegovina, 2015, p. 26).

In 2014, mining and quarrying exports decreased by 2.7% compared with those in 2013 and made up 1.3% of total exports. The exports of coal and lignite increased by 18.2% to \$29.3 million and accounted for 38% of the total value of mining and quarrying exports. The exports of metal ores decreased by 12.2% to \$33.9 million and accounted for about 43.8% of total exports. Mining and quarrying imports decreased by 9.8% and made up 9.5% of total imports in 2014. The imports of crude petroleum and natural gas decreased by 12.4% to \$719 million and accounted for about 76.1% of the total value of mining and quarrying imports. The imports of coal and lignite increased by 3% to \$218.5 million and accounted for about 21% of total imports (Agency for Statistics of Bosnia and Herzegovina, 2015a, p. 1, 22–23).

Among manufactured mineral products, base metals continued to be the most significant export category of Bosnia and Herzegovina. Exports of base metals decreased by 2.6% to \$749.5 million in 2014 and made up 12.7% of the country's total exports. Among these, aluminum exports decreased (by value) by 3.4%; an increase in the global price of aluminum in the second half of 2014 reduced the size of the total decrease for the year. Iron and steel exports increased by 3.8% to \$362 million despite a substantial decline in the global price of iron ore. Exports of coke and refined petroleum products increased by 3.3% to \$328 million and accounted for about 5.6% of total

¹Where necessary, values have been converted from Bosnia and Herzegovina convertible marks (BAM) to U.S. dollars (US\$) at an average rate of BAM1.474= US\$1.00 and from euro area euros (EUR) to U.S. dollars (US\$) at an average rate of EUR0.784=US\$1.00 for 2014.

exports, and exports of nonmetallic mineral products increased by 23.3% to \$61.5 million or 1% of total exports. Coke and refined petroleum products were the second leading import category of the country. Imports of coke and refined petroleum products were valued at \$756 million and made up about 6.9% of the country's total imports (by value). Imports of base metals decreased by 0.1% to \$641 million and accounted for about 5.8% of total imports. Imports of iron and steel increased by 2% to \$341.6 million and accounted for 3.1% of total imports, and imports of nonmetallic mineral products increased by 10.1% to \$266.4 million or 2.4% of the total (Agency for Statistics of Bosnia and Herzegovina, 2015a, p. 14–15; 22–23; Central Bank of Bosnia and Herzegovina, 2015, p. 26).

Bosnia and Herzegovina's exports to the United States were valued at \$83.3 million in 2014 compared with \$57.7 million in 2013. Mineral exports to the United States included, in descending order of value, \$3.4 million in petroleum products, \$2.5 million in finished metal shapes, \$877,000 in tin, \$98,000 in iron and steel, and \$35,000 in bauxite and aluminum. Bosnia and Herzegovina's imports from the United States were valued at \$46.1 million in 2014 compared with \$38.5 million in 2013. Mineral imports from the United States included \$19.1 million in coal and \$42,000 in petroleum products, except fuel oil (U.S. Census Bureau, 2015a, b).

Commodity Review

Metals

Bauxite and Alumina and Aluminum.—“Alumina” d.o.o. Zvornik (Alumina Zvornik) remained the only producer of alumina in Bosnia and Herzegovina. The company's alumina plant in the industrial zone of Zvornik produced 170,646 t of alumina in 2014 compared with 175,961 t in 2013 and operated at less than 30% of its capacity owing to ongoing bankruptcy. Alumina Zvornik had entered bankruptcy in April 2013 citing financial losses owing to the high cost of natural gas and decreases in the prices of alumina and aluminum on world markets. It had outstanding liabilities to regional power utilities, suppliers, railway companies, and its own employees. The Government appointed a new management team to determine the status of the plant and to maintain production during bankruptcy. UAB Ukio Banko Investicijine Grupe of Lithuania, which was Alumina Zvornik's majority owner, disputed the Government's transfer of its ownership to a local entity in July 2013 and asked the commercial court of Banja Luka to annul it in May 2014. No further updates were available as of yearend 2014 (“Alumina” d.o.o. Zvornik, 2013a, b; Dimitrievska, 2013; Zuvella, 2013; bne IntelliNews, 2014).

Bauxite for alumina production at Alumina Zvornik was supplied from mines in the vicinity that were operated by “Boksit” AD Milici, whose core business was bauxite ore mining. Boksit Milici was engaged in developing new bauxite ore deposits in order to ensure long-term production and delivery. In July 2014, Alumina Zvornik and Boksit signed a \$138 million contract for bauxite deliveries between 2015 and 2020. In November 2014, the two companies signed a \$19 million contract; Boksit would provide a substantial portion of the bauxite ore Alumina Zvornik needed in 2015,

which would also fully utilize Boksit's mining capacity (Dimitrievska, 2014b, c).

Aluminij d.d. Mostar (Aluminij Mostar), which was Bosnia and Herzegovina's only aluminum producer as well as the country's leading exporter, produced 125,531 t of aluminum in 2014. The company once again faced possible closure in 2014 after shutting down production at its smelter in Mostar twice in 2013 owing to outstanding debts for electricity owed to the local power company Elektroprivreda Hrvatske Zajednice Herceg Bosne (EPHZHB) d.d. Mostar. Aluminum production had resumed in 2013 after the Government agreed to take a 44% stake in Aluminij Mostar and promised further subsidies in June 2013. Aluminij Mostar subsequently signed a Government-mediated debt-settlement agreement with EPHZHB in October 2013 that required it to start repayment in February 2014. In April 2014, EPHZHB announced that it would halt the delivery of electricity to Aluminij Mostar, which accounted for 50% of its total sales, owing to the nonpayment of debt in accordance with the October 2013 agreement. In June 2014, the Government made its further support to Aluminij Mostar's operations conditional on a new debt repayment agreement with EPHZHB. In September 2014, the two companies reached an agreement to settle about \$80 million in unpaid electricity bills in 48 monthly installments. Aluminij Mostar narrowed its loss to \$33 million in 2014 from \$50 million in 2013. The company reportedly required an investment of about \$4 to \$5 million in order to maintain its current production capacity and an additional \$10 million to return to its peak production capacity of 2011 (Dimitrievska, 2014a, d; Sito-Sucic, 2014; Daskalovic, 2015a).

Ferrosilicon.—Steelmin Ltd. resumed operations at the Steelmin BH smelter company in 2013 after the company completed refurbishment of the plant at Jajce, which had begun in the second quarter of 2012. Steelmin had acquired an 80% stake in late 2011 and in May 2012, the company obtained environmental approval for the refurbishment project. The largest furnace at the smelter had a production capacity of 25,000 metric tons per year (t/yr). Steelmin BH exported its ferrosilicon output to major steel producers in Europe (Steelmin Ltd., 2014).

B.S.I. d.o.o., which was owned by Metalleghe S.p.a. since 2004, was the other ferrosilicon producer in Bosnia and Herzegovina. The company's plant at Jajce had three electric furnaces that produced silicon metal. BSI exported its total production of about 18,000 t/yr to 20,000 t/yr to aluminum and silicon alloy producers in Germany, Hungary, Italy, Poland, and Slovakia (B.S.I. d.o.o., 2014).

Lead and Zinc.—Gross d.o.o. Gradiska, which was a subsidiary of Mineco Ltd. of the United Kingdom and Metexcel Trading Ltd. of Cyprus, owned the Sase lead and zinc mine in the municipality of Srebrenica. The company extracted and processed lead and zinc ore in the Kazan, Srebrenica, Srebrenica II, and Vitlovac deposits, which are located near the city of Srebrenica. In 2014, Gross d.o.o. Gradiska produced about 30,000 t of lead-zinc concentrate (gross weight) compared with about 28,000 t in 2013; it employed 524 workers in 2014. The increase in production allowed the company to invest in the reconstruction of mining facilities and the purchase of new

equipment in 2014. Improvements were part of the long-term mine rehabilitation and modernization program that Gross d.o.o. Gradiska had implemented since it acquired the mining concession from the Government of the Republic of Srpska in November 2007 (Gross d.o.o. Gradiska, 2015a–d).

Iron and Steel.—ArcelorMittal Prijedor, which was jointly owned by ArcelorMittal S.A. (51%) of Luxembourg and Rudnici Zeljezne Rude “Ljubija” a.d. Prijedor (49%), produced 2.1 Mt of aggregated lumps and fines (salable production) in 2014. The run-of-mine production was 3.0 Mt. The company extracted iron ore from the Buvac pit, which was opened in 2008 and was the only pit in operation since 2011, and supplied iron ore concentrates to ArcelorMittal subsidiaries in Europe, in particular to steel-producer ArcelorMittal Zenica, which was located about 243 kilometers (km) south of Prijedor at Zenica. ArcelorMittal Prijedor held mineral rights to 2,000 hectares. As of December 31, 2014, the proven reserves were estimated to be 10 Mt grading 46.4% iron and the probable ore reserves were estimated to be 14 Mt grading 45.8% iron (ArcelorMittal S.A., 2015a, p. 213, 215, 216, 220, 221; 2015b).

ArcelorMittal Zenica, which was the largest foreign investor in Bosnia and Herzegovina, operated an integrated plant with a coke oven, sintering plants, a blast furnace, a steel plant, two rolling lines for rebar and wire rod, and a mesh plant at Zenica. The company’s output of such hot-rolled products as rebar, wire rod, and wire products (such as mesh and lattice girders) were exported mainly to markets in the Balkans, the EU, and North Africa. The blast furnace had a full capacity of 1.1 million metric tons per year (Mt/yr) and produced about 337,000 metric tons (t) of wire rod and 268,000 t of bars in 2014. In December 2014, ArcelorMittal Zenica launched a project to install advanced dust filters in its basic oxygen furnace. The new project followed the company’s \$8 million investment in filters at the blast furnace in November 2013; both projects were part of the environmental upgrades program that the company has implemented since 2005 (ArcelorMittal S.A., 2015c–e, p. 42; 2015f).

Industrial Minerals

Cement.—Fabrika Cementa Lukavac d.d., which was a wholly owned subsidiary of Asamer Baustoffe AG of Austria, continued to be the leading manufacturer of portland and masonry cement in Bosnia and Herzegovina. Tvornica Cementa Kakanj d.d. (TCK), which was a wholly owned subsidiary of HeidelbergCement AG of Germany, operated one cement plant and four ready-mixed concrete plants in the country. TCK’s cement production decreased by about 10% to 420,000 t in 2014 owing in part to political instability in February and floods in May, which reduced domestic construction activity. Bosnia and Herzegovina’s cement consumption was estimated to be about 1.2 million metric tons (Mt) in 2014. TCK used alternative fuels for the first time in its plants in 2014. The company planned to invest about \$13 million through 2018 on environmental upgrades to modernize its cement mills and dust collection systems (Fabrika Cementa Lukavac d.d., 2014; Global Cement, 2014c; Daskalovic, 2015b; HeidelbergCement AG, 2015, p. 64, 105).

In June 2014, Schaefer Kalk GmbH & Co. of Germany began preparations for the construction of a new lime plant in the city of Mostar that was expected to require an investment of \$38 million; it would be jointly owned with BFS, which was a subsidiary of the Stanic Group. All lime output would be exported to markets in Africa, Asia, and Europe; Mostar was chosen as the site of the plant owing to its proximity to Ploce, the leading export port in Croatia. In September 2014, Oetelshofen Kalk of Germany announced plans to become a partner with Geoinzenjering in the construction of a new lime plant at Tuzla. During the first stage of the project, the two companies planned to produce construction aggregates. Also in September 2014, CEMEX S.A.B. de C.V. of Mexico, which operated six terminals in Bosnia and Herzegovina for bulk and bagged cement through its subsidiary Cemex Croatia of Croatia, acquired the concrete plant at Kiseljak from BINIS Beton d.o.o (Aggregates Business Europe, 2014; eKapija.BA, 2014; Global Cement News, 2014a, b; Saunders, 2015).

Mineral Fuels and Related Materials

Bosnia and Herzegovina’s primary energy supply sources were coal, petroleum, and petroleum products. The country’s energy import dependency was relatively low owing to domestic production of subbituminous coal and lignite and renewable energy sources such as hydropower and biofuel; however, it imported 100% of its petroleum and natural gas supply (European Association for Coal and Lignite, 2013, p. 70; European Bank for Reconstruction and Development, 2014a, p. 9; Energy Community, 2014, p. 48).

Coal.—In 2014, Bosnia and Herzegovina produced about 6.0 Mt of subbituminous coal and 5.7 Mt of lignite coal; production was slightly lower for both in 2014 than in 2013. Coal accounted for most of the country’s primary energy production. About two-thirds of coal output was from underground mines and one-third from opencast mines. As of 2013 (the latest year for which data were available), Bosnia and Herzegovina were estimated to have reserves of 1.3 billion metric tons (Gt) of lignite and 827 Mt of subbituminous coal. The largest deposits were located in the Kreka-Banovici coal basin near Tuzla in northeastern Bosnia. Most coal mines belonged to the utility companies Elektroprivreda BiH and Elektroprivreda Republike Srpske, each of which operated hydropower and coal-fired powerplants. In 2014, coal consumption by thermal powerplants owned by Elektroprivreda BiH increased by 4.9% to reach 5.8 Mt (World Bank, The, 2012, p. 129; European Association for Coal and Lignite, 2013, p. 70; Energy Community, 2014, p. 48; Agency for Statistics of Bosnia and Herzegovina, 2015c, p. 3; Elektroprivreda BiH, 2015a, p. 15, 25).

In 2014, Elektroprivreda BiH invested about \$32 million in equipment and \$1.4 million in cash in the seven coal mines it has operated since 2009. These investments represented the largest the company had made as part of its recapitalization program of 2010. The purpose of the investments was to reconstruct coal mining capacity, increase productivity, and enhance mine safety. The increase in coal production was needed to meet the demand from proposed new thermal

coal-fired powerplants such as Ugljevik III, which would use subbituminous coal from the surface mines at Delivi, Pelijave-Tobut, and Baljak in the municipality of Ugljevik and from new units at the Tuzla and Kakanj thermal powerplants. The construction of Unit 7 at the Tuzla powerplant in northern Bosnia was one of the largest investments in energy infrastructure undertaken among Balkan countries. Once completed, the Tuzla plant would have electricity generation capacity of 2,756 gigawatt hours (GWh) (Energy Community, 2013, p. 25, 26; Elektroprivreda BiH, 2015b, p. 37; Marinkovic and Dzaferovic, 2015, p. 49).

Natural Gas and Petroleum.—Bosnia and Herzegovina did not produce natural gas or crude petroleum onshore or offshore in 2014. The country's natural gas and crude petroleum supplies were mainly imported from Russia. Bosnia and Herzegovina had about 800,000 cubic meters of petroleum storage capacity, of which 532,707 cubic meters were provided by the Bosanski Brod refinery. The Government also owned a terminal at the Port of Ploce, Croatia, with a storage capacity of 84,000 cubic meters (table 1; Energy Community, 2014, p. 54, 59).

Initial steps were taken in 2014 to begin hydrocarbon exploration in Bosnia and Herzegovina. The Government signed a memorandum of understanding with the Shell Exploitation Company B.V. (Shell) of the United Kingdom to conduct a detailed assessment of the prospects for gas and petroleum extraction in the country. Shell subsequently expressed interest in beginning negotiations for concessions for petroleum extraction in Bosnia and Herzegovina. The Government also announced a tender for the selection of professional consultants for the purpose of concluding agreements for a 25-year period with prospective parties on the exploration and extraction of petroleum on the country's territory (Marinkovic and Dzaferovic, 2015, p. 49).

Outlook

In the near term, Bosnia and Herzegovina will remain a relatively minor producer of mineral commodities globally, but the country's mineral industry will continue to contribute substantially to its national output and employment. Metals are expected to remain valuable export commodities. Alumina and aluminum production may recover if Alumina Zvornik is successfully restructured during bankruptcy and if Aluminij Mostar resolves its outstanding debts, but output may continue to decline in the short term until their problems are resolved; Government subsidies may be necessary for the sustained operation of both companies. Cement production is expected to increase owing to the construction of new plants and to the need to rebuild infrastructure in the aftermath of damage caused by floods in 2014. Lead-zinc ore production is likely to increase under Gross Gradiska's mine modernization program. Coal production is expected to increase in the coming years owing to ongoing modernization efforts by Elektroprivreda BiH and the increased demand for coal from new thermal coal-fired powerplants that are under construction. The country is likely to remain dependent on imports of crude petroleum and natural gas as exploration activity is just about to begin and no domestic hydrocarbon production is expected in the short term.

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TABLE 1
BOSNIA AND HERZEGOVINA: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

| Commodity ² | 2010 | 2011 | 2012 | 2013 | 2014 |
|--|---------------------------|------------------------|-------------------------|-------------------------|-----------------|
| METALS | | | | | |
| Alumina | 269,414 | 261,874 | 202,416 | 175,961 | 170,646 |
| Aluminum: | | | | | |
| Primary | 118,000 | 130,875 | 101,000 ^{e, f} | 129,000 ^{e, f} | 125,531 |
| Unwrought aluminum, including alloys | 150,488 | 163,954 | 159,660 | 157,191 | 131,238 |
| Bauxite | 844,027 | 707,712 | 800,316 | 657,115 | 605,215 |
| Iron and steel: | | | | | |
| Ore and concentrate: | | | | | |
| Gross weight | 1,401,000 | 1,891,000 | 2,075,732 | 2,121,907 ^f | 2,127,564 |
| Fe content ^c | 588,000 | 794,000 | 872,000 | 899,000 | 901,000 |
| Metal: | | | | | |
| Crude steel | 590,757 | 648,560 | 700,341 | 722,155 | 792,019 |
| Ferroalloys, ferrosilicon ^c | 870 | 1,800 | -- | -- | -- |
| Pig iron | 620,935 | 684,734 | 749,539 | 759,100 | 860,430 |
| Lead: | | | | | |
| Ores and concentrate, gross weight | 5,811 | 6,648 | 7,210 | 8,105 | 7,533 |
| Pb content ^c | 3,200 ^f | 3,700 ^f | 4,000 ^f | 4,500 ^f | 4,200 |
| Metal, smelter, secondary ^c | 4,500 | 3,400 | 3,300 | 2,400 | 1,200 |
| Silicon, metal | 17,972 ^f | 17,527 ^f | 15,874 ^f | 16,707 ^f | 18,383 |
| Zinc: | | | | | |
| Ores and concentrate, gross weight | 10,025 | 12,477 | 13,331 | 16,631 | 14,422 |
| Zn content ^c | 5,500 ^f | 6,900 ^f | 7,400 ^f | 9,200 ^f | 8,000 |
| INDUSTRIAL MINERALS | | | | | |
| Barite | 57 | 13 | 28 | 30 ^e | 30 ^e |
| Cement | 948,513 | 893,017 | 845,657 | 881,580 | 840,211 |
| Clays: | | | | | |
| Bentonite | 314 | -- | -- | 18,808 | 80,952 |
| Kaolin, crude | 41,808 | 232,147 | 149,495 | 44,940 | 21,610 |
| Dolomite, crude | 199,757 | 87,635 | 127,774 | 59,851 | 58,241 |
| Graphite | 45,079 | -- ^c | -- ^c | -- ^c | -- ^c |
| Gypsum and anhydrite | 64,570 | 71,870 | 73,665 | 73,300 | 67,700 |
| Lime | 339,429 | 488,577 | 397,802 | 386,908 ^f | 427,914 |
| Salt, all sources | 662,631 | 833,734 | 862,017 | 856,713 ^f | 921,239 |
| Sand and gravel: | | | | | |
| Gravel | 979,472 | 913,129 | 1,126,176 | 1,089,402 | 921,808 |
| Sand, construction | 572,452 | 1,095,486 | 499,916 | 625,509 | 347,747 |
| Silica sand | 227,721 | 118,978 | 121,491 | 113,576 | 92,427 |
| Sodium compounds, sodium bicarbonate | 35,986 | 47,847 | 58,620 | 66,340 | 73,460 |
| Stone: | | | | | |
| Dimension: | | | | | |
| Marble and travertine | 2,674 | 1,836 | 692 | 411 | 225 |
| Ecaussine and other calcareous stone | 66,133 | 141,245 | 234,120 | 48,827 | 88,500 |
| Granite | 4,920 ^f | 29,441 ^f | 2,944 ^f | 8,413 | 13,467 |
| Porphyry, basalt and other building stone | 1,000,000 ^{e, f} | 1,095,486 ^f | 1,728,593 ^f | 2,156,256 | 2,053,809 |
| Slate | 525 ^f | 252 ^f | 30 ^f | 87,202 ^f | 11,684 |
| Crushed | 3,776,726 | 4,369,575 | 3,711,065 | 4,216,610 | 4,485,649 |
| Limestone, crushed and powdered | 1,916,642 | 1,850,140 | 1,834,677 | 2,399,580 | 1,897,225 |
| MINERAL FUELS AND RELATED MATERIALS | | | | | |
| Coal, subbituminous and lignite | 10,976 | 12,738 | 12,312 | 11,765 | 11,673 |
| Coke | 919,962 | 886,911 | 696,231 | 748,834 | 908,662 |
| Petroleum refinery products ³ | 8,920,000 | 9,880,000 | 8,590,000 | 8,950,000 | 8,360,000 |

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

¹Table includes data available through November 5, 2015.

²In addition to commodities listed, calcined gypsum, common clay, crude ceramic clay, magnesite, manganese ore, soda ash, and steel semimanufactures may have been produced, but available information was inadequate to make reliable estimates of output.

³Data were converted to barrels from metric tons and were reported as follows: 2010—1,114,669; 2011—1,235,519; 2012—1,073,292; 2013—1,118,758; and 2014—1,044,768.

TABLE 2
BOSNIA AND HERZEGOVINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2014

(Thousand metric tons unless otherwise specified)

| Commodity | Major operating companies and major equity owners | Location of main facilities | Annual capacity |
|---------------------------|---|---|--------------------------|
| Alumina | "Alumina" d.o.o. Zvornik (UAB Ukio Banko Investicije Grupe, 56.8%; Government of Republika Srpska, 9.1%; Balkanika, 7.1%; Restitution Fund, 4.6%) | Plant at Zvornik | 600. ¹ |
| Aluminum | Aluminij d.d. Mostar (Government of Federation of Bosnia and Herzegovina, 44%; Employees, 44%; Government of Croatia, 12%) | Smelter at Mostar | 160. |
| Bauxite | "Boksit" AD Milici | Mine at Milici, west of Srebrenica | 1,500. |
| Cement | Tvornica Cementa Kakanj d.d. (HeidelbergCement AG, 100%) | Plant at Kakanj | 500. |
| Do. | Fabrika Cementa Lukavac d.d. (Asamer Baustoffe AG, 100%) | Plant in Lukavac | 800 cement, 600 clinker. |
| Coal: | | | |
| Brown | RMU Banovici (Government, 69.3%, and employees, 30.7%) | Opencast mines at Cubric, Grivice, and Turija, and underground mines Omazici and Separacija at Banovici | 1,500. |
| Do. | Zenica Group (Elektroprivreda BiH, 100%) | Stara Jama, Raspotocje, and Stranjani Mines at Zenica | NA. |
| Do. | Durdevik Group (Elektroprivreda BiH, 100%) | Potocari and Visca II opencast mines and Durdevik underground mine south of Zivinice | NA. |
| Do. | Kakanj Group (Elektroprivreda BiH, 100%) | Vrtliste opencast mine at Kakanj | NA. |
| Do. | do. | Haljinici underground mine about 5 kilometers southeast of Kakanj | NA. |
| Do. | Breza Group (Elektroprivreda BiH, 100%) | Sretno and Kamenice underground mines 20 kilometers northwest of Sarajevo | NA. |
| Do. | Abid Lolic Group (Elektroprivreda BiH, 100%) | Grahovcici underground mine 10 kilometers west of Zenica | NA. |
| Do. | Tusnica Mine | Drage opencast mine at Livno | NA. |
| Do. | Rudnik i Termoelektrana Ugljevik (Elektroprivreda Republike Srpske, 100%) | Opencast mine at Ugljevik | NA. |
| Lignite | Kreka Group (Elektroprivreda BiH, 100%) | Opencast mine at Dubrave | NA. |
| Do. | do. | Opencast mine at Sikulje | NA. |
| Do. | do. | Underground mines at Mramor, about 5 kilometers northeast of Lukavac and Bukinje, located between Tuzla and Lukavac | NA. |
| Do. | EFT Rudnik i Termoelektrana Stanari d.o.o. (EFT Group) | Stanari opencast mine 20 kilometers west of Dobož | 1,100. ^c |
| Do. | Rudnik I Termoelektrana Gacko (Elektroprivreda Republike Srpske, 100%) | Opencast mine at Gacko | NA. |
| Do. | Gracanica Group (Elektroprivreda BiH, 100%) | Dimnjace opencast mine at Gornji Vakuf-Uskoplje | NA. |
| Do. | Tusnica Mine | Opencast mine at Livno | NA. |
| Coke | Global Ispat Koksa Industrija d.o.o. Lukavac (Global Steel Holdings and Coke and Chemical Conglomerate) | Lukavac | 700. |
| Do. | ArcelorMittal Zenica (ArcelorMittal S.A.) | Plant at Zenica | NA. |
| Iron and steel: | | | |
| Ferroalloys, ferrosilicon | Steelmin BH (Steelmin Ltd., 80%, and Kemokomplex Group, 20%) | Plant at Jajce | 25. |
| Do. | B.S.I. d.o.o. (Metalleghe S.p.a., 100%) | do. | 20. |
| Iron ore | ArcelorMittal Prijedor (ArcelorMittal S.A., 51%, and Rudnici Zeljezne Rude "Ljubija" a.d. Prijedor, 49%) | Buvac open pit mines at Ljubija | 3,000. |
| Pig iron | ArcelorMittal Zenica (ArcelorMittal S.A.) | Blast furnace at Zenica | 1,100. |

See footnotes at end of table.

TABLE 2—Continued
 BOSNIA AND HERZEGOVINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2014

(Thousand metric tons unless otherwise specified)

| Commodity | | Major operating companies and major equity owners | Location of main facilities | Annual capacity |
|---------------------------|----------------------------|---|----------------------------------|------------------|
| Iron and steel—Continued: | | | | |
| Steel: | | | | |
| Crude | | ArcelorMittal Zenica (ArcelorMittal S.A.) | Plant at Zenica | 1,100. |
| Crude, secondary | | Jelsingrad Livar Steel Foundry a.d. | Banja Luka | NA. |
| Semimanufactured products | | ArcelorMittal Zenica (ArcelorMittal S.A.) | Plant at Zenica | NA. |
| Lead-zinc ore | | Gross d.o.o. Gradiska (Mineco Ltd., 66.67%, and Metexcel Trading Ltd., 33.33%) | Sase Mine and mill at Srebrenica | 35. ² |
| Petroleum, refined | thousand 42-gallon barrels | Rafinerija nafte Brod a.d. (OAO "NefteGazInkor," 80%) | Oil refinery at Bosanski Brod | 30,000. |
| Do. | | Rafineriji ulja Modriča a.d. Modriča (OAO "NefteGazInkor," 77%) | Oil refinery at Modriča | NA. |
| Salt | | Rudnik Soli Tuzla d.d. | Tuzla | NA. |

⁶Estimated. Do., do. Ditto. NA Not available.

¹The company entered bankruptcy in 2013.

²Gross weight of ore.