



2019 Minerals Yearbook

NIGERIA [ADVANCE RELEASE]

THE MINERAL INDUSTRY OF NIGERIA

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In 2019, Nigeria played a significant role in the world's production of crude petroleum, natural gas, tantalum, and tin. The country's share of world tantalum production was 10%; crude petroleum and tin, 2% each; and natural gas, 1%. Nigeria also accounted for 6% of the world's trade in liquefied natural gas (LNG). Nigeria was not a globally significant consumer of minerals or mineral fuels in 2019 (BP p.l.c., 2020a, p. 16, 34, 42; Callaghan, 2021; Merrill, 2021).

Minerals in the National Economy

In 2019, crude petroleum and natural gas production accounted for 8.6% of the nominal gross domestic product (GDP); construction, 6.2%; cement production, 1.6%; the production of nonmetallic mineral products, 0.6%; mining and quarrying of minerals other than crude petroleum and natural gas, 0.3%; the production of basic metals (primarily iron and steel), 0.3%; and the production of refined petroleum products, 0.1%. Manufacturing (excluding cement, nonmetallic mineral products, refined petroleum, and basic metal production) accounted for 8.9% of the GDP (National Bureau of Statistics, 2020b, p. 142).

Nigeria's exports were valued at \$62.5¹ billion in 2019, of which crude petroleum accounted for 76.5%; natural gas (in the form of LNG) and petroleum products, 13.1%; and other minerals, 0.1%. Total imports into Nigeria were valued at \$55.3 billion in 2019, of which petroleum products accounted for 15.5%, and other minerals, 0.5% (National Bureau of Statistics, 2020a, p. 65, 68, 74, 78–79).

The Federal Government held all mineral rights and was responsible for issuing exploration and development licenses. At the end of 2019, the mining sector was governed by the Minerals and Mining Act, 2007 and the Minerals and Mining Regulations, 2011. The natural gas and petroleum sector was governed by the Petroleum Act of 1969.

The Ministry of Mines and Steel Development (MMSD) manages much of the solid minerals sector. The Nigerian Mining Cadastre Office, which is a department of the MMSD, processes mineral title applications, including exploration licenses, mining licenses, quarrying licenses, and small-scale mining licenses. The Nigerian Geological Survey Agency (NGSA) explores mineral deposits and collects geoscience information. The Department of Petroleum Resources is responsible for the oversight of the natural gas and petroleum sectors, including the issuance of licenses and permits, the collection of royalties, and the development and enforcement of environmental regulations.

Production

In 2019, crushed marble production increased by 614%; gold, by 371%; talc, by 181%; refined lead and sulfur, by 100% each;

¹Where necessary, values have been converted from Nigerian naira (NGN) to U.S. dollars (US\$) at the annual average exchange rate of NGN306.92=US\$1.00 for 2019.

shale, by 85%; crushed granite, by 76%; laterite, by 36%; mined lead, by an estimated 33%; and dolomite, by 23%. Between 2015 and 2019, crushed marble production increased by 937%; gold, by 662%; bituminous coal, by 568%; mica, by an estimated 532%; refined lead and urea, by an estimated 500% each; ammonia, by an estimated 467%; topaz, by an estimated 340%; mined lead, by an estimated 200%; tin, by an estimated 132%; zircon, by an estimated 119%; laterite, by 100%; crushed granite, by 89%; shale, by 77%; tantalum, by an estimated 73%; mined zinc, by an estimated 71%; and niobium, by an estimated 68%. Manganese production also increased greatly.

Iron ore production decreased by an estimated 90% in 2019; silica sand, by 74%; total refined petroleum products, by 66%; coal, by 58%; gypsum, by 43%; tin, by an estimated 26%; granite dimension stone, by 23%; feldspar, by 20%; and kaolin, by 17%. Between 2015 and 2019, iron ore production decreased by 97%; barite, by 89%; sulfur, by an estimated 75%; kaolin, by 66%; and total refined petroleum products, by an estimated 50%.

Decreased refined petroleum output in 2019 was attributable to the shutdown of the petroleum refineries for most of the year. Decreased tin production could be attributable to lower prices on world markets in 2019. Data on mineral production are in table 1.

Structure of the Mineral Industry

The Government-owned Nigerian National Petroleum Corp. (NNPC) was the major partner in natural gas and petroleum production joint ventures, which were operated by subsidiaries of major international oil companies or domestic oil companies. Crude petroleum also was produced under production-sharing contracts, service contracts, and by sole risk operators (primarily independent domestic companies). Government-operated refineries accounted for more than 99% of petroleum refining capacity. Most Nigerian natural gas output was associated with crude petroleum production.

In 2018 (the latest year for which data were available), laterite was produced in at least 25 of Nigeria's 36 States; crushed granite, in at least 23 States; construction sand and limestone, in at least 8 States each; coal, in at least 4 States; and clay other than bentonite and kaolin, in at least 3 States. Construction sand, crushed granite, and laterite also were produced in the Federal Capital Territory (Tajudeen Badejo & Co., 2020a, c).

The cement plants and nonfuel minerals operations were privately owned. In 2018, 720 companies were engaged in mining and quarrying (Tajudeen Badejo & Co., 2020b). Artisanal miners and small-scale mining companies produced gemstones, gold, niobium, tantalum, tin, and other commodities. Capacity, location, ownership, and production information were not readily available for many of these operations. Nigeria also had a large ferrous and nonferrous metal recycling sector that was mostly privately owned. Table 2 is a list of major mineral industry facilities.

Commodity Review

Metals

Gold.—In December 2018, Kian Smith Trade & Co. started construction of its new gold refinery in Ogun State. The initial planned capacity of the refinery was 36,000 kilograms per year (kg/yr) of gold and 12,000 kg/yr of silver. Capacity was expected to increase to 120,000 kg/yr of gold and 36,000 kg/yr of silver. The company planned to complete the refinery by the end of February 2019 and start production by the end of June. As of yearend, production had not started at the refinery (Akwayyiram, 2018; Onuah, 2020).

Iron Ore.—Kogi Iron Ltd. of Australia planned to raise the funds to finance its feasibility study on the Agbaja iron ore project in Kogi State by the end of April 2020. In its prefeasibility study, Kogi planned to produce 5 million metric tons per year (Mt/yr) of iron ore. The company also was considering a new steel plant at Agbaja with a capacity of 500,000 metric tons per year (t/yr) (Cornish, 2017; Kogi Iron Ltd., 2020).

Niobium (Columbium) and Tantalum.—Nigeria's columbite-tantalite production was about 1,300 metric tons (t) each in 2018 and 2019 (estimated) compared with 930 t in 2017. West African Mining Company Ltd. produced 215 t in 2018; Sodex Mines Nigeria Ltd., 170 t; Malcomines Ltd., 145 t; First Patriot Ltd., 50 t; and Don & Chyke Nigeria Ltd., 27 t. Artisanal miners and small-scale mining companies produced 699 t in 2018 (table 1; Tajudeen Badejo & Co., 2020b, c).

Tin.—Cassiterite was produced by artisanal miners and companies, including Sodex Mines Nigeria Ltd. In 2019, Nigeria's cassiterite production decreased to an estimated 9,200 t from 11,721 t in 2018. Production in Plateau State was 6,090 t in 2018; Oyo State, 3,497 t; and in Bauchi State, 2,089 t (table 1; National Bureau of Statistics, 2019, p. 7, 47–48).

Industrial Minerals

Cement.—In 2019, Nigeria's cement production increased to an estimated 22.6 million metric tons (Mt) compared with 21 Mt in 2018. Increases in cement capacity of 4.5 Mt/yr were partially offset by border closures, civil unrest, and heavy rains (table 1; Dangote Cement plc, 2020, p. 47, 50).

Dangote Cement plc (a subsidiary of Dangote Group) operated three plants with a total capacity of 29.25 Mt/yr. The Obajana plant in Kogi State had a capacity of 13.3 Mt/yr; the Ibese plant in Ogun State, 12 Mt/yr; and the Gboko plant in Benue State, 4 Mt/yr. Dangote Cement's domestic sales increased to nearly 13.7 Mt in 2019 from 13.4 Mt in 2018. Exports decreased to about 450,000 t in 2019 from 700,000 t in 2018 because of border closures (table 2; Dangote Cement plc, 2020, p. 47).

Dangote Cement planned to complete new plants with a total capacity of 6 Mt/yr in 2020. The company planned to export clinker from the plants to grinding plants in West African countries, including Cameroon (Onu, 2019).

In July 2018, Kalambaina Cement Company Ltd. (a subsidiary of BUA Group) completed a new plant in Sokoto State with a capacity of 1.5 Mt/yr. The company had also started construction of a new plant with a capacity of 3 Mt/yr in 2018, which was expected to be completed in the second half of 2020.

BUA Group also increased the capacity at its plant at Okpella in Edo State to 6 Mt/yr from 3 Mt/yr in October 2018; the company started operations from its new production line in 2019 (Global Cement, 2018, 2019; International Cement Review, 2019; Dangote Cement plc, 2020, p. 50).

Clay and Shale.—In 2019, Nigeria's shale production increased to about 1.9 Mt from a revised 1.03 Mt in 2018. LaFarge Holcim's operations produced about 550,000 t of shale in 2018 and Dangote Cement, about 455,000 t. The production of clay other than bentonite and kaolin decreased to about 1.6 Mt in 2019 from a revised 1.75 Mt in 2018. Dangote Cement produced 1.34 Mt in Kogi State in 2018 and BUA International, 159,000 t in Edo State (table 1; Tajudeen Badejo & Co., 2020a–c).

Gemstones.—Artisanal and small-scale miners produced amethyst, garnet, sapphire, and topaz. Plateau State accounted for all Nigeria's reported garnet production in 2018. Kaduna State accounted for more than 99% of the amethyst and more than 97% of the sapphire mined in Nigeria. In 2018, Niger State accounted for 67% of the country's topaz production, and Plateau State, 33% (National Bureau of Statistics, 2019, p. 25, 27, 40, 49–50, 60–63).

In January 2019, artisanal miners started producing aquamarine from a weathered pegmatite deposit in Nasarawa State. Production ceased in May because the miners lacked the tools to continue production from bedrock after the resources near the surface were depleted. Other types of beryl reportedly mined in Nigeria were green beryl, heliodor, and morganite (Palke and Hapeman, 2019).

Laterite.—In 2019, Nigeria's laterite production increased to 4.75 Mt from a revised 3.48 Mt in 2018. Dangote Cement produced about 663,000 t of laterite in 2018; Mothercat Ltd., 482,000 t; Julius Berger Nigeria Plc, 465,000 t; and CCECC Nigeria Ltd., 338,000 t. Large-scale mining companies accounted for 77% of domestic laterite production in 2018 (table 1; Tajudeen Badejo & Co., 2020b, c).

Nitrogen.—Indorama Eleme Fertilizers & Chemicals Ltd. operated a plant with a capacity of 1.46 Mt/yr of urea and 840,000 t/yr of ammonia; Notore Chemical Industries Plc also produced ammonia and urea. Indorama was engaged in an expansion of its plant that would double its ammonia and urea capacity. The company planned to complete the expansion of its plant by mid-2021 at an estimated cost of \$3.2 billion. The majority of the production from the expansion was expected to be consumed domestically (Impact, 2018; Indorama Group, 2018; Woodruff, 2020).

In 2019, Dangote Fertilizer Ltd. (a subsidiary of Dangote Group) was engaged in the construction of a new plant near Lagos with a capacity of about 2.8 Mt/yr of urea and 1.4 Mt/yr of ammonia. The company planned to complete the new plant by 2020 at a cost of \$2 billion (AfricaFertilizer.org, 2019, p. 10; Woodroof, 2020).

The Bayelsa Development and Investment Corp. and its joint-venture partners planned to build a new ammonia, methanol, and urea plant at Brass Island in Bayelsa State. The planned capacity of the plant was 1.75 Mt/yr of methanol, 1.3 Mt/yr of urea, and 770,000 t/yr of ammonia. The estimated cost of the plant was \$3.5 billion. The company planned to start production

by the first quarter of 2020 (Brass Fertilizer & Petrochemical Company Ltd., 2017a, b; AfricaFertilizer.org, 2019, p. 10).

In November 2019, OCP Group of Morocco finalized its plans to construct a new fertilizer plant in southeastern Nigeria. The planned capacity of the plant was 1 Mt/yr of mixed fertilizers and 750,000 t/yr of ammonia. OCP planned to complete the plant by 2023; the estimated cost of the plant was \$1.5 billion (Woodroof, 2020).

Sand, Construction.—Nigeria's production of sand for construction increased to 1.6 Mt in 2019 from a revised 1.49 Mt in 2018. In 2018, artisanal miners and small-scale mining companies accounted for about 88% of Nigeria's production of sand for construction (table 1; Tajudeen Badejo & Co., 2020c).

Stone, Crushed.—Nigeria's limestone production increased to 26.5 Mt in 2019 from a revised 25.6 Mt in 2018. Production by Dangote Cement was 17.6 Mt in 2018; LafargeHolcim's operations, 4.51 Mt; Cement Company of Northern Nigeria Plc, 1.16 Mt; Ashaka Cement Ltd., 876,000 t; and BUA International Ltd., 835,000 t. Large-scale mining companies accounted for more than 99% of domestic limestone production in 2018 (table 1; Tajudeen Badejo & Co., 2020b, c).

National granite production increased to 19.6 Mt in 2019 from a revised 11.1 Mt in 2018. Granite was produced by 51 large-scale companies in 2018 that accounted for about 85% of output. Julius Berger Nigeria Plc produced about 1.37 Mt of granite in 2018; Zeberced Ltd., 933,000 t; Setraco Nigeria Ltd., 889,000 t; and CCECC Nigeria Ltd., 866,000 t (table 1; Tajudeen Badejo & Co., 2020b, c).

Mineral Fuels

Coal.—Nigeria's coal production decreased to 810,000 t in 2019 from a revised 1.91 Mt in 2018. Dangote Cement opened new mines in Benue and Ogun States that produced 1.57 Mt of coal in 2018; Zuma 828 Coal Ltd. (a subsidiary of Eta Zuma Group Ltd.), about 174,000 t in Kogi State; and Ashaka Cement, about 147,000 t in Gombe State (table 1; Tajudeen Badejo & Co., 2020a–c).

Natural Gas and Petroleum.—In 2019, Nigeria's production of crude petroleum was 735 million barrels (Mbbbl) compared with 701 Mbbbl in 2018 and 780 Mbbbl in 2009. Crude petroleum exports were 733 Mbbbl in 2019, of which continental Europe accounted for 329 Mbbbl; Asia and the Pacific, 201 Mbbbl; Africa, 102 Mbbbl; North America, 75 Mbbbl; and South America, 21 Mbbbl. By comparison, crude petroleum exports were 769 Mbbbl in 2009, of which North America accounted for 277 Mbbbl; continental Europe, 164 Mbbbl; Africa, 138 Mbbbl; Asia and the Pacific, 111 Mbbbl; and South America, 79 Mbbbl. The decrease in exports to North America could be attributable to increased crude petroleum production in the United States (Nigerian National Petroleum Corp., 2019, p. 6, 14; 2020, p. iii, 7).

In 2019, Nigeria's marketed natural gas production was 47.7 billion cubic meters compared with 47 billion cubic meters in 2018 and 22.1 billion cubic meters in 2009. From 2009 to 2019, gross natural gas production increased to 81.1 billion cubic meters from 52 billion cubic meters. The higher long-term growth in marketable natural gas output as compared to gross natural gas was attributable to decreased natural gas flaring.

In 2019, 8.5% of gross natural gas production was flared compared with 9.9% in 2018 and 27.7% in 2009 (Nigerian National Petroleum Corp., 2019, p. 16; 2020, p. 16).

Mobil Producing Nigeria Unlimited and NNPC operated oilfields included the Ubit, the Usari, and the Yoho Fields. The companies produced 92.7 Mbbbl of crude petroleum in 2019 compared with 97.1 Mbbbl in 2018 (Nigerian National Petroleum Corp., 2020, p. 7).

Star Deep Water Petroleum Ltd. (Chevron Nigeria Ltd., 68.2%, and NNPC, 15.9%) operated the Agbami Field. In 2019, production of crude petroleum was 64.8 Mbbbl compared with 77.7 Mbbbl in 2018 (Nigerian National Petroleum Corp., 2020, p. 7).

Chevron Nigeria Ltd. and NNPC produced crude petroleum from fields including the Dibi, the Gbokoda, and the Okan Fields. In 2019, output decreased to 60.4 Mbbbl from 62.8 Mbbbl in 2018 (Nigerian National Petroleum Corp., 2020, p. 7).

SNEPCO and Esso Exploration and Production Nigeria (Deepwater) Ltd. operated the Bonga Field. In 2019, the companies produced 59.9 Mbbbl of crude petroleum at Bonga compared with 57.6 Mbbbl in 2018 (Nigerian National Petroleum Corp., 2020, p. 7).

Total Upstream Nigeria Ltd. (TUPNI) (a subsidiary of Total S.A. of France) and its joint-venture partners produced 22.8 Mbbbl in 2019 at the Usan Field compared to 27.7 Mbbbl in 2018. At the Akpo Field, production was 35.7 Mbbbl in 2019. TUPNI opened the Egina Field in 2019 and produced 61 Mbbbl by yearend (Nigerian National Petroleum Corp., 2020, p. 7, 9).

NNPC and Shell Petroleum Development Company of Nigeria-operated fields included the EA field. In 2019, the companies' production increased to nearly 78.3 Mbbbl from 68.1 Mbbbl in 2018 (Nigerian National Petroleum Corp., 2020, p. 7).

Esso Exploration and Production Nigeria Ltd. and SNEPCO operated the Erha Field. In 2019, the companies produced 35.4 Mbbbl of crude petroleum at the Erha Field compared with 41.8 Mbbbl in 2018 (Nigerian National Petroleum Corp., 2020, p. 7).

Fields operated by NNPC and Total E&P Nigeria Ltd. (a subsidiary of Total S.A. of France) included the Edikan and the Ofon Fields. The companies produced 41.1 Mbbbl of crude petroleum in 2019 compared with 50 Mbbbl in 2018 (Nigerian National Petroleum Corp., 2020, p. 7).

Nigeria Liquefied Natural Gas Ltd.'s [NNPC, 49%; Shell Gas B.V., 25.6%; Total LNG Nigeria Ltd., 15%; and ENI International (N.A.) S.a.r.l., 10.4%] plant at Bonny Island had a capacity of 22 Mt/yr of LNG. The company's exports increased to 20.9 Mt in 2019 from 20.2 Mt in 2018. France and Spain accounted for about 15% each of Nigeria's LNG exports in 2019; India, 13%; China and Turkey, 9% each; and other countries, 39% (table 2; BP p.l.c., 2020a, p. 42; 2020b).

In 2019, the production of refined petroleum products decreased to 4 Mbbbl from 11.7 Mbbbl in 2018. All of Nigeria's Government-owned refineries operated at less than 7% of capacity in 2019 and were shut down after June (Nigeria National Petroleum Corp., 2020, p. 20).

Dangote Group was engaged in the construction of a new refinery with a capacity of 650,000 barrels per day near Lagos. The company also planned to build a nearby polypropylene

plant with a capacity of 3.6 Mt/yr. The estimated total cost of the ammonia and urea and polypropylene plants and the refinery was \$12 billion. Dangote had planned to complete the plant and refinery by 2019. As of August 2019, completion of the project was delayed until the end of 2020 because of problems with importing raw materials and equipment (Brelsford, 2017; Akwagyiram, 2019).

Outlook

Cement production could increase between 2020 and 2023 because of capacity expansions and new plants; the output of clay and limestone would increase as a result. Ammonia and urea production are expected to increase between 2020 and 2025 because of the opening of new plants. Gold refining could start in 2020.

Domestic natural gas consumption is expected to increase with the opening of new ammonia and urea plants. The production of refined petroleum could increase between 2021 and 2023 because of the opening of Dangote's new refinery.

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TABLE 1
NIGERIA: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons, gross weight, unless otherwise specified)

Commodity ²	2015	2016	2017	2018	2019
METALS					
Beryl	26 ^e	--	18 ^e	35	35 ^e
Gold, mine, Au content kilograms	21	25	76	34 ^r	160
Iron ore, mine:					
Gross weight	5,874	1,548	1,560 ^r	1,583	160
Fe content	3,600	960	890 ^r	980 ^r	100
Iron and steel, raw steel ^e	620,000	620,000	620,000	640,000 ^r	630,000
Lead:					
Mine, Pb content ^e	8,000	13,000	21,000 ^r	18,000 ^r	24,000
Refinery, secondary	2,000 ^e	9,000 ^e	8,300	6,000 ^e	12,000 ^e
Manganese, mine:					
Gross weight	3,502	70,107	37,350	58,666 ^r	59,000 ^e
Mn content ^e	1,300	25,000	13,000	21,000 ^r	21,000
Niobium, mineral concentrate:					
Gross weight	776 ³	1,073	930	1,306 ^r	1,300 ^e
Nb content ^e	53	73	63	89 ^r	89
Rare earths, monazite concentrate	80 ^e	--	55 ^e	50 ^e	54 ^e
Tantalum, mineral concentrate:					
Gross weight	776 ³	1,073	930	1,306 ^r	1,300 ^e
Ta content ^e	150	210	180	260 ^r	260
Tin, mine, cassiterite concentrate:					
Gross weight	3,500 ^e	3,443	12,324	11,721	9,200 ^e
Sn content	2,500	2,300 ^e	8,300 ^e	7,800 ^e	5,800 ^e
Tungsten, mine, wolframite concentrate:					
Gross weight	52	15	4	50 ^{r,e}	3
W content ^e	25	7	2	25 ^r	25
Zinc, mine, Zn content	7,000	9,700 ^e	6,800 ^e	12,000 ^{r,e}	12,000 ^e
Zirconium, zircon	1,050 ^e	1,073	1,799	2,263 ^{r,3}	2,300 ^e
INDUSTRIAL MINERALS					
Barite ⁴	3,323	537	714	387	370
Cement, hydraulic ^e thousand metric tons	21,000	22,000	19,000	21,000	22,600
Clay and shale:					
Bentonite	NA	3,200	1,700 ^{r,e}	120 ^r	120 ^e
Kaolin	25,280	26,710	46,935	10,429 ^r	8,650
Shale thousand metric tons	1,076	1,883	850	1,026 ^r	1,900 ^e
Unspecified do.	1,178	1,646	1,237	1,752 ^r	1,600 ^e
Feldspar, mine	13,238	35,092	27,660	41,355	33,200
Gemstones:					
Amethyst kilograms	NA	5,170	5,700 ^e	6,300	6,300 ^e
Garnet do.	NA	375	600 ^e	800	800 ^e
Sapphire do.	NA	2	320 ^e	640 ^e	640 ^e
Topaz do.	5,000 ^e	5,540	6,013	22,240	22,000 ^e
Tourmaline ^e do.	4,000	5,000	5,500	5,500	5,500
Gypsum	34,621	25,000 ^e	16,619	39,052	22,300
Laterite thousand metric tons	2,378	2,074	2,702	3,484 ^r	4,750
Mica	570 ^e	79	1,180	3,547	3,600 ^e
Nitrogen, N content:					
Ammonia	150,000	340,000 ^e	790,000 ^e	850,000 ^e	850,000 ^e
Urea ^e	250,000	580,000	1,400,000	1,500,000	1,500,000

See footnotes at end of table.

TABLE 1—Continued
 NIGERIA: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons, gross weight, unless otherwise specified)

Commodity ²	2015	2016	2017	2018	2019	
INDUSTRIAL MINERALS—Continued						
Sand and gravel, industrial, silica sand	10 ^e	4	28	38	10	
Stone, sand, and gravel, construction:						
Sand and gravel, sand	thousand metric tons	2,008	1,509	2,393	1,486 ^r	1,600 ^e
Stone:						
Crushed:						
Granite	do.	10,384	7,458	9,958	11,142 ^r	19,600
Limestone	do.	21,455	26,997	19,434	25,605 ^r	26,500
Marble		16,400	25,518	16,047	23,809	170,000
Marl	thousand metric tons	595	410 ^e	228	230 ^e	230 ^e
Other	do.	5,107	--	--	-- ^e	-- ^e
Dimension, granite		NA	6,339	6,933	28,421	21,800
Other, size and shape unspecified:						
Basalt		NA	1,400	1,400 ^{r,e}	1,400 ^{r,e}	1,400 ^e
Dolomite		NA	9,835	26,221	17,877	21,900
Sandstone		NA	33	80 ^e	133	130 ^e
Sulfur, S content ^e		200	610	1,000	25	50
Talc		NA	667	1,897	2,668	7,500
MINERAL FUELS AND RELATED MATERIALS						
Coal, bituminous		121,316	104,425	638,062	1,909,813 ^r	810,000
Liquefied natural gas ³	thousand metric tons	19,500	17,800	20,400	20,200	20,900
Natural gas:						
Gross	million cubic meters	82,963	78,658	82,164	80,321	81,125
Marketable ⁵	do.	46,008	44,461	46,677	46,997	47,708
Petroleum:						
Crude, including condensate	thousand 42-gallon barrels	773,459	669,998 ^r	689,743	701,432	735,244
Natural gas liquids:						
Butane	do.	4,207	3,188	2,529	2,358	2,570
Pentane	do.	3,744	3,467	13,561	10,201	11,205
Propane	do.	4,269	3,690	2,920	2,480	2,611
Refinery:						
Asphalt	do.	--	43	--	--	--
Distillate fuel oil	do.	1,493	4,993	6,453	2,528	613
Gasoline	do.	2,225	7,942	5,757	3,142	1,083
Kerosene	do.	2,016	7,197	5,217	2,847	982
Liquefied petroleum gas	do.	280	1,112	887	605	44
Residual fuel oil	do.	1,889	2,330	4,624	2,551	1,262
Total	do.	7,900	23,600	22,900	11,700	3,980

^eEstimated. ^rRevised. do. Ditto. NA Not available. -- Zero.

¹Table includes data available through January 19, 2021. All data are reported unless otherwise noted. Totals and estimated data are rounded to more than three significant digits; may not add to totals shown.

²In addition to the commodities listed, bitumen, secondary copper, gemstones (such as aquamarine, emerald, green beryl, heliodor, morganite, and ruby), lime, rolled-steel products, salt, and soda ash may have been produced, but available information was inadequate to make reliable estimates of output.

³Reported exports.

⁴Considerably more barite is produced but it is considered to be commercially unusable.

⁵Total natural gas production less flared gas, gas used for fuel, gas used for gas lift, and reinjected gas.

TABLE 2
NIGERIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2019

(Metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners		Location of main facilities	Annual capacity
Barite	Artisanal and small scale miners		Mines in Benue State	710 ^e
Cement	Dangote Cement Plc		Plant at Obajana in Kogi State	13,250,000
Do.	do.		Plant at Ibese in Ogun State	12,000,000
Do.	do.		Plant at Gboko in Benue State	4,000,000
Do.	United Cement Co. of Nigeria Ltd. (LafargeHolcim Group, 100%)		Plant at Mfamosing in Cross River State	5,000,000
Do.	West African Portland Cement Co. Ltd. (LafargeHolcim Group, 76.3%)		Two plants at Ewekoro	3,500,000
Do.	do.		Plant at Sagamu	1,000,000
Do.	Ashaka Cement Plc (LafargeHolcim Group, 76.3%)		Plant at Ashaka	1,000,000
Do.	Edo Cement Co. Ltd. (BUA Group, 87%)		Plant at Okpella in Edo State	6,000,000
Do.	do.		do. ¹	500,000
Do.	Kalambaina Cement Company Ltd. (subsidiary of BUA Group)		Plant in Sokoto State	1,500,000
Do.	Cement Co. of Northern Nigeria Plc (BUA Group, 50.7%)		Plant at Sokoto in Sokoto State	500,000
Clay and shale:				
Kaolin	Porcelainware Industries Ltd.		Mine in Ogun State	20,000 ^e
Clay, other	Dangote Cement Plc		Mine in Kogi State	1,500,000 ^e
Do.	BUA International Ltd. (BUA Group)		Mine in Edo State	180,000 ^e
Do.	Purechem Industries Ltd.		Mine in Ogun State	48,000 ^e
Do.	Porcelainware Industries Ltd.		Mine in Ogun State ¹	38,000 ^e
Shale	West African Portland Cement Co. Ltd. (LafargeHolcim Group, 76.3%)		Quarries in Ogun State	790,000 ^e
Do.	United Cement Co. of Nigeria Ltd. (LafargeHolcim Group, 100%)		Quarries in Cross River State ¹	670,000 ^e
Do.	Dangote Cement Plc		Quarries in Ogun State	650,000 ^e
Coal	Zuma 828 Coal Ltd. (subsidiary of Eta Zuma Group Ltd.)		Mines in Kogi State	570,000 ^e
Do.	Ashaka Cement Plc (LafargeHolcim Group, 76.3%)		Mine in Gombe State	170,000 ^e
Copper, secondary	Sun & Sand Industries Ltd.		Plant at Ota	NA
Gemstones:				
Amethyst	kilograms	Artisanal and small scale miners	Mines in Kaduna State	7,000 ^e
Do.	do.	do.	Mines in Plateau State	5,600 ^e
Do.	do.	do.	Mines in Nasarawa State ¹	110 ^e
Aquamarine		do.	do.	NA
Garnet	kilograms	do.	Mines in Plateau State	890 ^e
Sapphire	do.	do.	Mines in Kaduna State	700 ^e
Topaz	do.	do.	Mines in Niger State	17,000 ^e
Do.	do.	do.	Mines in Plateau State	8,100 ^e
Tourmaline	do.	do.	Mines in Oyo State	6,100 ^e
Do.		do.	Mines in Kwara State	NA
Gold, mine		do.	Mines in Kaduna State	NA
Gypsum	Ashaka Cement Plc (LafargeHolcim Group, 76.3%)		Mine at Fika in Yobe State	63,000 ^e
Iron ore	National Iron Ore Mining Co. Ltd. (Government, 100%)		Mine at Itakpe ¹	NA
Iron and steel, raw steel	Standard Metallurgical Company Ltd.		Electric arc furnace at Sagamu	250,000
Do.	African Steel Mills Ltd. (Liberty Group)		Electric arc furnace at Ikorodu	200,000
Do.	Dana Steel Ltd.		Electric arc furnace at Katsina	180,000
Do.	Nigerian Spanish Engineering Co.		Electric arc furnace at Kano	72,000
Do.	Universal Steel Co.		Electric arc furnace at Ikeja	50,000
Do.	Federated Steel Mills Ltd.		Electric arc furnace at Ota	40,000
Laterite	Dangote Cement Plc		Mines in Lagos State ¹	850,000 ^e
Do.	do.		Mine in Ogun State	650,000 ^e
Do.	Julius Berger Nigeria Plc		Mines in Akwa Ibom and Ogun States	1,400,000 ^e
Do.	Mothercat Ltd.		Mine in Katsina State	540,000 ^e
Do.	CCECC Nigeria Ltd.		Mine in Federal Capital Territory	380,000 ^e
Do.	P.W. Nigeria Ltd.		Mine in Ogun State	180,000 ^e
Lead, mine	Tongyi Allied Mining Ltd.		Mine in Federal Capital Territory	NA
Manganese	Sino Minmetals Nigeria Ltd.		Mine in Kebbi State	130,000 ^e
Do.	Luxeon Mining Company Ltd.		do.	50,000 ^e

See footnotes at end of table.

TABLE 2—Continued
NIGERIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2019

(Metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Natural gas:				
Marketed	million cubic meters	Nigerian National Petroleum Corp. (NNPC) ² and Shell Petroleum Development Company of Nigeria (SPDC) joint venture [NNPC, 55%; SPDC, 30%; Total E&P Nigeria Ltd., 10%; Nigerian Agip Oil Company Ltd. (NAOC), 5%]	Gbar oilfield at Gbaran-Ubie and 27 other oilfields	21,000 ^e
Do.	do.	Nigerian National Petroleum Corp. (NNPC) ² and Nigerian Agip Oil Company Ltd. (NAOC) joint venture (NNPC, 60%; NAOC, 20%; Phillips Oil Company Nigeria Ltd., 20%)	Idu oilfield at Iduobosuku and other oilfields	9,300 ^e
Do.	do.	Nigerian National Petroleum Corp. (NNPC) ² and Chevron Nigeria Ltd. joint venture (NNPC, 60%, and Chevron Nigeria Ltd., 40%)	Okan offshore oilfield and 26 other oilfields	5,700 ^e
Do.	do.	Nigerian National Petroleum Corp. (NNPC) ² and Total E&P Nigeria Ltd. joint venture (NNPC, 60%, and Total E&P Nigeria Ltd., 40%)	Amenamkpono offshore oilfield and 9 other oilfields	4,600 ^e
Do.	do.	Total Upstream Nigeria Ltd. (TUPNI)	Akpo and Usan offshore oilfields	4,000 ^e
Do.	do.	Nigerian Petroleum Development Company (NNPC ² , 100%)	Utorogu/Ugheli oilfield near Otudu and other oilfields	3,100 ^e
Do.	do.	Shell Nigeria Exploration and Production Co., 55%, and Esso Exploration & Production Nigeria (Deepwater) Ltd., 20%	Bonga offshore oilfield	1,550
Do.	do.	Star Deep Water Petroleum Ltd. (Chevron Nigeria Ltd., 67.3%, and NNPC, 15.9%)	Agbami offshore oilfield	1,200 ^e
Do.	do.	Nigerian National Petroleum Corp. (NNPC) ² and Mobil Producing Nigeria Unlimited joint venture (NNPC, 60%, and Mobil Producing Nigeria Unlimited, 40%)	Oso offshore oilfield and 12 other oilfields	860 ^e
Liquefied	million metric tons	Nigeria Liquefied Natural Gas Ltd. [Nigerian National Petroleum Corp. (NNPC), 49%, and Shell Gas B.V., 25.6%]	Trains 1 through 6 at Finima, Bonny Island	22
Niobium (columbium) and tantalum, columbite-tantalite		West African Mining Company Ltd.	NA	240 ^e
Do.		Sodex Mines Nigeria Ltd.	Mine in Bauchi State	190 ^e
Do.		Malcomines Ltd.	Mine in Plateau State	160 ^e
Do.		First Patriot Ltd.	Mine in Ebonyi State	60 ^e
Do.		Don & Chyke Nigeria Ltd.	NA	30 ^e
Do.		Artisanal and small-scale miners	Various locations	780 ^e
Nitrogen, N content:				
Ammonia		Indorama Eleme Fertilizers & Chemicals Ltd.	Plant at Port Harcourt	840,000
Do.		Notore Chemical Industries Plc	Plant at Onne	300,000
Urea		Indorama Eleme Fertilizers & Chemicals Ltd.	Plant at Port Harcourt	1,460,000
Do.		Notore Chemical Industries Plc	Plant at Onne	500,000
Petroleum:				
Crude	thousand 42-gallon barrels	Total Upstream Nigeria Ltd.	Akpo and Usan offshore oilfields	130,000
Do.	do.	do.	Egina offshore oilfield	76,000
Do.	do.	Nigerian National Petroleum Corp. (NNPC) ² and Mobil Producing Nigeria Unlimited joint venture (NNPC, 60%, and Mobil Producing Nigeria Unlimited, 40%)	Ubit offshore oilfield	25,000 ^e
Do.	do.	do.	Usari offshore oilfield	22,000 ^e
Do.	do.	do.	Yoho offshore oilfield	18,000 ^e
Do.	do.	do.	Enang South offshore oilfield	8,400 ^e
Do.	do.	do.	Asasa oilfield near Obofia	6,300 ^e
Do.	do.	do.	20 other oilfields	41,000 ^e
Do.	do.	Star Deep Water Petroleum Ltd. (Chevron Nigeria Ltd., 67.3%, and NNPC, 15.9%)	Agbami offshore oilfield	91,000
Do.	do.	Shell Nigeria Exploration and Production Co. (SNEPCO), 55%, and Esso Exploration & Production Nigeria (Deepwater) Ltd., 20%	Bonga offshore oilfield	82,000

See footnotes at end of table.

TABLE 2—Continued
NIGERIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2019

(Metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Petroleum:—Continued				
Crude— Continued	thousand 42-gallon barrels	Esso Exploration and Production Nigeria Ltd., 56%, and Shell Nigeria Exploration and Production Co. (SNEPCO), 44%	Erha offshore oilfield	77,000
Do.	do.	Nigerian National Petroleum Corp. (NNPC) ² and Chevron Nigeria Ltd. joint venture (NNPC, 60%, and Chevron Nigeria Ltd., 40%)	Okan offshore oilfield	19,000 ^c
Do.	do.	do.	Gbokoda oilfield near Tebu	11,000 ^c
Do.	do.	do.	Meji offshore oilfield	9,100 ^c
Do.	do.	do.	Meren offshore oilfield	8,200 ^c
Do.	do.	do.	Dibi oilfield near Orejusingin	7,700 ^c
Do.	do.	do.	20 other oilfields	20,000 ^c
Do.	do.	Nigerian National Petroleum Corp. (NNPC) ² and Shell Petroleum Development Company of Nigeria (SPDC) joint venture [NNPC, 55%; SPDC, 30%; Total E&P Nigeria Ltd., 10%; Nigerian Agip Oil Company Ltd. (NAOC), 5%]	Ea offshore oilfield	20,000 ^c
Do.	do.	do.	Agbd oilfield	9,500 ^c
Do.	do.	do.	Zara oilfield	6,400 ^c
Do.	do.	do.	Gbar oilfield at Gbaran-Ubie	5,100 ^c
Do.	do.	do.	Agbada offshore oilfield	4,500 ^c
Do.	do.	do.	23 other oilfields	19,000 ^c
Do.	do.	Nigerian National Petroleum Corp. (NNPC) ² and Total E&P Nigeria Ltd. joint venture (NNPC, 60%, and Total E&P Nigeria Ltd., 40%)	Ofon offshore oilfield	15,000 ^c
Do.	do.	do.	Amenamkpono offshore oilfield	13,000 ^c
Do.	do.	do.	Obagi oilfield at Obogwu	4,900 ^c
Do.	do.	do.	Edikan offshore oilfield	2,700 ^c
Do.	do.	do.	Ibewa Condensate oilfield near Erima	2,700 ^c
Do.	do.	do.	Ime offshore oilfield	2,700 ^c
Do.	do.	do.	4 other oilfields	3,100 ^c
Do.	do.	Nigerian Petroleum Development Company (NNPC, ² 100%)	Okono/Okpoho offshore oilfield	15,000 ^c
Do.	do.	do.	Oben/Sapele/Amukpe oilfield near Idumessa	12,000 ^c
Do.	do.	do.	Batan oilfield near Otomogbene ¹	4,700 ^c
Do.	do.	do.	Afisere/Eriemu oilfield ¹	3,900 ^c
Do.	do.	do.	Utorogu/Ugheli oilfield at Otudu	2,900 ^c
Do.	do.	Nigerian National Petroleum Corp. (NNPC) ² and Nigerian Agip Oil Company Ltd. (NAOC) joint venture (NNPC, 60%; Oando Plc, 20%; and Phillips Oil Company Nigeria Ltd., 20%)	Ogbainbiri oilfield near Ogboinbiri	5,600 ^c
Do.	do.	do.	Idu oilfield at Iduobosuku	3,500 ^c
Do.	do.	do.	Oleh oilfield	3,100 ^c
Do.	do.	do.	Samabiri East oilfield near Ekowe	2,700 ^c
Do.	do.	do.	Okpai oilfield at Asaba Okpai	2,600 ^c
Do.	do.	do.	17 other oilfields	16,000 ^c
Natural gas liquids	do.	Mobil Producing Nigeria Unlimited, 51%, and Nigerian National Petroleum Corp. (NNPC) ² , 49%	Plant at Bonny Island	18,000
Refined	do.	Port Harcourt Refining Co. Ltd. (Government, 100%)	New Port Harcourt refinery ¹	55,000
Do.	do.	do.	Old Port Harcourt refinery ¹	22,000
Do.	do.	Warri Refinery and Petrochemicals Co. Ltd. (Government, 100%)	Warri refinery at Warri ¹	45,600
Do.	do.	Kaduna Refinery and Petrochemicals Co. Ltd. (Government, 100%)	Kaduna refinery at Kaduna ¹	40,000
Gas-to-liquids	do.	Chevron Nigeria Ltd.	Escravos Gas To Liquids Plant at Gbodoro	12,000
Sand:				
Construction		Artisanal and small-scale miners	Mines in Lagos State	2,000,000 ^c
Do.		FW Dredging Ltd.	Mine in Rivers State ¹	160,000 ^c
Do.		Rockstan Shelters Ltd.	Mine in Delta State ¹	130,000 ^c
Silica		Babako Construction Company Ltd.	Mine in Katsina State	42,000 ^c

See footnotes at end of table.

TABLE 2—Continued
 NIGERIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2019

(Metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Stone, crushed:			
Granite	China Geo-engineering Company Nigeria Ltd.	Quarries in Gombe and other states	4,000,000 ^ε
Do.	Julius Berger Nigeria Plc	Quarry in Federal Capital Territory	1,800,000 ^ε
Do.	Zeberced Nigeria Ltd.	do.	1,000,000 ^ε
Do.	Setraco Nigeria Ltd.	Quarries in Edo, Ebonyi, and Jigawa States	990,000 ^ε
Do.	CCECC Nigeria Ltd.	Mine in Federal Capital Territory	960,000 ^ε
Do.	Reynolds Construction Company Nigeria Ltd.	Quarries in Ogun and Oyo States	850,000 ^ε
Do.	Crushed Rock Industries Ltd.	Quarry in Rivers State	650,000 ^ε
Do.	Arab Contractors O.A.O Nigeria Ltd.	Quarry in Federal Capital Territory	600,000 ^ε
Do.	Triacta Nigeria Ltd.	Quarries in Adamawa, Gombe, and Niger States	580,000 ^ε
Do.	Ratcon Construction Company Ltd.	Quarry in Ogun and Oyo States	430,000 ^ε
Do.	Georgio Rock Ltd.	Quarries in Edo State	400,000 ^ε
Do.	Kopek Construction Ltd.	do.	350,000 ^ε
Limestone	Dangote Cement Plc	Quarry in Kogi State	10,500,000 ^ε
Do.	do.	Quarry in Ogun State	9,500,000 ^ε
Do.	do.	Quarry in Benue State	700,000 ^ε
Do.	West African Portland Cement Co. Ltd. (LafargeHolcim Group, 76.3%)	Quarries in Ogun State	5,500,000 ^ε
Do.	United Cement Co. of Nigeria Ltd. (LafargeHolcim Group, 100%)	Quarry in Cross River State	2,200,000 ^ε
Do.	Ashaka Cement Plc (LafargeHolcim Group, 76.3%)	Quarry in Gombe State	1,100,000 ^ε
Do.	Cement Co. of Northern Nigeria Plc (BUA Group, 50.7%)	Quarry in Sokoto State	1,300,000 ^ε
Do.	BUA International Ltd. (BUA Group)	Quarry in Edo State	930,000 ^ε
Sulfur	Kaduna Refinery and Petrochemicals Co. Ltd. (Government, 100%)	Kaduna refinery at Kaduna ¹	6,600
Tin, cassiterite	Artisanal and small scale miners	Mines in Oyo State	7,000 ^ε
Do.	do.	Mines in Plateau State	6,800 ^ε
Do.	Sodex Mines Nigeria Ltd.	Mine in Bauchi State	2,700 ^ε
Do.	Coltan Minerals Ltd.	Mine in Nasarawa State ¹	880 ^ε
Do.	Taoshi Mining and Exploration Ltd.	Mine in Oyo State	840 ^ε
Do.	Astro Minerals Ltd.	Mine in Bauchi State	550 ^ε
Do.	Artisanal miners	Mines in Federal Capital Territory	280 ^ε
Zinc	Tongyi Allied Mining Ltd.	Mine in Federal Capital Territory	NA

^εEstimated. Do., do. Ditto. NA Not available.

¹Not operating at the end of 2019.

²Government owned.