



2011 Minerals Yearbook

NIGERIA

THE MINERAL INDUSTRY OF NIGERIA

By Philip M. Mobbs

As Africa's leading crude oil producer, Nigeria accounted for about 28% of African and about 2.9% of total world crude oil production in 2011. The state-owned Nigerian National Petroleum Corp. (NNPC) reported that crude oil output decreased by about 3% compared with that of 2010 (BP p.l.c., 2012, p. 8; Nigerian National Petroleum Corp., 2012, p. 23).

The Federal Government holds all mineral rights and is responsible for issuing exploration and development licenses. The Minerals and Mining Act, 2007; the Minerals and Mining Regulations, 2011; and the Petroleum Act of 1969 form the legal basis for exploration and production activity in the mineral sector. New legislation included the Nigeria Sovereign Investment Authority Act of 2011, which established a sovereign wealth fund that was expected to replace the Excess Crude Account. Initially, the sovereign wealth fund was to receive \$1 billion from the Excess Crude Account. Future funding would come from the Federation Account, from which the Government distributed collected revenue to the Federal Capital Territory, to itself, to the local government and area councils, and to the States. At yearend, implementation of the sovereign wealth fund remained on hold owing to litigation by the States (Thomson Reuters, 2011).

Minerals in the National Economy

The hydrocarbon sector, which included the production of crude oil, natural gas, and refined petroleum products, accounted for about 15% of Nigeria's real gross domestic product. To diversify the country's hydrocarbon-based economy, Government policy continued to promote investment in the exploration for and the development of solid minerals (Central Bank of Nigeria, 2012, p. 282).

Production

In addition to aluminum, cement, crude and refined hydrocarbons, and steel, Nigeria produces a small suite of minerals, such as barite, clays, gold, gypsum, iron ore, niobium, sand, various types of stone, tantalum, and tin. Production of clays, lead-zinc ore, niobium and tantalum concentrate, and stone increased. In 2011, NNPC's crude oil refineries again operated at less than 50% of capacity—the Kaduna refinery operated at 22.17% of capacity, the Port Harcourt refineries operated at 15.26% of capacity, and the Warri refinery operated at 41.67% of capacity. The volume of refined petroleum products, however, increased by 39% compared with that of 2010. Production of aluminum decreased by 17%, and an increase in reinjected natural gas (primarily for reservoir pressure maintenance) resulted in a decrease in marketed natural gas. A slight decrease in the volume of crude oil produced in Nigeria was reported (table 1; Nigerian National Petroleum Corp., 2012, p. 23, 49; United Company RUSAL, 2012, p. 29).

Structure of the Mineral Industry

The Ministry of Mines and Steel Development manages much of the solid minerals sector. The Nigeria Mining Cadastre Office processes mineral title applications, including exploration licenses, mining licenses, quarrying licenses, and small-scale mining licenses. The Federal Ministry of Commerce and Industry manages the cement sector. The Federal Ministry of Energy is responsible for the oversight of the natural gas, petroleum, and power sectors. NNPC was the major partner in natural gas and petroleum production joint ventures with subsidiaries of large international oil companies. Crude oil also was produced under production-sharing contracts, service contracts, and by sole risk operators (primarily independent domestic companies). Most Nigerian natural gas output was associated with crude oil production.

Commodity Review

In 2011, the Nigerian Mining Cadastre Office issued preliminary approvals for about 800 exploration licenses, 600 quarrying licenses, 100 small-scale mining licenses, and 2 general mining licenses. About 5,500 applications were refused owing to noncompliance with the Minerals and Mining Act, 2007, and the Minerals and Mining Regulations, 2011 (Nigerian Mining Cadastre Office, 2011).

Metals

Copper and Gold.— In early 2010, construction of the Zamfara Minerals Processing Factory was started near Gusau, Zamfara State, but construction was halted in late 2010 after an outbreak of lead poisoning (which was attributed to the processing of lead-rich gold ore) in the Anka and the Bukkuyim local government areas, which were located in Zamfara State about 80 kilometers (km) west of Gusau and 130 km west of Gusau, respectively. In 2011, the site of the former Mafara Brick Factory was proposed as the new site for the Zamfara Minerals Processing Factory. Brightway Minerals & Mining Ltd. proposed to build a 400-metric-ton-per-day-capacity copper smelter at the new Zamfara Minerals Processing Factory (Abubakar, 2011).

Australian Mines Ltd. of Australia continued with its acquisition of Nigeria Gold Proprietary Ltd. and its exploration of the Kagara, the Kasele, and the Yargama gold prospects. The joint venture of Erin Mineral Resources, which was a subsidiary of Erin Resources Proprietary Ltd. of Australia and Nafoka Resources Ltd., was exploring the Malele-Gobirawa project. The joint venture of Erin and Sasco Ltd. of Nigeria was prospecting on the Bukuyum-Dogondaji and the Mahuta gold projects. In December, the joint venture of Segilola Gold Ltd., which was a subsidiary of Ratel Group Ltd. of the British Virgin Islands, and Tropical Mines Ltd. of Nigeria, completed

a 36-hole 3,704-meter (m) drill program on the Segilola gold project (Ratel Group Ltd., 2012, p. 3).

Iron Ore.—Energio Ltd. of Australia (formerly Brainytoys Ltd.) acquired KCM Mining Holdings Proprietary Ltd. of Australia from TGP Australia Ltd. KCM Mining Holdings held 70% interest in KCM Nigeria Ltd. of Nigeria. In September, Energio acquired an additional 5% interest in KCM Nigeria. Bedford CP Nominees Proprietary Ltd. of Australia held the remaining 25% equity interest in KCM Nigeria. Energio subsequently began a 700-hole 20,000-m reverse-circulation drill program on the Agbaja prospect (Energio Ltd., 2012, p. 4–5).

Industrial Minerals

Cement.—Dangote Cement, which was a division of Dangote Industries Ltd., completed its merger with Benue Cement Company Plc (BCC). Dangote continued construction of a new 5.25-million-metric-ton-per-year (Mt/yr)-capacity cement line at Obajana. Upon commissioning in 2012, the line would increase the Obajana cement facility production capacity to 10.25 Mt/yr. Construction of a third cement line at Obajana had been proposed (Cocks, 2012).

Lafarge Cement WAPCO Nigeria Plc commissioned the 2.5-Mt/yr-capacity Ewekoro II cement plant in December 2011. Lafarge had initiated clinker production at the plant in July and started cement production in September (Lafarge Cement WAPCO Nigeria Plc, 2011).

Mineral Fuels

Petroleum.—In 2011, associated companies of Royal Dutch Shell plc of the Netherlands, which included Shell Nigeria Exploration and Production Co. and the Shell Petroleum Development Company of Nigeria (SPDC) joint venture with NNPC, accounted for about 26% of Nigerian crude oil production. Companies affiliated with Exxon Mobil Corp. of the United States, which included Esso Exploration and Production Nigeria Ltd. and the Mobil Producing Nigeria Unlimited joint venture with NNPC, accounted for about 25% of crude oil production. Affiliated companies of Chevron Corp. of the United States, which included the Chevron Nigeria Ltd. (CNL) and NNPC joint ventures and Star Deep Water Petroleum Ltd., accounted for about 22% of crude oil production. Companies affiliated with Total S.A. of France accounted for 12% of crude oil production (Nigerian National Petroleum Corp., 2012, p. 24).

Reported incidents of crude oil and refined petroleum product pipeline vandalization increased to 2,768 incidents in 2011

compared with a revised 836 incidents in 2010. Reported pipeline ruptures decreased to 19 occurrences in 2011 from 24 in 2010 (Nigerian National Petroleum Corp., 2012, p. 62).

Outlook

The Government's ongoing promotion of the diversification of the mineral sector has attracted numerous domestic and foreign mining entities to initiate exploration for economic mineral deposits. The intermittent availability of electrical power and ongoing civil unrest, however, is expected to affect adversely foreign investors' interest in the Nigerian solid minerals sector.

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TABLE 1
NIGERIA: ESTIMATED PRODUCTION OF MINERAL COMMODITIES^{1,2}

(Metric tons unless otherwise specified)

Commodity ³	2007	2008	2009	2010	2011
METALS					
Aluminum	--	10,600	13,000	21,200	17,600
Gold kilograms	180	100 ^r	50 ^r	100 ^r	100
Iron ore, gross weight ⁴ thousand metric tons	58	62	99	63 ^r	70
Lead:					
Lead-zinc ore	582,000 ⁴	644,000 ⁴	530,000 ^r	680,000 ^r	800,000
Metal, refined	5,000	5,000	5,000	5,000	5,000
Niobium (columbium) and tantalum concentrates:					
Gross weight	180	194 ⁴	190	160 ^r	180
Niobium (columbium) content	70	75	74 ^r	60 ^r	70
Steel	500,000	500,000	450,000	410,000	400,000
Tin:					
Mine output, cassiterite concentrate:					
Gross weight	229 ⁴	240 ⁴	510 ^r	680 ^r	740
Sn content	180	185	400 ^r	520 ^r	570
INDUSTRIAL MINERALS					
Barite ⁵	5,000 ⁵	5,000 ⁵	19,400 ⁴	19,000	19,000
Cement, hydraulic thousand metric tons	4,700	10,000 ^r	10,000 ^r	11,000 ^r	11,600
Clays, includes kaolin	234,000 ^{r,4}	108,000 ^{r,4}	154,000 ^{r,4}	139,000 ^{r,4}	155,000 ⁴
Feldspar	1,700	1,700	1,700	1,700	1,700
Gypsum	579,000 ⁴	300,000	300,000	320,000	320,000
Sand and stone:					
Laterite ⁴ thousand metric tons	1,642	3,014	2,740	2,322	2,573
Limestone do.	3,300	3,960	4,237 ⁴	5,671 ^{r,4}	8,280 ⁴
Marble do.	200	200	190	--	--
Sand do.	1,723 ⁴	3,552 ^{r,4}	1,050 ^{r,4}	1,254 ^{r,4}	1,394 ⁴
Stone, crushed (aggregate):					
Granite do.	NA ^r	9,501 ^{r,4}	10,104 ^{r,4}	7,739 ^{r,4}	9,621 ⁴
Marble do.	NA	6,133 ⁴	8,995 ⁴	9,356 ⁴	10,185 ⁴
Other do.	2,924 ⁴	3,583 ⁴	3,762 ⁴	3,673 ^{r,4}	4,074 ⁴
Shale do.	83	9,162 ^{r,4}	7,235 ^{r,4}	6,690 ^{r,4}	7,452 ⁴
Topaz kilograms	10	625 ⁴	1,077 ⁴	1,000	1,000
MINERAL FUELS AND RELATED MATERIALS					
Coal, bituminous	27,310 ^{r,4}	38,512 ^{r,4}	40,612 ^{r,4}	45,713 ^{r,4}	39,213 ⁴
Natural gas:					
Gross million cubic meters	68,404 ^{r,4}	64,776 ^{r,4}	52,026 ^{r,4}	67,758 ^{r,4}	67,972 ⁴
Marketed ⁶ do.	35,405 ^{r,4}	34,505 ^{r,4}	24,413 ^{r,4}	45,903 ^{r,4}	38,343 ⁴
Petroleum:					
Crude ⁴ thousand 42-gallon barrels	803,000	768,800	780,348	896,043	866,245
Natural gas liquids do.	NA	13,500	15,500	14,700	18,600
Refinery products:					
Liquefied petroleum gases do.	16 ⁴	1,900	1,200	1,900	1,200
Gasoline do.	2,450 ⁴	5,958 ⁴	3,102 ⁴	6,400	10,900
Kerosene do.	2,550 ⁴	5,179 ⁴	2,530 ⁴	5,000	5,800
Distillate fuel oil do.	4,645 ⁴	8,698 ⁴	4,168 ⁴	7,000	8,200
Residual fuel oil do.	6,670 ⁴	9,629 ⁴	4,060 ⁴	6,600	9,300
Unspecified do.	1,681 ⁴	3,383 ⁴	1,617 ⁴	3,000	6,100
Total do.	18,012 ⁴	34,747 ⁴	16,677 ⁴	29,900	41,500

¹Revised. do. Ditto. NA Not available. -- Zero.

²Estimated data are rounded to no more than three significant digits; may not add to totals shown.

³Table includes data available through August 22, 2012.

⁴In addition to the commodities listed, amethyst, aquamarine, bitumen, copper (secondary), diamond, emerald, garnet, ilmenite, lime, manganese, monazite, phosphate rock, rolled-steel products, ruby, rutile, salt, sapphire, soda ash, talc, tourmaline, tungsten, and zircon are produced, but available information is inadequate to estimate output.

⁵Reported figure.

⁶Considerably more barite is produced but it is considered to be commercially unusable.

⁷Production less flared gas, gas used for fuel, gas used for gas lift, and reinjected gas

TABLE 2
NIGERIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2011

(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		Dangote Cement Works Ltd. (Dangote Industries Ltd.)	Ibese	6,000,000 ²
Do.		Obajana Cement Plc (Dangote Industries Ltd.)	Obajana	5,200,000
Do.		Benue Cement Company Plc (Dangote Industries Ltd.)	Gboko	2,800,000
Do.		United Cement Company of Nigeria Ltd. (Unicem) (Nigeria Cement Holdings BV and Flour Mills of Nigeria Ltd.)	Mfamosing	2,500,000
Do.		Lafarge Cement WAPCO Nigeria Ltd. (Lafarge S.A., 59.95%)	Ewekoro II	2,500,000
Do.		do.	Ewekoro	1,320,000
Do.		Ashakacem Plc (Lafarge S.A., 50.11%)	Ashaka	900,000
Do.		Lafarge Cement WAPCO Nigeria Ltd. (Lafarge S.A., 59.95%)	Shagamu	600,000
Do.		Cement Co. of Northern Nigeria Plc (BUA International Ltd., 50.7%)	Sokoto	500,000
Do.		Edo Cement Co. Ltd. (BUA International Ltd., 87%)	Okpella	350,000
Coal		Kogi State government	Ogboyoga Mine	NA
Copper, secondary		Sun & Sand Industries Ltd.	Otta	NA
Fertilizer:				
Single superphosphate		Heikio Consortium Ltd.	Kaduna	100,000 ¹
Urea		Notore Chemical Industries Ltd.	Onne	500,000
Iron and steel:				
Iron ore		National Iron Ore Mining Co. Ltd. (Government, 100%)	Itakpe	NA
Steel:				
Steel, crude		Ajaokuta Steel Co. Ltd. (Government, 100%)	Blast furnace at Ajaokuta	1,350,000 ¹
Do.		Delta Steel Co. Ltd.	Electric arc furnaces at Aladja	1,000,000
Do.		African Steel Mills Ltd. (Liberty Group)	Electric arc furnace at Ikorodu	170,000
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.		Continental Iron and Steel Co.	do.	60,000
Do.		Universal Steel Co.	do.	50,000
Rolling mills		Delta Steel Co. Ltd.	Aladja	300,000
Do.		Jos Steel Rolling Co. Ltd. (Zuma Steel West Africa Ltd.)	Jos	210,000
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.		Ajaokuta Steel Co. Ltd. (Government, 100%)	Ajaokuta	130,000
Do.		African Steel Mills Ltd. (Liberty Group)	Ikorodu	100,000
Do.		Sunflag Steel (Nigeria) Ltd.	Lagos	30,000
Natural gas, 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	21
Niobium (columbium) and tantalum		Artisanal miners	Jos region	NA
Petroleum:				
Crude	million 42-gallon barrels	Produced under various joint ventures with Nigerian National Petroleum Corp. (NNPC), production-sharing contracts, service contracts, and sole risk operations	Niger Delta and offshore	980
Refined petroleum products	do.	Port Harcourt Refining Co. Ltd. (Government, 100%)	New Port Harcourt refinery	55
Do.	do.	do.	Old Port Harcourt refinery	22
Do.	do.	Warri Refinery and Petrochemicals Co. Ltd. (Government, 100%)	Warri refinery	43
Do.	do.	Kaduna Refinery and Petrochemicals Co. Ltd. (Government, 100%)	Kaduna refinery	38
Tin		Artisanal miners	Mines at Dutse Nkura	30
Do.		do.	Mines at Gurum, near Jos	30

Do., do. Ditto. NA Not available.

¹Under rehabilitation.

²Under construction.