



2015 Minerals Yearbook

NIGERIA [ADVANCE RELEASE]

THE MINERAL INDUSTRY OF NIGERIA

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In 2015, Nigeria played a significant role in the world's production of crude petroleum, natural gas, and tantalum. The country's share of world crude petroleum was 3%, and natural gas, 1%. Nigeria also accounted for 8% of the world's trade in liquefied natural gas (LNG). Other domestically significant mineral-processing operations included cement and steel. Nigeria was not a globally significant consumer of minerals or mineral fuels in 2015. In 2014, however, Nigeria was Sub-Saharan Africa's leading cement producer (BP p.l.c., 2016, p. 8, 22, 28; Papp, 2018).

Minerals in the National Economy

In 2015, crude petroleum and natural gas production accounted for 6.4% of the gross domestic product (GDP); construction, 3.7%; cement production, 0.8%; the production of refined petroleum products, 0.3%; the production of basic metals (primarily iron and steel), 0.2%; and mining and quarrying of other minerals, 0.1%. Manufacturing, excluding cement, refined petroleum, and basic metal production accounted for 8.3% of the GDP. Nigeria's GDP was \$495 billion in 2015 (National Bureau of Statistics, 2016b).

Nigeria's exports were valued at \$50.6 billion in 2015, of which crude petroleum accounted for 71.4%, and other minerals and mineral products, including gold, natural gas (in the form of LNG), niobium (columbium), and tantalum, 16.7%. In 2015, total imports into Nigeria were valued at \$34.8 billion, of which mineral products accounted for 18.5%, and base metals and articles of base metals, 8.6% (National Bureau of Statistics, 2016a, p. 9–11).

In 2015, Nigeria's exports of crude petroleum were 772 million barrels (Mbbbl), of which Europe received 352 Mbbbl; Asia and the Pacific, 207 Mbbbl; Africa, 110 Mbbbl; South America, 71 Mbbbl; and North America, 32 Mbbbl. By comparison, crude petroleum exports were 844 Mbbbl in 2005, of which North America received 428 Mbbbl; Europe and Asia and the Pacific, 148 Mbbbl each; Africa, 69 Mbbbl; and South America, 51 Mbbbl (Nigerian National Petroleum Corp., 2015, p. 24; 2016, p. 18).

In 2015, Nigeria's exports of natural gas in the form of LNG were 19.9 million metric tons (Mt). India received about 23% of Nigeria's LNG exports in 2015; Spain, 13%; India, 11%; Brazil, 10%; Mexico, 7%; the Republic of Korea, 6%; and other countries, 30% (BP p.l.c., 2016, p. 28).

Government Policies and Programs

The Federal Government holds all mineral rights and is responsible for issuing exploration and development licenses. The mining sector is governed by the Minerals and Mining Act, 2007 and the Minerals and Mining Regulations, 2011. The natural gas and petroleum sector is 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 Federal Ministry of Petroleum Resources is responsible for the oversight of the natural gas and petroleum sectors.

Production

In 2015, marketed natural gas production increased by 22%; granite, by an estimated 13%; and barite and coal, by an estimated 10% each. Between 2011 and 2015, the production of marble aggregate increased by an estimated 540%; barite, by an estimated 340%; tantalum, by an estimated 250%; niobium (columbium), by an estimated 250%; gold, by an estimated 180%; other clay, by an estimated 150%; zinc, by an estimated 140%; granite aggregate, by an estimated 98%; laterite, by an estimated 78%; limestone and shale, by an estimated 77% each; cement, by an estimated 71%; and gypsum, by an estimated 69%.

The production of sulfur decreased by an estimated 76% in 2015; total refined petroleum products, by an estimated 56%; and total natural gas liquids, by 11%. Between 2011 and 2015, iron ore output decreased by an estimated 97%; sulfur, by an estimated 87%; tin, by an estimated 83%; zircon, by an estimated 82%; and total refined petroleum products, by 77% (table 1).

Structure of the Mineral Industry

The 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 national petroleum refining capacity. Most Nigerian natural gas output was associated with crude petroleum production (table 2).

The cement plants and nonfuel minerals operations were privately owned. In 2013, cement producers accounted for all reported shale production and 93% of reported limestone production. The Federal Capital Territory of Abuja accounted for 22% of granite production in 2013; Cross River State, 15%; Edo State, 14%; Oyo State, 10%; Ebonyi State, 6%; and 23 other States, a total of 33%. Lagos State accounted for 62% of sand production in 2013; Anambra State, 11%; Bayelsa State, 4%; and 22 other States, a total of 23%. In December 2015, more than 100 companies were engaged in quarrying (Moore Stephens LLP, 2015, p. 10, 64–65, 104; Amedu Onekpe & Co., 2016).

Small-scale and artisanal miners produced gemstones, gold, and other mineral commodities. Nigeria also had a large ferrous and nonferrous metal recycling sector that was mostly privately owned.

Commodity Review

Metals

Aluminum.—Aluminum Smelter Co. of Nigeria Ltd. (ALSCON), which was a joint venture of United Company RUSAL (RUSAL) of Russia and the Government, stopped production in 2013 and remained shut down in 2015. BFIG Group Divino Corp. of the United States continued its litigation concerning the validity of BFIG's contract to acquire ALSCON in 2004 (United Company RUSAL, 2016, p. 22, 67).

Iron Ore.—In January 2014, KCM Mining Ltd., which was a subsidiary of Kogi Iron Ltd. of Australia, completed environmental and social impact assessments and prefeasibility studies of a new mine at the Agbaja magnetite deposit with favorable results. The Agbaja deposit was located about 15 kilometers north of Lokoja, Kogi State. Kogi Iron estimated that resources at Agbaja were 586 Mt at a grade of 41.3% iron. The company planned to complete a feasibility study by the end of 2014. Depending on favorable results of the study, Kogi Iron planned to produce 5 million metric tons per year (Mt/yr) of iron ore at Agbaja starting in late 2016 or early 2017. The completion of the feasibility study was rescheduled for the second quarter of 2016 because of low iron prices on world markets (Kogi Iron Ltd., 2014, 2015, 2016).

Niobium (Columbium) and Tantalum.—Columbite-tantalite was mined at Udegi in Nasarawa State by Kenyang Mining Company Ltd. of China. In recent years, artisanal miners also produced columbite-tantalite on the Jos Plateau in Plateau State. Nigeria's production of columbite-tantalite concentrates increased to 760 metric tons (t) in 2014 from 215 t in 2011. In 2014, 98% of national columbite-tantalite output was exported to China (table 1; Amedu Onekpe & Co., 2016).

Industrial Minerals

Cement.—In 2015, Nigeria's cement production was estimated to be 20.5 Mt compared with 20 Mt in 2014 and about 2.5 Mt in 2005. From 2005 to 2015, cement consumption was estimated to have increased to 21.5 Mt from about 9 Mt (Dangote Cement plc, 2015, p. 32; 2016, p. 65). Nigeria exported cement to Benin and Niger.

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 13.25 Mt/yr; the Ibese plant in Ogun State, 12 Mt/yr; and the Gboko plant, 4 Mt/yr. Dangote's sales from Obajana increased to 8 Mt in 2015 from 7.4 Mt in 2014, and at Ibese, to 5 Mt from 3.9 Mt. Sales from Gboko decreased to 0.3 Mt in 2015 from 1.6 Mt in 2014 because the plant was shut down for most of the year to convert its power station from fuel oil to coal (Dangote Cement plc, 2016, p. 66).

Dangote planned to open plants at Itori in Ogun State and Okpella in Edo State with capacities of 6 Mt/yr and 3 Mt/yr, respectively. The company planned to complete its new plants

by 2019. Cement produced at Itori and Okpella was likely to be exported (Dangote Cement plc, 2016, p. 16, 21).

In 2015, Edo Cement Company Ltd. (BUA Group, 87%) completed a new plant at Okpella in Edo State with a capacity of 3 Mt/yr. The company's older plant at Okpella was undergoing rehabilitation in 2015. Cement Company of Northern Nigeria (BUA Group, 51%) planned to increase the capacity at its plant at Sokoto to 2 Mt/yr from 500,000 metric tons per year (t/yr) by 2016 (International Cement Review, 2016).

United Cement Company of Nigeria Ltd. (Unicem) operated the Mfamosing plant in Cross River State. By 2016, Unicem planned to increase its capacity to 5 Mt/yr from 2.5 Mt/yr. In 2015, AshakaCem Plc (LafargeHolcim, 42.63%) was engaged in an expansion of its capacity to 4 Mt/yr from 1 Mt/yr. The company planned to increase capacity by 2.5 Mt/yr by installing a new production line and gain an additional 500,000 t/yr by increasing the efficiency of its existing production line (Global Cement, 2015a, b).

Nitrogen.—Notore Chemical Industries Plc operated Nigeria's only ammonia and urea plant. Since April 2012, the company produced urea and ammonia at the full capacities of 500,000 t/yr and 300,000 t/yr, respectively. In 2015, Notore was expanding its urea capacity to 750,000 t/yr and its ammonia capacity to 430,000 t/yr. The company also was engaged in building a new plant with urea and ammonia capacities of nearly 1.1 Mt/yr and 620,000 t/yr, respectively. The plant was expected to be completed by 2016 (Notore Chemical Industries Ltd., 2012; ECP Investments Ltd., 2016).

Indorama Eleme Fertilizers & Chemicals Ltd. (EFCL) was engaged in the development of a new ammonia and urea project at Port Harcourt in Rivers State. The plant had a planned capacity of nearly 1.5 Mt/yr of urea and 840,000 t/yr of ammonia. EFCL was expected to start production by the first quarter of 2016 (Okwe and Okare, 2014; Indorama Fertilizer News, 2015).

Dangote Fertilizer Ltd. (a subsidiary of Dangote Group) planned to build a plant near Lagos with a capacity of about 2.8 Mt/yr of urea and 1.6 Mt/yr of ammonia. The company planned to complete the plant by 2018 (Construction Review, 2016; Dangote Group, undated, p. 53).

The Bayelsa Development and Investment Corp. planned to build a new ammonia, methanol, and urea plant at Brass Island in Bayelsa State. The planned capacity of the plant was 2.8 Mt/yr of urea, 1.8 Mt/yr of methanol, and 800,000 t/yr of ammonia. The estimated cost of the plant was \$3.5 billion; production could start in 2018 (Africa Project Access Newsletter, 2014).

Stone, Crushed.—Nigeria's limestone production increased to an estimated 27 Mt in 2015 from 25.7 Mt in 2014 and 24.1 Mt in 2013. Dangote Cement produced 14.4 Mt of limestone in 2013; WAPCO Operations, 4.95 Mt; Unicem, 1.97 Mt; and AshakaCem, 1.03 Mt (Moore Stephens LLP, 2015, p. 64; Amedu Onekpe & Co., 2016).

National granite production increased to an estimated 14 Mt in 2015 from 13.3 Mt in 2014 and 12.9 Mt in 2013. Julius Berger Nigeria Plc produced 1.58 Mt of granite in 2013; Crushed Rock Industries Ltd., 600,000 t; Georgio Rock Ltd., 386,858 t; Ratcon Construction Co. Ltd., 345,600 t; and Kopek Construction Ltd., 342,995 t (Moore Stephens LLP, 2015, p. 64; Amedu Onekpe & Co., 2016).

National shale production was an estimated 870,000 t in 2015 compared with about 813,000 t in 2014 and 1.03 Mt in 2013. WAPCO Operations produced 600,110 t of shale in 2013; Dangote Cement, 327,138 t; and Unicem, 98,893 t (Moore Stephens LLP, 2015, p. 64; Amedu Onekpe & Co., 2016).

Mineral Fuels

Natural Gas and Petroleum.—In 2015, Nigeria's production of crude petroleum was 773 Mbbbl compared with 799 Mbbbl in 2014 and 919 Mbbbl in 2005. NNPC produced the majority of Nigeria's natural gas and crude petroleum output in joint ventures with companies affiliated with Exxon Mobil Corp. of the United States, which included Esso Exploration and Production Nigeria Ltd. and Mobil Producing Nigeria Unlimited; companies affiliated with Royal Dutch Shell, which included Shell Nigeria Exploration and Production Co. (SNEPCO) and Shell Petroleum Development Company of Nigeria Ltd. (SPDC); and companies affiliated with Chevron Corp. of the United States, which included Chevron Nigeria Ltd. (CNL) and Star Deep Water Petroleum Ltd. (Nigerian National Petroleum Corp., 2015, p. 20; 2016, p. 2, 14).

In 2015, Nigeria's marketed natural gas production increased to 46 billion cubic meters from 37.7 billion cubic meters in 2014 and 21.8 billion cubic meters in 2005. From 2005 to 2015, gross natural gas production increased to 83 billion cubic meters from 59.3 billion cubic meters. The higher long-term growth rate in marketable natural gas output as compared to gross natural gas was attributable to decreased natural gas flaring. In 2015, 11.7% of gross natural gas production was flared compared with 11.5% in 2014 and 38.8% in 2005 (Nigerian National Petroleum Corp., 2015, p. 34; 2016, p. 19).

Mobil Producing Nigeria Unlimited and NNPC produced crude petroleum and natural gas from 26 oilfields. In 2015, the companies produced 142.6 Mbbbl of crude petroleum compared with 155 Mbbbl in 2014. The Ubit field produced 21.1 Mbbbl in 2015; the Usari field, 19.5 Mbbbl; the Yoho field, 14.9 Mbbbl; the Etim-Etime field, 10.1 Mbbbl; and the Edop field, 7.86 Mbbbl. Mobil and NNPC also produced 12.4 billion cubic meters (gross) of natural gas in 2015 compared with 13 billion cubic meters in 2014. The Oso field produced 3.01 billion cubic meters in 2015; the Ubit field, 2.23 billion cubic meters; the Yoho field, 1.9 billion cubic meters; the Edop field, 1.52 billion cubic meters; and the Abang field, 615 million cubic meters (Nigerian National Petroleum Corp., 2015, p. 5; 2016, p. 4).

In 2015, Total Upstream Nigeria Ltd. (TUPNI) (a subsidiary of Total S.A. of France) produced 96.9 Mbbbl of crude petroleum at the Akpo field and the Usan field combined compared with 46.4 Mbbbl in 2014. TUPNI's output of gross natural gas increased to 6.75 billion cubic meters in 2015 from 2.08 billion cubic meters in 2014 (Nigerian National Petroleum Corp., 2015, p. 9; 2016, p. 6).

In 2015, Star Deep Water Petroleum Ltd. (Chevron Nigeria Ltd., 68.2%, and NNPC, 15.9%) produced 85.3 Mbbbl of crude petroleum at the Agbami field compared with 51.7 Mbbbl in 2014. The company was operating at 94% of capacity in 2015. Star Deep Water also produced 4.26 billion cubic meters (gross) of natural gas in 2015 compared with 2.94 billion cubic meters in 2014 (Nigerian National Petroleum Corp., 2015, p. 9; 2016, p. 6).

NNPC and Shell Petroleum Development Company of Nigeria (SPDC) produced crude petroleum and natural gas from 55 oilfields. In 2015, the companies produced 78.9 Mbbbl of crude petroleum compared with 106 Mbbbl in 2014. The Ea field produced 13.4 Mbbbl in 2015; the Forkadas Yokri field, 8.59 Mbbbl; the Belema field, 5.59 Mbbbl; the Otumara field, 5.35 Mbbbl; and the Agbada field, 4.8 Mbbbl. NNPC and SPDC also produced 18.2 billion cubic meters (gross) of natural gas in 2015 compared with 19.3 billion cubic meters in 2014. The Koma field produced 3.57 billion cubic meters in 2015; the Soku field, 3.35 billion cubic meters; the Zara field, 3.26 billion cubic meters; the Gbaran field, 2.52 billion cubic meters; and the Bonny field, 1.72 billion cubic meters (Nigerian National Petroleum Corp., 2015, p. 4; 2016, p. 3).

Chevron Nigeria Ltd. and NNPC produced crude petroleum and natural gas from 32 oilfields. In 2015, the companies produced 72.3 Mbbbl of crude petroleum compared with 75.7 Mbbbl in 2014. The Okan field produced 18.2 Mbbbl in 2015; the Meji field, 8.44 Mbbbl; the Gbokoda field, 7.56 Mbbbl; the Meren field, 7.55 Mbbbl; and the Dibi field, 5.59 Mbbbl. Chevron and NNPC also produced 8.27 billion cubic meters (gross) of natural gas in 2015 compared with 8.38 billion cubic meters in 2014. The Okan field produced 5.02 billion cubic meters in 2015; the Meji field, 637 million cubic meters; the Meren field, 612 million cubic meters; the Gbokoda field, 333 million cubic meters; and the Parebe-Eko field, 202 million cubic meters (Nigerian National Petroleum Corp., 2015, p. 5; 2016, p. 4).

Chevron planned to produce 2.22 billion cubic meters per year of natural gas from the new Sonam gasfield for domestic consumption. The company was engaged in construction in 2014; production was likely to start in 2017. Chevron also planned to produce an additional 1.24 billion cubic meters per year by eliminating the flaring of natural gas associated with crude petroleum production. The project was completed in June 2015. Natural gas from Chevron's new projects would be processed at the Escravos Gas Plant (Chevron Corp., 2016, p. 23).

In 2015, SNEPCO and Esso Exploration and Production Nigeria (Deepwater) Ltd. produced 70.3 Mbbbl of crude petroleum at the Bonga field compared with 52.3 Mbbbl in 2014. The companies also produced 1.5 billion cubic meters of gross natural gas in 2015 compared with 1.44 billion cubic meters in 2014 (Nigerian National Petroleum Corp., 2015, p. 8; 2016, p. 6).

Nigerian Petroleum Development Company (NPDC) (NNPC, 100%) produced crude petroleum from 10 oilfields. In 2015, NPDC produced 34.4 Mbbbl compared with 28.1 Mbbbl in 2014. Production at the Oben-Sapele-Amukpe field was 11.6 Mbbbl in 2015; the Okono-Okpoho field, 8.4 Mbbbl; the Batan field, 4.54 Mbbbl; the Afisere-Eriemu field, 3.79 Mbbbl; and the Utorogu-Ugheli field, 2.73 Mbbbl (Nigerian National Petroleum Corp., 2015, p. 9; 2016, p. 6).

In 2015, Esso Exploration and Production Nigeria Ltd. and SNEPCO produced 33.5 Mbbbl of crude petroleum at the Erha field compared with 34 Mbbbl in 2014. The companies also produced 3.52 billion cubic meters (gross) of natural gas in 2014 compared with 3.1 billion cubic meters in 2013 (Nigerian National Petroleum Corp., 2015, p. 8; 2016, p. 6).

NNPC, Nigerian Agip Oil Company Ltd. (NAOC), and Phillips Oil Company Nigeria Ltd. produced crude petroleum and natural gas from 30 oilfields. In 2015, the companies produced 31.1 Mbbbl of crude petroleum compared with 25.8 Mbbbl in 2014. The Ogbainbiri field produced 5.43 Mbbbl in 2015; the Idu field, 3.31 Mbbbl; the Samabiri East field, 2.61 Mbbbl; the Oshi field, 2.33 Mbbbl; and the Okpai field, 1.8 Mbbbl. NAOC also produced 11.3 billion cubic meters (gross) of natural gas in 2015 compared with 10.7 billion cubic meters in 2014. The Idu field produced 2.52 billion cubic meters in 2014; the Obiafu field, 1.71 billion cubic meters; the Ogbainbiri field, 1.6 billion cubic meters; the Oshi field, 1 billion cubic meters; and the Mbede field, 797 million cubic meters (Nigerian National Petroleum Corp., 2015, p. 6; 2016, p. 5).

NNPC and Total E&P Nigeria Ltd. (a subsidiary of Total S.A. of France) produced crude petroleum and natural gas from 11 oilfields. In 2015, the companies produced 30.9 Mbbbl of crude petroleum compared with 40 Mbbbl in 2014. The Amenam-Kpono field produced 10.9 Mbbbl in 2015; the Ofon field, 8.5 Mbbbl; the Obagi field, 3.12 Mbbbl; and the Edikan and the Ime fields, 2.15 Mbbbl each. Total E&P also produced 5.59 billion cubic meters (gross) of natural gas in 2015 compared with 6 billion cubic meters in 2014. The Amenam-Kpono field produced 2.49 billion cubic meters in 2015; the Ibewa Condensates field, 1.31 billion cubic meters; the Obagi Gas-Cap field, 443 million cubic meters; the Obagi Deep field, 442 million cubic meters; and the Ofon field, 369 million cubic meters (Nigerian National Petroleum Corp., 2015, p. 6; 2016, p. 9).

Nigeria Liquefied Natural Gas Ltd. [NNPC, 49%; Shell Gas B.V., 25.6%; Total LNG Nigeria Ltd., 15%; and ENI International (N.A.) S.a.r.l., 10.4%] operated a liquefied natural gas (LNG) plant at Bonny Island with a capacity of 22 Mt/yr, which was equivalent to 30.4 billion cubic meters per year of natural gas. The company's LNG exports increased to 19.9 Mt in 2015 from 18.3 Mt in 2014 and 8.7 Mt in 2005 (BP p.l.c., 2006, p. 30; 2015, p. 28; 2016, p. 28).

Chevron operated the Escravos Gas to Liquids (EGTL) plant, which had a capacity of 33,000 barrels per day (bbl/d). The EGTL plant would process as much as 3.46 billion cubic meters per year of natural gas from the Escravos Gas Plant (Chevron Corp., 2016, p. 23).

Natural gas liquids were produced by a joint venture of Mobil Producing Nigeria Unlimited and NNPC. The companies' production of natural gas liquids decreased to 12.2 Mbbbl in 2015 from 13.8 Mbbbl in 2014 (Nigerian National Petroleum Corp., 2015, p. 37; 2016, p. 26).

Most of Nigeria's refined petroleum products were produced by the Government-owned companies Kaduna Refinery and Petrochemicals Co. Ltd. (KRPC), Port Harcourt Refining Co. Ltd. (PHRC), and Warri Refinery and Petrochemicals Co. Ltd. (WRPC). KRPC also recovered small amounts of sulfur. WRPC was shut down for 9 months during 2015, and KRPC and PHRC, for 8 months each. Production was limited by aging equipment, poor maintenance, and power supply interruptions (Cohen, 2014; Nigerian National Petroleum Corp., 2016, p. 28–29).

Dangote Group planned to build a new refinery with a capacity of 650,000 bbl/d near Lagos; the capacity was revised

from 500,000 bbl/d and the initial plan of 400,000 bbl/d. The company also planned to build a nearby polypropylene plant with a capacity of 750,000 t/yr. Dangote expected to complete the plant and refinery by 2018. The estimated total cost of the ammonia and urea and polypropylene plants and the refinery was \$11 billion (Brelsford, 2015; Construction Review, 2016).

Reported incidents of crude petroleum and refined petroleum product pipeline vandalization decreased to 2,783 incidents in 2015 from 3,700 incidents in 2014. Stolen crude petroleum was smuggled through the Niger River Delta to small tankers anchored offshore or illegally refined in the delta region for local consumption. The small-capacity (between 30 bbl/d and 150 bbl/d) refineries, which operated intermittently (primarily at night to avoid detection by Government forces), typically produced diesel fuel, gasoline, and kerosene. Reported pipeline ruptures, which were associated with mechanical and structural failures of the pipelines, increased to 49 occurrences in 2015 from 32 in 2014 (Stakeholder Democracy Network, 2013, p. 15–19; Nigerian National Petroleum Corp., 2016, p. 33).

Outlook

Ammonia and urea production is expected to increase between 2016 and 2024 because of the debottlenecking at Notore's plant and the opening of new plants. Natural gas production is likely to increase between 2016 and 2019 because of Chevron's new projects; domestic natural gas consumption would increase because of the new ammonia and urea plants and the EGTL plant. The production of refined petroleum could increase between 2018 and 2020 because of the opening of Dangote's new refinery. Cement production is expected to increase between 2016 and 2021 because of capacity expansions; the output of clay and limestone would increase as a result. Large-scale iron ore mining also could start in the near future.

References Cited

- Africa Project Access Newsletter, 2014, Nigeria: Africa Project Access Newsletter, no. 234, November, p. 11–12.
- Amedu Onekpe & Co., 2016, Financial, physical, and process audit—An independent report assessing and reconciling physical and financial flows within Nigeria's solid minerals sector 2014: Nigerian Extractive Industries Transparency Initiative, variously paged. (Accessed January 5, 2017, at <https://eiti.org/sites/default/files/documents/neiti-sma-report-2014-full-301216.pdf>.)
- BP p.l.c., 2006, Statistical review of world energy June 2006: London, United Kingdom, BP p.l.c., 45 p.
- BP p.l.c., 2015, Statistical review of world energy June 2015: BP p.l.c., 44 p. (Accessed November 1, 2016, at <https://www.bp.com/content/dam/bp/pdf/energy-economics/statistical-review-2015/bp-statistical-review-of-world-energy-2015-full-report.pdf>.)
- BP p.l.c., 2016, Statistical review of world energy June 2016: BP p.l.c., 44 p. (Accessed November 1, 2016, at <https://www.bp.com/content/dam/bp/pdf/energy-economics/statistical-review-2016/bp-statistical-review-of-world-energy-2016-full-report.pdf>.)
- Brelsford, Robert, 2015, Global refiners move to maximize efficiency, capacities of existing operations: *Oil & Gas Journal*, v. 113.12, December, p. 24–35.
- Chevron Corp., 2016, 2015 supplement to the annual report: Chevron Corp., 52 p. (Accessed November 3, 2016, at <https://www.chevron.com/-/media/shared-media/documents/annual-report-supplement-2015.pdf>.)
- Cohen, Mike, 2014, Dangote says Nigeria Lagos refinery to start by mid-2018: *Bloomberg Business*, November 17. (Accessed February 5, 2016, at <http://www.bloomberg.com/news/articles/2014-11-17/dangote-says-nigeria-lagos-refinery-to-start-by-mid-2018>.)
- Construction Review, 2016, Dangote refinery set for 2018: *Construction Review*, v. 27, no. 1, December-January, p. 7.

- Dangote Cement plc, 2015, Annual report 2014: Lagos, Nigeria, Dangote Cement plc, 158 p. (Accessed November 3, 2016, at http://www.dangotecement.com/wp-content/uploads/reports/2014/DangoteCement-2014_AnnualReport.pdf.)
- Dangote Cement plc, 2016, Annual report 2015: Dangote Cement plc, 213 p. (Accessed November 3, 2016, at <http://www.dangotecement.com/wp-content/uploads/reports/2015/Dangote%20Cement-2015%20Annual%20Report.pdf>.)
- Dangote Group, [undated], Group corporate profile: Dangote Group, 65 p. (Accessed November 4, 2016, at http://dangote.com/downloads/dg_corporate_profile.pdf.)
- ECP Investments Ltd., 2016, Notore Chemical Industries: ECP Investments Ltd. (Accessed November 29, 2016, at <http://www.ecpinvestments.com/index.php/notore-chemical-industries/>.)
- Global Cement, 2015a, Ashaka Cement profit falls on insurgency and lengthy rainy season: Global Cement, June 15. (Accessed January 5, 2017, at <http://www.globalcement.com/news/item/3726-ashaka-cement-profit-falls-on-insurgency-and-lengthy-rainy-season>.)
- Global Cement, 2015b, Lafarge Nigeria unit acquires United Cement: Global Cement, October 6. (Accessed January 5, 2017, at <http://www.globalcement.com/news/item/4203-lafarge-nigeria-unit-acquires-united-cement>.)
- Indorama Fertilizer News, 2015, Indorama fertilizer plant to be ready on schedule!: Indorama Fertilizer News, v. 1, no. 8, April, p. 1, 3.
- International Cement Review, 2016, In the starting blocks: International Cement Review, January, p. 16–28.
- Kogi Iron Ltd., 2014, Quarterly report for three months ending 31 December 2013: Kogi Iron Ltd., variously paged. (Accessed November 2, 2016, at http://www.kogiiron.com/sites/kogiiron.com/files/financial_report_file/quarterlyactivitiesandcashflowreport-1_1.pdf.)
- Kogi Iron Ltd., 2015, Quarterly report—31 December 2014: Kogi Iron Ltd., variously paged. (Accessed November 2, 2016, at http://www.kogiiron.com/sites/kogiiron.com/files/financial_report_file/quarterlyactivitiesandcashflowreports.pdf.)
- Kogi Iron Ltd., 2016, Quarterly report—December 2015: Kogi Iron Ltd., 2 p. (Accessed November 2, 2016, at http://www.kogiiron.com/sites/kogiiron.com/files/financial_report_file/quarterlyactivitiesreport.pdf.)
- Moore Stephens LLP, 2015, Financial, physical and process audit—An independent report assessing and reconciling physical and financial flows within Nigeria's solid minerals sector 2013: Nigerian Extractive Industries Transparency Initiative, 186 p. (Accessed November 2, 2016, at https://eiti.org/sites/default/files/documents/2013_nigeria_eiti_report_mining.pdf.)
- National Bureau of Statistics, 2016a, Foreign trade statistics—Fourth quarter—2015: National Bureau of Statistics, No. 517, 15 p. (Accessed November 4, 2016, at <http://nigerianstat.gov.ng/elibrary>.)
- National Bureau of Statistics, 2016b, Nigerian gross domestic product report—Quarter four 2015: National Bureau of Statistics, no. 8, unpaginated. (Accessed November 4, 2016, at <http://nigerianstat.gov.ng/elibrary>.)
- Nigerian National Petroleum Corp., 2015, 2014 annual statistical bulletin: Nigerian National Petroleum Corp., 46 p. (Accessed November 4, 2016, at <http://nnpcgroup.com/Portals/0/Monthly%20Performance/2014%20ASB%202nd%20Edition.pdf>.)
- Nigerian National Petroleum Corp., 2016, 2015 annual statistical bulletin: Nigerian National Petroleum Corp., 34 p. (Accessed November 4, 2016, at <http://nnpcgroup.com/Portals/0/Monthly%20Performance/2015%20ASB%201st%20Edition.pdf>.)
- Notore Chemical Industries Ltd., 2012, Notore set to increase fertiliser production through joint development with Mitsubishi Corporation: Notore Chemical Industries Ltd., April 24, 1 p. (Accessed November 1, 2016, at <http://www.notore.com/index.php/media-centre-2/news/item/81-notore-set-to-increase-fertiliser-production-through-joint-development-with-mitsubishi-corporation>.)
- Okwe, Mathias, and Okare, Roseline, 2014, Eleme Petrochemical to get N704b investment boost by 2019: The Guardian [Abuja, Nigeria], May 14, p. 17.
- Papp, J.F., 2018, Tantalum [advance release], in *Metals and minerals*: U.S. Geological Survey Minerals Yearbook 2015, v. 1, January, p. 76.1–76.8. (Accessed May 3, 2018, at <https://minerals.usgs.gov/minerals/pubs/commodity/niobium/myb1-2015-tanta.pdf>.)
- Stakeholder Democracy Network, 2013, Communities not criminals—Illegal oil refining in the Niger Delta: Stakeholder Democracy Network, 44 p. (Accessed January 20, 2015, at <http://ndlink.org/wp-content/uploads/2015/04/CommunitiesNotCriminals.pdf>.)
- United Company RUSAL, 2016, Annual report 2015: United Company RUSAL, 270 p. (Accessed November 7, 2016, at [https://rusal.ru/upload/iblock/a77/3600065-t01fnar%20\(e-03.13\).pdf](https://rusal.ru/upload/iblock/a77/3600065-t01fnar%20(e-03.13).pdf).)

TABLE 1
NIGERIA: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity ²	2011	2012	2013	2014	2015 ^c
METALS					
Aluminum	17,600	26,000	2,000	--	-- ³
Beryl, gross weight	NA	NA	NA	52 ⁴	56
Gold kilograms	2,782	4,303 ^r	6,261 ^r	7,200 ^{r,e}	7,900
Iron and steel:					
Iron ore, gross weight thousand metric tons	70	1 ^r	2 ^r	2 ^{r,e}	2
Steel, crude ^e	380,000 ^r	460,000 ^r	520,000 ^r	600,000 ^r	620,000
Lead:					
Mined, Pb content	9,100	11,300	11,500	11,400 ^r	12,000
Refined, secondary	9,000	15,000 ^r	14,000 ^r	14,000 ^{r,e}	14,000
Manganese ore, gross weight	NA	NA	NA	183 ⁴	190
Niobium (columbium) and tantalum concentrates:^c					
Gross weight	215 ^{r,3}	377 ^{r,3}	560 ^r	760 ^{r,4}	760
Niobium (columbium) content	15 ^r	26 ^r	38 ^r	52 ^r	52
Tantalum content	43 ^r	75 ^r	110 ^r	150 ^r	150
Tin, mine output, cassiterite concentrate:					
Gross weight	400	500	300 ^r	69 ^{r,4}	70
Sn content ^e	270	340	200 ^r	46 ^r	47
Tungsten, mine output, wolframite concentrate:^e					
Gross weight	85 ³	--	--	--	--
W content	49	--	--	--	--
Zinc, mined, Zn content	3,100	13,800	7,000	7,000 ^r	7,500
Zirconium, zircon concentrate	5,630 ³	4,000 ^{r,e}	2,000 ^{r,e}	1,034 ^{r,4}	1,000
INDUSTRIAL MINERALS					
Barite ⁵	4,988	16,174	17,784 ^r	20,000 ^r	22,000
Cement, hydraulic ^e thousand metric tons	12,000	16,000	20,000	20,000 ^r	20,500
Clay:					
Kaolin	27,609	15,420	25,000 ^{r,e}	35,180 ^r	38,000
Other thousand metric tons	950 ^e	1,065	1,482 ^r	2,200 ^{r,e}	2,400
Feldspar	-- ^r	9,080 ^r	12,880 ^r	52,080 ^r	56,000
Gypsum	20,073 ^r	54,178 ^r	56,168 ^r	31,791 ^r	34,000
Mica	NA	NA	NA	1,077 ⁴	1,100
Nitrogen, N content:^c					
Ammonia	200,000	280,000	300,000	300,000	300,000
Urea	330,000	470,000	500,000	500,000	500,000
Quartz	NA	NA	NA	100 ⁴	100
Rare earths, monazite	NA	NA	NA	104 ⁴	110
Sand and stone:					
Laterite thousand metric tons	2,305	3,661	5,242 ^r	3,802 ^r	4,100
Sand, construction do.	1,625	2,109	2,662 ^r	768 ^r	830
Sand, industrial (silica) ^e do.	36	40	47	54 ^r	58
Stone, crushed (aggregate):					
Granite do.	7,588	11,959	12,862 ^r	13,274 ^r	15,000
Limestone do.	15,225	18,110	24,078 ^r	25,652 ^r	27,000
Marble	10,186 ^r	15,300 ^r	40,218 ^r	60,000 ^r	65,000
Shale thousand metric tons	491	567	1,026 ^r	813 ^r	870
Other do.	4,074	4,476	4,632 ^r	4,900 ^r	5,300
Sulfur ^c	1,500	1,900	1,900	850	200
Topaz ^c kilograms	1,000	1,100 ^r	1,300	1,500	1,600
Tourmaline ^c do.	100 ³	110	130	150	160
MINERAL FUELS AND RELATED MATERIALS					
Coal, bituminous	133,812 ^r	53,614 ^r	106,456 ^r	127,467 ^r	140,000
Natural gas:					
Gross million cubic meters	67,972	73,063	65,869	71,479	82,964 ^{r,3}
Marketed ⁶ do.	38,343	37,946	31,231	37,716	46,009 ^{r,3}
Liquefied ⁴ thousand metric tons	18,800	19,700	16,200	18,300	19,900 ^{r,3}
Petroleum:					
Crude and condensate thousand 42-gallon barrels	866,245	852,777	800,488	798,542	773,459 ³
Natural gas liquids:					
Propane do.	4,500 ^e	3,803	4,533	5,535	4,269 ³
Butane do.	3,800 ^e	3,344	4,103	4,692	4,207 ³
Pentane do.	3,700 ^e	3,207	3,754	3,769	3,744 ³
Total do.	12,000 ^e	10,354	12,390	13,796	12,220 ³

See footnotes at end of table.

TABLE 1—Continued
 NIGERIA: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity ²	2011	2012	2013	2014	2015 ^e	
MINERAL FUELS AND RELATED MATERIALS—Continued						
Petroleum:—Continued						
Refinery products:						
Liquefied petroleum gases	thousand 42-gallon barrels	1,230	987	1,880	703	666 ³
Gasoline	do.	10,892	9,678	10,554	4,627	2,225 ³
Kerosene	do.	5,805	4,683	5,774	3,549	2,016 ³
Distillate fuel oil	do.	8,167	7,185	7,603	4,764	1,493 ³
Residual fuel oil	do.	9,278	6,458	8,962	4,884	1,889 ³
Asphalt ^e	do.	202 ³	--	--	8	3
Unspecified ^e	do.	NA ^r	NA ^r	NA ^r	NA ^r	NA
Total ^e	do.	35,574 ³	29,000 ^r	35,000 ^r	19,000	8,300

^eEstimated data are rounded to no more than three significant digits; may not add to totals shown. ^rRevised. do. Ditto. NA Not available. -- Zero.

¹Table includes data available through January 6, 2017.

²In addition to the commodities listed, amethyst, aquamarine, bitumen, secondary copper, diamond, emerald, garnet, ilmenite, lime, rolled-steel products, ruby, rutile, salt, sapphire, soda ash, and talc were produced, but available information was inadequate to make reliable estimates of output.

³Reported figure.

⁴Reported exports.

⁵Considerably more barite was produced, but it was considered to be commercially unusable.

⁶Total 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 2015

(Metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners		Location of main facilities	Annual capacity
Aluminum	Aluminum Smelter Co. of Nigeria, Ltd. (ALSCON) (United Company RUSAL, 85%)		Smelter at Ikot Abasi	96,000 ¹
Cement	AshakaCem Plc (LafargeHolcim, 42.63%)		Ashaka	1,000,000
Do.	Benue Cement Company Plc (Dangote Cement Plc)		Gboko	4,000,000
Do.	Cement Co. of Northern Nigeria Plc (BUA Group, 50.7%)		Sokoto	500,000
Do.	Dangote Cement Works Ltd. (Dangote Cement Plc)		Ibese in Ogun State	12,000,000
Do.	Edo Cement Co. Ltd. (BUA Group, 87%)		Okpella in Edo State	3,000,000
	do.		do.	350,000 ¹
Do.	WAPCO Operations (LafargeHolcim, 72.74%)		Two plants at Ewekoro	3,500,000
Do.	do.		Sagamu	1,000,000
Do.	Obajana Cement Plc (Dangote Cement Plc)		Obajana in Kogi State	13,250,000
Do.	United Cement Company of Nigeria Ltd. (Unicem) (Nigerian Cement Holdings B.V., 100%)		Mfamosing in Cross River State	2,500,000
Clay	Dangote Cement Plc		Mines in Benue, Kogi, and Ogun States	1,500,000 ^e
Do.	Purechem Industries Ltd.		Mine in Ogun State	45,000 ^e
Do.	Porcelainware Industries Ltd.		do.	35,000 ^e
Coal	AshakaCem Plc		Mine in Gombe State	150,000 ^e
Copper, secondary	Sun & Sand Industries Ltd.		Otta	NA
Gold	Artisanal miners		Mines in Kaduna State	NA
Gypsum	AshakaCem Plc		Mine at Fika in Yobe State	58,000 ^e
Iron and steel:				
Iron ore	National Iron Ore Mining Co. Ltd. (Government, 100%)		Mine at Itakpe	NA ¹
Steel:				
Crude	African Steel Mills Ltd. (Liberty Group)		Electric arc furnace at Ikorodu	170,000
Do.	Continental Iron and Steel Co.		Electric arc furnace at Ikeja	60,000
Do.	Delta Steel Co. Ltd. (Asset Management Company of Nigeria)		Electric arc furnaces at Aladja	1,000,000 ¹
Do.	Federated Steel Mills Ltd.		Electric arc furnace at Ikeja	140,000
Do.	Nigerian Spanish Engineering Co.		Electric arc furnace at Kano	100,000
Do.	Sankyo Steel Mill Company Ltd.		Electric arc furnace at Ikeja	80,000
Do.	Universal Steel Co.		do.	50,000
Rolled	African Steel Mills Ltd. (Liberty Group)		Ikorodu	100,000
Do.	Delta Steel Co. Ltd.		Aladja	300,000 ¹
Do.	Jos Steel Rolling Co. Ltd. (Zuma Steel West Africa Ltd.)		Jos	210,000 ¹
Do.	Katsina Steel Rolling Co. Ltd. (Dana Steel Ltd.)		Katsina	207,000
Do.	Oshogbo Steel Rolling Co. Ltd. (Kura Holdings Ltd.)		Oshogbo	210,000
Do.	Sunflag Steel (Nigeria) Ltd.		Lagos	120,000
Lead	Tongyi Allied Mining Ltd.		Mine in Federal Capital Territory	NA
Natural gas:				
Crude	million cubic meters	Nigerian National Petroleum Corp. (NNPC) 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%]	Koma field	3,700 ^e
Do.	do.	do.	Soku field	3,500 ^e
Do.	do.	do.	Zara field	3,400 ^e
Do.	do.	do.	Gbaran field	2,900 ^e
Do.	do.	do.	Bonny field	1,900 ^e
Do.	do.	do.	50 other oilfields	3,900 ^e
Do.	do.	Nigerian National Petroleum Corp. (NNPC) and Mobil Producing Nigeria Unlimited joint venture (NNPC, 60%, and Mobil Producing Nigeria Unlimited, 40%)	Oso field	3,200 ^e
Do.	do.	do.	Ubit field	2,300 ^e
Do.	do.	do.	Yoho field	2,000 ^e
Do.	do.	do.	Edop field	1,600 ^e
Do.	do.	do.	Abang field	630 ^e
Do.	do.	do.	21 other oilfields	3,300 ^e
Do.	do.	Nigerian National Petroleum Corp. (NNPC) and Nigerian Agip Oil Company Ltd. (NAOC) joint venture (NNPC, 60%; NAOC, 20%; Phillips Oil Company Nigeria Ltd., 20%)	Idu field	2,700 ^e
Do.	do.	do.	Obiafu field	2,000 ^e
Do.	do.	do.	Ogbainbiri field	1,700 ^e
Do.	do.	do.	Mbede field	1,200 ^e
Do.	do.	do.	Oshi field	1,100 ^e
Do.	do.	do.	25 other oilfields	4,000 ^e

See footnotes at end of table.

TABLE 2—Continued
NIGERIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2015

(Metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Natural gas:—Continued				
Crude—Continued	million cubic meters	Nigerian National Petroleum Corp. (NNPC) and Chevron Nigeria Ltd. joint venture (NNPC, 60%, and Chevron Nigeria Ltd., 40%)	Okan field	5,100 ^e
Do.	do.	do.	Meji field	690 ^e
Do.	do.	do.	Meren field	630 ^e
Do.	do.	do.	Gbokoda field	340 ^e
Do.	do.	do.	Parebe-Eko field	210 ^e
Do.	do.	do.	27 other oilfields	1,600 ^e
Do.	do.	Nigerian National Petroleum Corp. (NNPC) and Total E&P Nigeria Ltd. joint venture (NNPC, 60%, and Total E&P Nigeria Ltd., 40%)	Amenam-Kpono field	3,300 ^e
Do.	do.	do.	Ibewa Condensates field	1,700 ^e
Do.	do.	do.	Obagi Gas-Cap field	460 ^e
Do.	do.	do.	Obagi Deep field	460 ^e
Do.	do.	do.	Ofon field	380 ^e
Do.	do.	do.	6 other oilfields	560 ^e
Do.	do.	Star Deep Water Petroleum Ltd. (Chevron Nigeria Ltd., 68.2%, and NNPC, 15.9%)	Agbami Project	5,200 ^e
Do.	do.	Esso Exploration and Production Nigeria Ltd., 56%, and Shell Nigeria Exploration and Production Co., 44%	Erha Project	5,100 ^e
Do.	do.	Shell Nigeria Exploration and Production Co., 55%, and Esso Exploration & Production Nigeria (Deepwater) Ltd., 20%	Bonga Project	2,100 ^e
Do.	do.	Total Upstream Nigeria Ltd.	Akpo and Usan fields	7,000 ^e
Liquefied	million metric tons	Nigeria Liquefied Natural Gas Ltd. [Nigerian National Petroleum Corp. (NNPC), 49%; Shell Gas B.V., 25.6%; Total LNG Nigeria Ltd., 15%; ENI International (N.A.) S.a.r.l., 10.4%]	Trains 1 through 6 at Finima, Bonny Island	22
Niobium (columbium) and tantalum		Kenyang Mining Company Ltd.	Udegi in Nasarawa State	NA
Do.		Artisanal miners	Jos region	NA
Nitrogen, N content:				
Ammonia		Notore Chemical Industries Plc	Onne	300,000
Urea		do.	do.	500,000
Petroleum:				
Crude	thousand 42-gallon barrels	Nigerian National Petroleum Corp. (NNPC) and Mobil Producing Nigeria Unlimited joint venture (NNPC, 60%, and Mobil Producing Nigeria Unlimited, 40%)	Ubit field	25,000 ^e
Do.	do.	do.	Usari field	22,000 ^e
Do.	do.	do.	Yoho field	18,000 ^e
Do.	do.	do.	Etim-Etimc field	11,000 ^e
Do.	do.	do.	Edop field	8,000 ^e
Do.	do.	do.	21 other oilfields	65,000 ^e
Do.	do.	Star Deep Water Petroleum Ltd.	Agbami Project	91,000
Do.	do.	Nigerian National Petroleum Corp. (NNPC) 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 field	14,000 ^e
Do.	do.	do.	Forkadas Yokri field	10,000 ^e
Do.	do.	do.	Otumara field	6,900 ^e
Do.	do.	do.	Belema field	6,000 ^e
Do.	do.	do.	Agbada field	5,000 ^e
Do.	do.	do.	50 other oilfields	43,000 ^e
Do.	do.	Nigerian National Petroleum Corp. (NNPC) and Chevron Nigeria Ltd. joint venture (NNPC, 60%, and Chevron Nigeria Ltd., 40%)	Okan field	19,000 ^e
Do.	do.	do.	Meji field	9,000 ^e
Do.	do.	do.	Meren field	8,200 ^e
Do.	do.	do.	Gbokoda field	8,000 ^e
Do.	do.	do.	Dibi field	6,300 ^e
Do.	do.	do.	27 other oilfields	27,000 ^e
Do.	do.	Shell Nigeria Exploration and Production Co., 55%, and Esso Exploration & Production Nigeria (Deepwater) Ltd., 20%	Bonga Project	73,000
Do.	do.	Esso Exploration and Production Nigeria Ltd., 56%, and Shell Nigeria Exploration and Production Co., 44%	Erha Project	55,000
Do.	do.	Total Upstream Nigeria Ltd.	Akpo and Usan fields	100,000 ^e

See footnotes at end of table.

TABLE 2—Continued
NIGERIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2015

(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	Nigerian National Petroleum Corp. (NNPC) and Total E&P Nigeria Ltd. joint venture (NNPC, 60%, and Total E&P Nigeria Ltd., 40%)	Ofon field	15,000 ^e
Do.	do.	do.	Amenam-Kpono field	12,000 ^e
Do.	do.	do.	Obagi field	3,400 ^e
Do.	do.	do.	Edikan field	2,300 ^e
Do.	do.	do.	Imi field	2,300 ^e
Do.	do.	do.	6 other oilfields	4,100 ^e
Do.	do.	Nigerian Petroleum Development Company (NNPC), 100%	Okono-Okpoho field	13,000 ^e
Do.	do.	do.	Oben-Sapele-Amukpe field	12,000 ^e
Do.	do.	do.	Batan field	4,700 ^e
Do.	do.	do.	Afisere-Eriemu field	3,900 ^e
Do.	do.	do.	Utorogu-Ugheli field	2,900 ^e
Do.	do.	do.	5 other oilfields	3,500 ^e
Do.	do.	Nigerian National Petroleum Corp. (NNPC) and Nigerian Agip Oil Company Ltd. (NAOC) joint venture (NNPC, 60%; NAOC, 20%; Phillips Oil Company Nigeria Ltd., 20%)	Ogbainbiri field	5,600 ^e
Do.	do.	do.	Idu field	3,500 ^e
Do.	do.	do.	Samabiri field	2,800 ^e
Do.	do.	do.	Oshi field	2,500 ^e
Do.	do.	do.	Okpai field	2,200 ^e
Do.	do.	do.	25 other oilfields	16,000 ^e
Natural gas liquids	do.	Mobil Producing Nigeria Unlimited, 51%, and Nigerian National Petroleum Corp. (NNPC), 49%	Bonny Island	16,400
Refined	do.	Port Harcourt Refining Co. Ltd. (Government, 100%)	New Port Harcourt refinery	55,000
Do.	do.	do.	Old Port Harcourt refinery	22,000
Do.	do.	Warri Refinery and Petrochemicals Co. Ltd. (Government, 100%)	Warri refinery	46,000 ¹
Do.	do.	Kaduna Refinery and Petrochemicals Co. Ltd. (Government, 100%)	Kaduna refinery	40,000
Gas-to-liquids	do.	Chevron Nigeria Ltd.	Escravos gas to liquids plant	12,000
Stone:				
Granite		Julius Berger Nigeria plc	Quarry in Abuja State	1,700,000 ^e
Do.		RCC Nigeria Ltd.	do.	1,200,000 ^e
Do.		Crushed Rock Industries Ltd.	Quarry in Rivers State	650,000 ^e
Do.		Arab Contractors Nigeria Ltd.	Quarry in Abuja State	600,000 ^e
Do.		Setraco Nigeria Ltd.	do.	500,000 ^e
Do.		Dantata & Sawoe Construction Co.	do.	450,000 ^e
Do.		Georgio Rock Ltd.	Quarry in Edo State	400,000 ^e
Do.		Ratcon Construction Company Ltd.	Quarry in Oyo State	350,000 ^e
Do.		Kopek Construction Ltd.	do.	350,000 ^e
Do.		Zeberced Nigeria Ltd.	Quarry in Abuja State	350,000 ^e
Limestone		Dangote Cement Plc	Quarries in Benue, Kogi, and Ogun States	27,000,000 ^e
Do.		WAPCO Operations	Quarries in Ogun State	5,000,000 ^e
Do.		United Cement Company of Nigeria Ltd. (Unicem)	Quarry in Cross River State	2,000,000 ^e
Do.		AshakaCem Plc	Quarry in Gombe State	1,100,000 ^e
Do.		CCNN Plc	Quarry in Sokoto State	800,000 ^e
Shale		WAPCO Operations	Quarries in Ogun State	650,000 ^e
Do.		Dangote Cement Plc	Quarries in Benue, Kogi, and Ogun States	350,000 ^e
Do.		United Cement Company of Nigeria Ltd. (Unicem)	Quarry in Cross River State	100,000 ^e
Sulfur		Kaduna Refinery and Petrochemicals Co. Ltd.	Kaduna refinery	6,600
Tin		Artisanal miners	Mines in the Jos area	NA
Zinc		Tongyi Allied Mining Ltd.	Mine in Federal Capital Territory	NA

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

¹On care-and-maintenance status.