



2009 Minerals Yearbook

NIGERIA

THE MINERAL INDUSTRY OF NIGERIA

By Philip M. Mobbs

As Africa's leading crude oil producer, Nigeria accounted for about 22% of African and about 2.6% of total world crude oil production. The state-owned Nigerian National Petroleum Corp. (NNPC) reported that in 2009, crude oil output increased by about 2% compared with that of 2008. According to the Central Bank of Nigeria (2009b, p. 1, 9; c, p. 1, 9; d, p. 1, 9; 2010, p. 1, 9), the average price of Bonny Light, which is a Nigerian crude oil standard, decreased to an average of \$46.15 in the first quarter of the year before increasing to an average of \$78.25 in the fourth quarter. In 2008, the average price of Bonny Light was \$101.15 per barrel. Oil revenue accounted for about 66% of Government revenue, and the decrease in oil prices contributed to a dramatic reduction in the Government's revenue from oil, which was about \$22 billion in 2009 compared with about \$55 billion in 2008. The United States received 32% of the total official Nigerian crude oil exports; India received 11%; Equatorial Guinea (which has no crude oil refining capacity), about 8%; Brazil, about 7%; and Spain, about 5% (Central Bank of Nigeria, 2009a, p. 247; BP p.l.c., 2010, p. 9; Nigerian National Petroleum Corp., 2010, p. 11, 17).

The Federal Government holds all mineral rights and is responsible for the allocation of exploration and development licenses. The Minerals and Mining Act, 2007, and the Petroleum Act of 1969 form the legal basis for exploration and production activity in the mineral sector. Legislation under consideration in 2009 included the Gas Flaring (Prohibition and Punishment) Bill, the Nigerian Oil and Gas Industry Content Development Bill, the Petroleum Industries Bill, and the Petroleum Refineries (Incentives, Regulation and Miscellaneous Provisions) Bill.

Halliburton Co. of the United States and KBR, Inc. of the United States agreed to pay \$579 million to settle charges brought by the U.S. Department of Justice and the U.S. Securities and Exchange Commission. Kellogg Brown & Root LLC, which was a subsidiary of KBR, was accused of bribery of Nigerian Government officials to obtain construction contracts. Halliburton and KBR were charged with related accounting violations. The Nigerian Senate subsequently initiated an investigation in Nigeria (U.S. Securities and Exchange Commission, 2009).

Minerals in the National Economy

To diversify the oil-based economy, Government policy continued to promote investment in the exploration for and the development of solid minerals (as opposed to natural gas and oil). Non-oil exports in 2009 were provisionally valued at about \$1.9 billion (Central Bank of Nigeria, 2009a, p. 11; b, p. 11; c, p. 11; 2010, p. 11).

Production

In early 2009, another major maintenance program was begun at Kaduna Refinery and Petrochemicals Co. Ltd. and

the Port Harcourt refineries. The turnaround maintenance and a disruption of crude oil supply because of pipeline vandalism resulted in minimal production operations in 2009. The Port Harcourt refineries operated at about 9% of capacity (compared with about 18% in 2008) and the Kaduna refinery operated at about 3% of capacity (compared with about 20% in 2008), which was reflected in the significant decrease in the output of refined petroleum products. Production of gold and steel also were estimated to have decreased in 2009. An increase in the volume of aluminum and iron ore produced in Nigeria was reported. The slight increase in crude oil production was attributed to the relative lack of civil disturbances in the Niger Delta region owing to the Government's amnesty program, which resulted in reduced violence directed at the international oil company facilities and personnel and less vandalism of domestic crude oil, natural gas, and petroleum products pipelines (table 1; Central Bank of Nigeria; 2010, p. 9; Nigerian National Petroleum Corp., 2010, p. 33; United Company RUSAL, 2010, p. 33).

Structure of the Mineral Industry

The Ministry of Mines and Steel Development manages much of the solid minerals sector. 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, such as Chevron Corp. and Exxon Mobil Corp. of the United States, Eni S.p.A. of Italy, Royal Dutch Shell plc of the United Kingdom, and Total S.A. of France. 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

Metals

Aluminum.—United Company RUSAL of Russia, which reported holding an 85% interest in Aluminum Smelter Co. of Nigeria, Ltd. (ALSCON), continued to refurbish the ALSCON smelter. The ALSCON smelter had been scheduled to reach full production capacity of 193,000 metric tons per year (t/yr) by 2010, but the increase in output in 2009 was minor, rising to about 13,000 metric tons (t) from about 10,600 t in 2008. The global economic crisis adversely affected RUSAL's financial status and the company's interest in the addition of additional production capacity. Local security issues also affected operations at Ikot Abasi (Mukumbira, 2008; Mokwenye, 2010; United Company RUSAL, 2010, p. 11, 33).

Gold, Niobium, and Tantalum.—The Federal and State governments actively promoted the development of gold deposits in Nigeria. CGA Mining Ltd. of Australia and Topical Mines Ltd. of Nigeria worked the Segilola project, which was located about 120 kilometers northeast of Lagos. An initial National Instrument 43-101-compliant resource of 19 t of gold for the project was announced and the companies initiated a feasibility study of developing the prospect as an open pit mine. Savannah Gold Ltd. of the United Kingdom was exploring 12 licenses in northwestern Nigeria and expected to begin a drilling program in 2010. Rhodium Ltd. of Nigeria was exploring the Lake Shiroro gold-niobium-tantalum-tin placer prospect and the Pogo and Kutanga gold prospect (CGA Mining Ltd., 2009).

Industrial Minerals

Cement.—Sinoma International Engineering Company Ltd. of China completed the expansion of the production capacity of Benue Cement Company Plc to 2.8 million metric tons (Mt/yr) from 900,000 t/yr for Dangote Cement, which was a division of Dangote Industries Ltd., and started the development of Dangote's planned 5-Mt/yr-capacity plant at Ibese, Ogun State. In May, United Cement Company of Nigeria Ltd. (Unicem) inaugurated its 2.5-Mt/yr-capacity plant at Mfamosing, Cross Rivers State. Early in 2009, Unicem was owned by Nigeria Cement Holding BV, 56% equity interest; Dangote, 22%; and Flour Mills of Nigeria Ltd., 22%, but by January 2010, Dangote had withdrawn from the Unicem ownership group. Nigeria Cement Holding was a joint venture of Holcim Ltd. of Switzerland, and Lafarge S.A. of France. In July 2009, Unicem closed the Calabar grinding station owing to the lower cost of cement production at its Mfamosing plant (Lafarge S.A., 2009; United Cement Company of Nigeria Ltd., 2009; 2010, p. 2; Dangote Industries Ltd., undated).

In 2009, BUA International Ltd. acquired 87% equity interest in Edo Cement Company Ltd. and 50.7% interest in Cement Company of Northern Nigeria Plc. (CCNN) from Damnaz Cement Company Ltd. of Nigeria, which had acquired its interest in CCNN and Edo Cement from HeidelbergCement AG of Germany in 2008. BUA proposed to increase Edo Cement's capacity to 2.35 Mt/yr by 2011 from 350,000 t/yr (Ogidan, 2009a).

Lafarge Cement WAPCO Nigeria Plc (formerly West African Portland Cement Plc) continued work on the Lakatabu project, which was to add a 2-Mt/yr-capacity cement line to the Ewekoro plant. The new line was expected to be completed in 2011 (Lafarge Cement WAPCO Nigeria Plc., 2010, p. 29-30).

Difficulties continued at the inactive Nkalagu plant of Nigeria Cement Company plc (Nigercem). In 2002, Eastern Bulkcem Company Ltd. of Nigeria acquired a majority equity interest in the company that had been divested by a consortium of state governments of southeastern Nigeria. In 2008, Sinoma Construction Co. of China was contracted to begin the rehabilitation of a kiln, but the plant was occupied by an armed militia that refused to allow the contractors to enter the grounds. In 2009, the Ebonyi State government revoked the Nigercem facility's certificate of occupancy (Ogidan, 2009b; Agbo, 2010).

Issues with energy availability owing to intermittent domestic supplies of fuel oil and natural gas also affected cement production. The use of higher priced imported fuel oil was reflected in the price of cement. AshakaCem Plc converted its kilns to burn lignite instead of fuel oil (Abidoye and Fajimolu, 2010).

In 2008, because of high domestic cement prices, six companies were licensed to import cement. In 2009, because of the ongoing increases in domestic production capacity, Nigerian cement producers requested that the Government prohibit cement imports. In October, the importation of bagged cement was banned and a fee of about \$3 per metric ton was imposed on imported bulk cement, which was bagged locally. At the time, a 50-kilogram bag of imported cement cost about \$11 (Ofikhenua, 2009).

Nitrogen and Phosphate.—In July, Notore Chemical Industries Ltd. resumed production of urea after the rehabilitation of the 500,000-t/yr-capacity plant at Onne. The plant, which formerly was operated by state-owned National Fertilizer Co. (NAFCON), had ceased operations in 1999. An initial rehabilitation was abandoned in 2001, and the inactive facility was privatized in 2005.

O-Secul Fertilizer Company Ltd. of Nigeria acquired NAFCON and adopted Notore Chemical Industries as the operating company's name (Notore Chemical Industries Ltd., 2009).

Indorama Industries Ltd. of India proposed to build a 1-Mt/yr urea plant at the Eleme Petrochemicals Company Ltd. plant at Eleme by 2012. Additional 1-Mt/yr capacity expansions were proposed for 2014 and 2016, which would result in a 3-Mt/yr plant. Indorama would retain 80% equity in the urea project, with NNPC holding 10% and Rivers State and local governments holding the remaining equity (Lawal, 2009).

Mineral Fuels

Natural Gas and Petroleum.—In 2009, subsidiaries of ExxonMobil accounted for about 28% of crude oil production. ExxonMobil's subsidiaries included Esso Exploration and Production Nigeria Ltd., which produced crude oil from a number of fields under production-sharing contracts, and Mobil Producing Nigeria Unlimited, which operated a joint venture with NNPC that produced crude oil. Other notable crude oil producers included subsidiaries of Chevron, which accounted for about 22% of crude oil production; the NNPC joint venture that was operated by Shell Petroleum Development Co. of Nigeria Ltd., 13%; and the NNPC joint venture that was operated by Total's subsidiary Elf Petroleum Nigeria Ltd., 7%. Many of the onshore operations in the western Niger River delta region remained suspended in 2009 because of civil unrest. Reported incidents of pipeline sabotage in Nigeria again decreased, to 1,435 incidents in 2009 compared with 2,285 incidents in 2008 and 3,224 incidents in 2007 (Nigerian National Petroleum Corp., 2010, p. 8, 37).

Outlook

The Government's ongoing promotion of the diversification of the mineral sector has included the updated Mining Law

and efforts to attract domestic and foreign investors to explore for and to exploit economic mineral deposits. The intermittent availability of electrical power and the civil unrest in southern Nigeria, however, are expected to continue to affect international investor interest in the Nigerian solid minerals sector adversely.

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

(Metric tons unless otherwise specified)

Commodity ³	2005	2006	2007	2008	2009
METALS					
Aluminum	--	--	--	10,600 ^r	13,000
Gold kilograms	30	50	180	200	100
Iron ore, gross weight thousand metric tons	60	88 ⁴	58 ⁴	62 ⁴	99 ⁴
Lead:					
Lead-zinc ore	--	492,000 ⁴	582,000 ⁴	644,000 ⁴	600,000
Metal, refined	5,000	5,000	5,000	5,000	5,000
Niobium (columbium) and tantalum concentrates:					
Gross weight	99	110	180	194 ⁴	180
Niobium (columbium) content	35	40	70	75	70
Steel	100,000	500,000	500,000	500,000	450,000
Tin:					
Mine output, cassiterite concentrate:					
Gross weight	1,700	1,818 ⁴	229 ⁴	240 ⁴	230
Sn content	1,300	1,400	180	185	180
Metal, smelter	25	--	--	--	--
INDUSTRIAL MINERALS					
Barite ⁵	6,000	6,300	5,000	5,000	5,000
Cement, hydraulic thousand metric tons	2,700	3,300	4,700	5,000	5,000
Clays:					
Kaolin	93,000	100,000	100,000	100,000	100,000
Unspecified	150,000	160,000	234,000	251,000 ⁴	240,000
Feldspar	1,100	1,700	1,700	1,700	1,700
Gypsum	150,000	169,000	579,000 ⁴	300,000	300,000
Sand and stone:					
Granite thousand metric tons	2,000	--	--	--	--
Limestone do.	1,200	1,500 ^e	3,300 ⁴	3,960 ⁴	3,960
Marble do.	149	200	200	200	190
Sand do.	900	941	1,723 ⁴	1,960 ⁴	1,018
Stone, crushed (aggregate) do.	2,000	1,636 ⁴	2,924 ⁴	3,583 ⁴	3,583
Shale do.	1,200	1,300	83	91 ⁴	80
Topaz kilograms	--	10	10	625 ^{r,4}	1,077 ⁴
MINERAL FUELS AND RELATED MATERIALS					
Coal, bituminous	8,000	530,000	530,000	500,000	450,000
Natural gas:					
Gross million cubic meters	59,285 ^{r,4}	82,064 ^{r,4}	84,707 ^{r,4}	80,604 ^{r,4}	64,883 ⁴
Dry do.	36,282 ^{r,4}	53,479 ^{r,4}	57,400 ^{r,4}	58,793 ^{r,4}	46,895 ⁴
Petroleum:					
Crude thousand 42-gallon barrels	923,500 ⁴	869,197 ⁴	803,000 ⁴	768,800 ⁴	780,348 ⁴
Refinery products:					
Liquefied petroleum gases do.	700	NA	16 ⁴	300 ⁴	294 ⁴
Gasoline do.	14,800	8,500	2,450 ⁴	5,958 ⁴	3,102 ⁴
Kerosene do.	10,100	6,100	2,550 ⁴	5,179 ⁴	2,530 ⁴
Distillate fuel oil do.	15,800	9,400	4,645 ⁴	8,698 ⁴	4,168 ⁴
Residual fuel oil do.	19,200	14,400	6,670 ⁴	9,629 ⁴	4,060 ⁴
Unspecified do.	4,300	1,000	1,681 ⁴	3,383 ⁴	1,617 ⁴
Total do.	65,000	39,400	18,012 ⁴	33,147 ⁴	15,771 ⁴

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

¹Estimated data are rounded to no more than three significant digits; may not add to totals shown.

²Table includes data available through August 13, 2010.

³In addition to the commodities listed, amethyst, aquamarine, bitumen, copper (secondary), diamond, emerald, garnet, ilmenite, lime, manganese, monazite, natural gas liquids, phosphate rock, rolled-steel products, ruby, rutile, sapphire, soda ash, talc, tourmaline, tungsten, and zircon are produced, but available information is inadequate to estimate output.

⁴Reported figure.

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

TABLE 2
NIGERIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2009

(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	193,000 ¹
Cement		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	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
Do.		United Cement Company of Nigeria Ltd. (Unicem) (Nigeria Cement Holdings BV and Flour Mills of Nigeria Ltd.)	Clinker grinding plant, Calbar	350,000 ²
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 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. (Global Steel Holdings 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. (Global Steel Holdings Ltd.)	Aladja	300,000
Do.		Jos Steel Rolling Co. Ltd. (Zuma Steel West Africa Ltd.)	Jos rolling mill	210,000
Do.		Katsina Steel Rolling Co. Ltd. (Dana Steel Ltd.)	Katsina rolling mill	207,000
Do.		Oshogbo Steel Rolling Co. Ltd. (Kura Holdings Ltd.)	Oshogbo rolling mill	210,000
Do.		Ajaokuta Steel Co. Ltd. (Government, 100%)	Ajaokuta	130,000
Do.		African Steel Mills Ltd. (Liberty Group)	Rolling mill at Ikorodu	100,000
Do.		Sunflag Steel (Nigeria) Ltd.	Rolling mill at 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
Do.	do.	Brass LNG Ltd. [Nigerian National Petroleum Corp. (NNPC), 49%; Brass Holdings Co. Ltd., 17%; ENI International (N.A.) S.a.r.l., 17%; Phillips (Brass) Ltd., 17%]	Trains 1 and 2 on Brass Island	10 ³
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.

²Closed in 2009.

³Planned.

