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2006 Minerals Yearbook

NIGERIA

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The Mineral Industry of Nigeria

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As Africa's leading petroleum (crude oil) producer and a member of the Organization of the Petroleum Exporting Countries (OPEC), Nigeria accounted for about 25% of African crude oil production and about 3% of total world production. In 2006, Government revenue from hydrocarbons increased to \$41 billion[1] compared with \$35.6 billion in 2005. Because crude oil production declined in 2006, the growth of Government hydrocarbon revenues was the result of the rise in international oil prices. The average price of Bonny Light, which is a standard Nigerian crude-oil-reference-type, rose to \$66.46 per barrel in 2006 compared with \$55.43 in 2005. Some of the increase in oil prices worldwide in 2006 was attributable to the civil turmoil in southern Nigeria, which introduced additional uncertainty into the world supply of crude oil (BP p.l.c., 2007, p. 8; Central Bank of Nigeria, 2007, p. 59-60, 81, 206, 260).

Under the Mining and Minerals Decree (law No. 34 of 1999), the Federal Government holds all mineral rights. By early 2006, the Ministry of Solid Minerals Development (MSMD) completed the revalidation of 1,450 mining licenses, of which 33 were provisional approvals. The revalidation program, which started in 2005, updated and verified the national mining title registry. Subsequently, the Mining Cadastre Office, which was established to process mining licenses, was opened.

At the beginning of the year, the MSMD had reduced its primarily administrative staff to 328 people from 1,303 to allow the transformation of the Ministry to a more technically oriented agency. The Government released the Federal Executive Council's policy document "Development of a Policy on Solid Minerals Development" and declared that solid minerals formed a strategic sector of the national economy. Also in 2006, the Geological Survey of Nigeria Agency was renamed the Nigerian Geological Survey Agency, the governing board of the Nigeria Nuclear Regulatory Authority was inaugurated, and the development of new minerals and mining legislation continued.

The Petroleum Act of 1969 formed the legal basis for activity in the upstream petroleum sector. Other legislation that regulated the petroleum sector included the Oil Pipelines Act of 1956 and amendments, the Hydrocarbon Oil Refineries Act of 1965, the petroleum (drilling and production) regulations of 1969 and the 1990 amendment, the petroleum (refining) regulations of 1974 and 1977, the Associated Gas Re-Injection Act of 1979 and amendments, the Federal Environmental Protection Agency Act of 1988, the Nigeria LNG Decree of 1990, and the Petroleum Profits Tax Act of 2004.

Minerals in the National Economy

Crude oil and natural gas activity accounted for about 50% of the Nigerian gross domestic product. In 2006, total official exports were provisionally valued at about \$45 billion, of which the value of exported crude oil (which totaled about 652 billion 42-gallon barrels) was estimated to be \$43.3 billion. The value of crude oil exports in 2005, which totaled about 824 billion barrels, was revised to \$47.2 billion. The 8% decline in the value of exported oil in 2006 compared with that of 2005 was attributed to the 20.9% decline in the volume of crude oil exports, which was partially offset by the rise in international oil prices. Of the total official crude oil exports from Nigeria in 2006, the United States imported 47%; India, 12%; Spain, 4.1%; Côte d'Ivoire, 3.9%; and Brazil, 3.8% (Central Bank of Nigeria, 2007, p. 251, 256).

The value of natural gas exports was estimated to be \$796 million in 2006, which was a significant increase from the \$456 million reported in 2005. Exports of aluminum semimanufactured products were valued at about \$60 million, and exports of steel, \$2 million (Central Bank of Nigeria, 2007, p. 251, 258-259).

Production

The rampup of liquid steel production by Delta Steel Co. Ltd. significantly increased national steel output. Notable production increases also were estimated for cement and were reported for limestone, which was used by the cement producers (Central Bank of Nigeria, 2007, p. 83).

The 11.9% decline in crude oil production compared with that of 2005 is attributable to the civil and criminal violence directed at the international oil company facilities; intertribal conflicts in the Niger Delta region that adversely affected production operations; repeated vandalism of domestic crude oil, natural gas, and petroleum products pipelines; and a reduction in the OPEC crude oil production ceiling allocation (quota) of 100,000 barrels per day (bbl/d) that became effective in November 2006. The Government estimated that Nigeria lost revenues of \$4.47 billion because of the civil unrest in 2006 (Nwanma, 2007).

The swings in refined oil production between 2002 and 2006 were attributed to Kaduna Refinery and Petrochemicals Co. Ltd. and Warri Refinery and Petrochemicals Co. Ltd., which operated intermittently in 2006 after vandalism shut down the pipelines that supplied crude oil to the refineries in February. The crude oil supply to the Kaduna and the Warri refineries also had been adversely affected by pipeline breaches in 2003 and 2004 (Platts, 2006b).

The significant increase in revenue from natural gas exports in 2006 is attributable to the sales of output from the new liquefied natural gas (LNG) process lines (trains) 4 and 5 of the Nigeria Liquefied Natural Gas Ltd. (NLNG) facility at Finima on Bonny Island. The two new trains increased the plant's capacity to 17.05 million metric tons per year (Mt/yr), which nearly doubled the country's LNG production capacity (Infrastructure Journal, 2006).

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[1] Where necessary, values have been converted from Nigerian naira (₦) to U.S. dollars (US\$) at the average rates of ₦128.65=US\$1.00 for 2006 and ₦131.66=US\$1.00 for 2005.

Structure of the Mineral Industry

In 2006, the MSMD managed much of the solid minerals sector. The Ministry of Power and Steel was responsible for the coal, iron, and steel sectors, and the Ministry of Industry managed the cement sector. The combination of the solid mineral development functions of MSMD and the coal, iron, and steel responsibilities of the Ministry of Power and Steel was expected in early 2007.

In recent years, the Government had privatized many of the large previously state-owned minerals companies by selling equity interest to private investors. The Government sold off management rights for some of the state-owned companies that were not privatized. The management rights to two state-owned companies in the iron and steel sector, Ajaokuta Steel Co. Ltd. and National Iron Ore Mining Co., for example, were awarded to Global Steel Holdings Ltd. (also known as Global Infrastructure Holdings Ltd.) under 10-year concessions. Global Steel also held majority equity interest in Delta Steel, which operated Nigeria's other steel plant.

The privatization of segments of National Mining Corp. proceeded in 2006; initial bids were opened at midyear. Emo Ashapura Energy & Mining Ltd. acquired the five cassiterite and kaolin mining leases in Plateau State, which formerly were held by Nigeria Kaolin Ltd., and Barite Mining Lease 18706 in Nasarawa State, which formerly was held by Nigerian Barytes Mining and Processing Co. Ltd. Equator Mines Ltd. of Nigeria acquired 72 mining licenses formerly held by Nigerian Tin and Allied Minerals Product Ltd. in Bauchi and Kaduna States. Livingspring Mineral Promotion Co. Ltd. of Nigeria acquired three mining leases in the Igun goldfields.

The MSMD declared that illegal miners (that is, those engaged in mining who operated without the appropriate licenses, permissions, or permits) were to be reclassified as "informal and artisanal miners." Artisanal miners or small-scale domestic companies mined gold, lead-zinc, niobium (columbium), tantalum, tin, and tungsten ores, as well as barite, clays, feldspar, gemstones, gypsum, phosphate rock, and sand. The Government proposed to establish 10 mineral buying centers to help artisanal miners market industrial minerals (Binniyat, 2006).

The Government's encouragement of the construction of coal-fired electricity-generating plants strengthened investor interest in the planned divestment of the resources of Nigerian Coal Corp. (NCC). The policy to increase the number of coal-fueled plants was partially in response to the vandalism of natural gas pipelines, which adversely affected the availability of natural gas to fuel electricity-generating plants. The Government's planned sale of the nine remaining coalfields of the NCC was rescheduled for early 2007 (Daily Champion, 2006).

The Minister of State for Petroleum Resources, which was part of the Office of the President, was responsible for the management of petroleum resources. The state-owned Nigerian National Petroleum Corp. (NNPC) was the major partner in natural gas and petroleum production joint ventures with subsidiaries of large international oil companies, such as Eni S.p.A. of Italy, Chevron Corp. of the United States, Exxon Mobil Corp. of the United States, Royal Dutch Shell plc of the United Kingdom (formerly the group formed by Royal Dutch Petroleum Co. of the Netherlands and The "Shell" Transport and Trading Company, p.l.c. 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 produced in association with crude oil.

Commodity Review

Industrial Minerals

Fertilizer, Nitrogen, and Phosphate Rock.—Notore Chemical Industries Ltd. proposed to refurbish and reopen the nitrogenous fertilizer plant at Onne that was formerly operated by the National Fertilizer Co. of Nigeria. Production of urea was scheduled to reach 600,000 metric tons per year (t/yr) after startup in 2007 and 1.3 Mt/yr by 2010. Also in 2006, the Heikio Consortium Ltd. acquired Federal Superphosphate Fertiliser Co. from the Bureau of Public Enterprises, which was the Government's privatization agency (Africa Fertilizer Summit, 2006).

Mineral Fuels

Bitumen.—Exploration pemits for bitumen were offered on two blocks in 2006. CGC Overseas Construction Co. Ltd. of China acquired Block 2. The Government rejected the bids for Block 1, for which the consortium of Gateway Bitumen of Nigeria, Lake Asphalt of Trinidad and Tobago, and Masefield Group of Switzerland was the high bidder.

Natural Gas.—NLNG began production from the 4.1-Mt/yr-capacity LNG train 5 in February. Initial production from the 4.1-Mt/yr-capacity LNG train 4 had started in November 2005. The construction of the 4.1-Mt/yr-capacity LNG train 6 was underway; initial production was scheduled for 2007. Planning for NLNG's proposed 8.4-Mt/yr-capacity LNG train 7 continued (Infrastructure Journal, 2006; LNG World Shipping, 2007).

Preconstruction activity continued on the two-train, 10-Mt/yr-capacity Brass LNG Ltd. facility adjacent to the Nigerian Agip Oil Co. terminal at Brass Island. Initial production was scheduled for 2011. In 2006, Chevron withdrew from the Brass project, and Total acquired Chevron's 17% interest (Platts, 2006a; Eni S.p.A., 2007, p. 28).

Partners in the Olokola LNG (OK LNG) project proceeded with plans to build a four-train, 22-Mt/yr-capacity LNG facility about 120 kilometers (km) east of Lagos. An investment decision was scheduled to be reached in early 2007. Construction of the OK LNG facility was expected to take 5 years to complete (BG Group plc, 2007, p. 30).

A positive feasibility study was completed for the more-than-4,000-km trans-Saharan natural gas pipeline from Brass, Nigeria, to Beni Saf, Algeria. Completion of the 20- to 30-million-cubic-meter-per-year-capacity pipeline was scheduled for 2015. The startup of the West African Gas

Pipeline, which would transport Nigerian natural gas from Nigeria to Benin, Ghana, and Togo, was delayed until 2007 (Middle East Economic Digest, 2006).

Petroleum.—In 2006, Esso Exploration and Production Nigeria Ltd. (56.25% interest) and Shell Nigeria Exploration and Production Co. Ltd. (43.75%), which operated Oil Prospecting Lease 206 under a production-sharing contract with the NNPC, initiated production of crude oil from the Erha Field, which was located in 1.2 km of water. Shell Petroleum Development Co. of Nigeria Ltd. (SPDC), which comprised NNPC (55%), Royal Dutch Shell (30%), ELF Petroleum Nigeria Ltd. (10%), and Nigerian Agip Oil Corp. (5%), appealed a 2000 National Assembly decision to award $1.5 billion to the group known as the Ijaw Aborigines of Bayelsa State for environmental damages allegedly caused by SPDC operations.

Outlook

National-scale mineral reconnaissance work is expected to continue with funding from the European Union, the U.S. Trade and Development Agency, and the World Bank. Most mineral occurrences in Nigeria need additional evaluation to begin to generate international investor interest. The Government plans to increase its efforts to attract local and foreign investors to explore for and develop economic Nigerian mineral deposits and proposed to declare 2007 as the Year of Mining and Minerals in Nigeria. The ongoing civil unrest in southern Nigeria, which muted international investor interest in the Nigerian solid minerals sector, is expected to continue.

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TABLE 1
NIGERIA: ESTIMATED PRODUCTION OF MINERAL COMMODITIES[1, 2]

(Metric tons unless otherwise specified)

Commodity[3]		2002	2003	2004	2005	2006
METALS						
Gold	kilograms	40	50	30	30	40
Iron ore, gross weight	thousand metric tons	25	--	--	60 r	150
Lead:						
Lead-zinc ore		250	250	200	-- r	100
Metal, refined		5,000	5,000	5,000	5,000	5,000
Niobium (columbium) and tantalum concentrates:						
Gross weight		156 [4]	383 [4]	100	99	110
Niobium (columbium) content		65	160	40	35	40
Steel		--	--	40,000 r	100,000 r	900,000
Tin:						
Mine output, cassiterite concentrate:						
Gross weight		1,004	2,341	1,300	1,700 r	1,818 [4]
Sn content		790	1,800	1,000	1,300 r	1,400
Metal, smelter		25	25	25	25	--
INDUSTRIAL MINERALS						
Barite[5]		5,000	5,000	6,000	6,000	6,300
Cement, hydraulic	thousand metric tons	2,100	2,300	2,300	2,400	3,000
Clays:						
Kaolin		32,000 r	52,000 r	58,000 r	93,000 r	100,000
Unspecified		140,000 r	150,000 r	150,000 r	150,000 r	160,000
Feldspar		1,800	500 r	1,000 r	1,100 r	1,200
Gypsum		140,000 r, 4	150,000 r	160,000 r	150,000 r	160,000
Stone:						
Granite	thousand metric tons	2,500	2,500	2,000	2,000	--
Limestone	do.	11,415 [4]	7,408 [4]	2,100	1,200 r	15,300 [4]
Marble	do.	1,551 [4]	840 [4]	150	149	200
Shale	do.	1,100 r	1,200 r	1,200 r	1,200 r	1,300
Topaz	kilograms	10	10	10	-- r	10
MINERAL FUELS AND RELATED MATERIALS						
Coal, bituminous		43,482 [4]	23,089 [4]	-- r	-- r	10,000
Natural gas:						
Gross	million cubic meters	50,000	53,000	57,747 [4]	57,369 r, 4	57,754
Dry	do.	30,000	31,000	34,411 [4]	34,744 [4]	39,000
Petroleum:						
Crude	thousand 42-gallon barrels	773,000	825,000	900,400 [4]	923,500 [4]	813,950 [4]
Refinery products:						
Liquefied petroleum gases	do.	1,300 r, 4	200 r	20 r, 4	700 r	NA
Gasoline	do.	22,400	6,000 r	4,600 r, 4	14,800	8,500
Kerosene	do.	11,800	5,700 r	4,900 r, 4	10,100	6,100
Distillate fuel oil	do.	18,800	10,300 r	8,800 r, 4	15,800	9,400
Residual fuel oil	do.	19,500 r, 4	15,000 r	12,400 r, 4	19,200	14,400
Unspecified	do.	500 r	3,900 r	3,400 r, 4	4,300 r	1,000
Total	do.	74,300 r	41,100 r	34,100 r	65,000 r	39,400

NA Not available. r Revised. -- Zero.

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

[2]Table includes data available through October 15, 2007.

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

[4]Reported figure.

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

TABLE 2
NIGERIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2006

(Metric tons unless otherwise specified)

Commodity		Major operating companies	Location of main facilities	Annual capacity
Aluminum		Aluminum Smelter Co. of Nigeria, Ltd.	Smelter at Ikot Abasi	193,000 [1]
Cement		Obajana Cement Plc (Dangote Group)	Lines 1 and 2 at Obajana	5,000,000 [2]
Do.		United Cement Co. of Nigeria (Egyptian Cement Co., 70%, and Flour Mills of Nigeria Ltd., 30%)	Calbar	2,500,000 [3]
Do.		West Africa Portland Cement Co. Plc (Lafarge S.A., 59.95%)	Ewekoro	1,320,000
Do.		Ashakacem Plc (Lafarge S.A., 50.11%)	Ashaka	900,000
Do.		Benue Cement Co. Plc (Dangote Group)	Benue State	900,000 [4]
Do.		West Africa Portland Cement Co. Plc (Lafarge S.A., 59.95%)	Shagamu	600,000
Do.		Cement Co. of Northern Nigeria Plc (Scancem International INS, 50.7%)	Sokoto	500,000
Do.		Edo Cement Co. Ltd. (Scancem International INS, 87%)	Okpella	450,000
Copper, secondary		Sun & Sand Industries Ltd.	Ota	NA
Fertilizer:				
Single superphosphate		Heikio Consortium Ltd.	Kaduna	100,000 [1]
Urea		Notore Chemical Industries Ltd.	Onne	600,000 [1]
Iron and steel:				
Iron ore		National Iron Mining Co. Ltd. (Government, 100%)	Itakpe	5,500
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
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 [1]
Do.		Katsina Steel Rolling Co. Ltd. (Dana Steel Ltd.)	Katsina rolling mill	207,000 [1]
Do.		Oshogbo Steel Rolling Co. Ltd. (Kura Holdings Ltd.)	Oshogbo rolling mill	210,000 [1]
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., 49%; Shell Gas B.V., 25.6%; Total LNG Nigeria Ltd., 15%; ENI International (N.A.) S.a.r.l., 10.4%)	Trains 1-5 at Finima, Bonny Island	17
Do.	do.	do.	Train 6 at Finima, Bonny Island	4 [3]
Do.	do.	Brass LNG Ltd. (Nigerian National Petroleum Corp., 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., 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

NA Not available.
[1] Under rehabilitation.
[2] Lines 3 and 4 with an additional annual capacity of 5 million metric tons are under construction.
[3] Under construction.
[4] Expansion to 2.7 million metric tons per year is underway.