

Nigeria's barite resources & recent developments

An Insight

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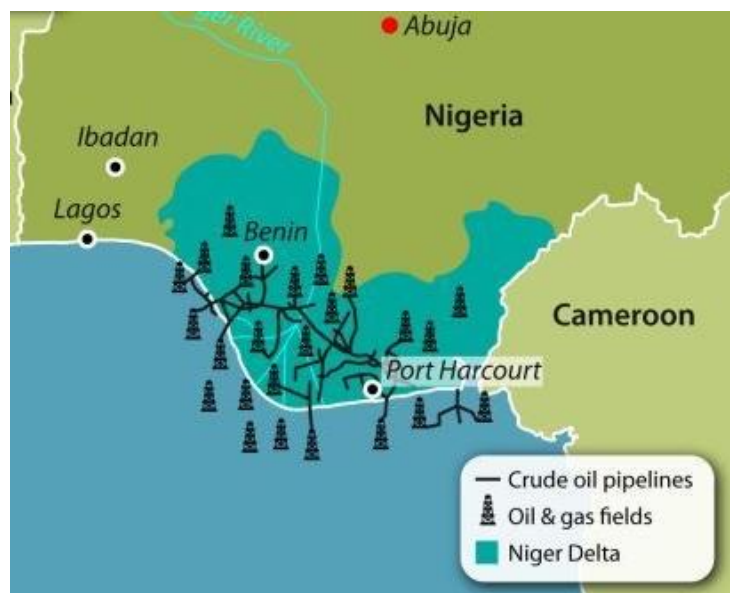


11 May 2023

Networking and knowledge for the industrial minerals business

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- Nigeria is the largest oil and gas producer in Africa
- Oilfields started development/production early 1960s then took off in 1970s
- Hosts largest natural gas reserves in Africa, world 6th largest LNG exporter

Population (million inhabitants)	218.40
Land area (1,000 sq km)	924
GDP per capita (\$)	1,998
GDP at market prices (million \$)	436,450
Value of exports (million \$)	46,868
Value of petroleum exports (million \$)	41,378
Current account balance (million \$)	3,638
Proven crude oil reserves (m barrels)	37,050
Proven natural gas reserves (bn cu. m.)	5,848
Crude oil production (1,000 b/d)	1,323
Marketed production of natural gas (m cu. m.)	48,57
Refinery capacity (1,000 b/cd)	486
Output of petroleum products (1,000 b/d)	5
Oil demand (1,000 b/d)	495
Crude oil exports (1,000 b/d)	1,592
Exports of petroleum products (1,000 b/d)	11
Natural gas exports (million cu. m.)	38,464

Source: OPEC Annual Statistical Bulletin 2022

World oil reserves ranking

Proven reserves (millions of barrels)

	Country	US EIA [5]	OPEC [6]	BP [7]	Others	Oil production 2020 (bb/day) [8]	Years of production in reserve
1	Venezuela *(OPEC)	303,806	302,809	300,900		527,063	1,578
2	Saudi Arabia *(OPEC)	258,600	266,260	266,000		9,264,921	76
3	Iran *(OPEC)	208,600	[9] 208,600	155,600		2,665,809	214
4	Canada *	170,300	4,421	172,200	[10] 171,000	4,201,101	111
5	Iraq *(OPEC)	145,019	147,223	143,100		4,102,311	97
6	Somalia *	-	-	-	111,777 [11][12]	-	-
7	Kuwait *(OPEC)	101,500	104,000	104,000		2,625,145	106
8	United Arab Emirates *(OPEC)	97,800	98,630	98,630		3,138,249	85
9	Russia *	80,000	80,000	102,400		9,865,495	22
10	Libya *(OPEC)	48,363	74,363	78,400		408,074	324
11	United States *	47,107	32,773	55,000	[13] 43,629	11,307,560	11
12	Nigeria *(OPEC)	36,890	37,453	37,100		1,775,940	57
13	Kazakhstan *	30,000	30,000	30,000		1,756,705	47
14	China *	26,022	25,627	18,500		3,888,989	18
15	Qatar *	25,244	25,244	25,244		1,530,000	45
16	Brazil *	12,714	12,634	13,000	[13] 16,848	2,939,950	12
17	Algeria *(OPEC)	12,200	12,200	12,200		1,122,432	30
18	Guyana *				10,000 [14]	83,174	329
19	Ecuador	8,273	8,273	8,000		479,371	47
20	Norway *	8,122	6,376	8,000		1,712,937	13

- Recent years have seen output drop significantly owing to illegal artisanal activity stealing oil from pipelines.



Note: in million bpd

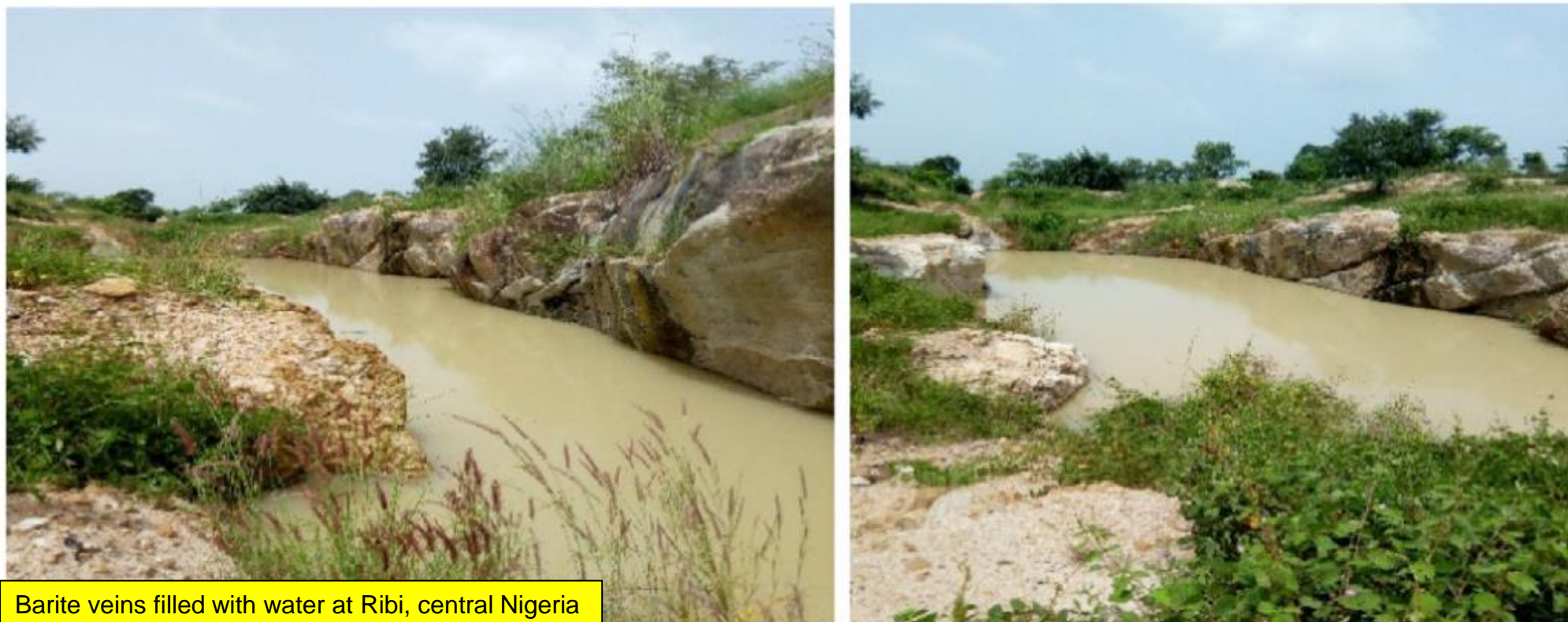
Source: OPEC data on Refinitiv



Source: REUTERS

Nigeria's barite resources

- Most barite deposits are vein and cavity filling type, hosted by different rock types such as sandstone, limestone, migmatite, shale, mudstone and porphyritic granite.



- In Nigeria, barite deposits – hosting an estimated total reserve of almost 23m tonnes of 4.2 SG grade – are mainly located in the south and east of the country, with limited mining activities and facing major challenges.
- Key challenges facing development of the barite mining sector in Nigeria include poor infrastructure, inadequate electricity, and in some cases water supply.



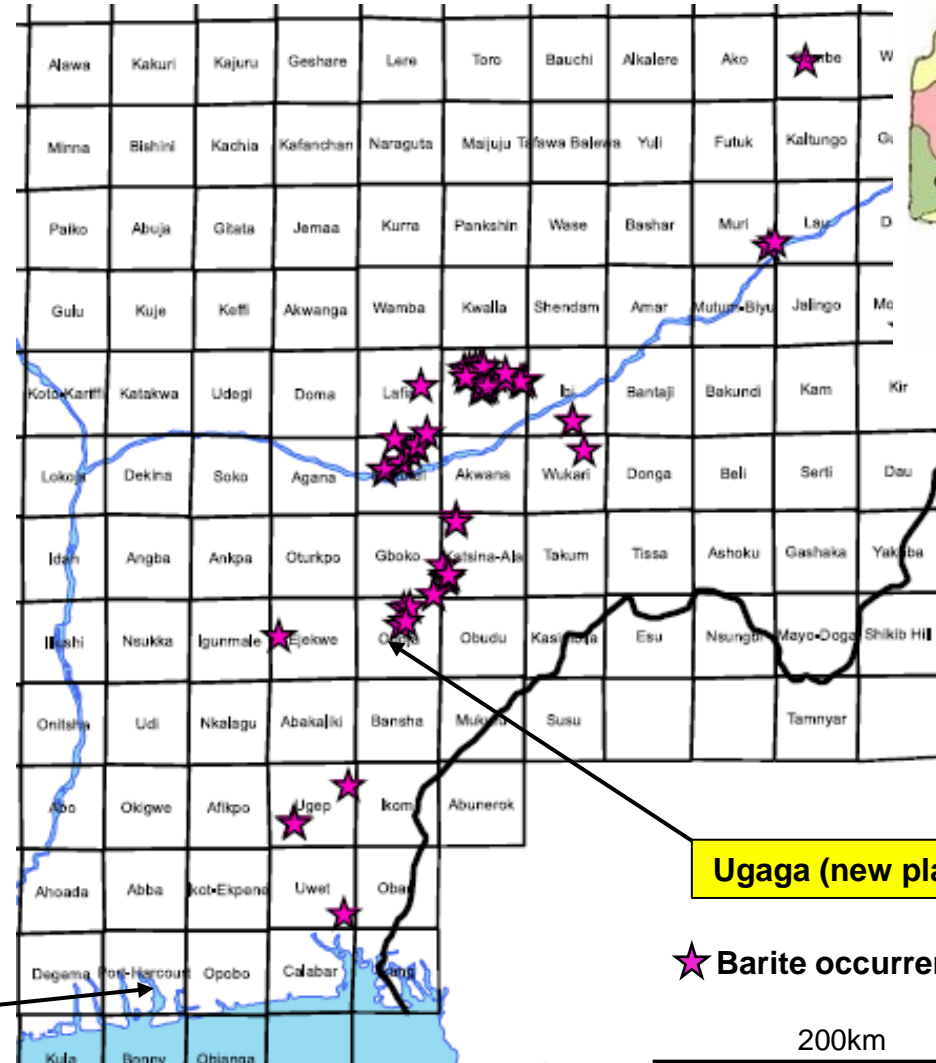
White and Reddish-brown barites in Guma, central Nigeria



A barite mine at Osina, Cross River state, Nigeria

Barite deposits are mainly in the south and east of the country

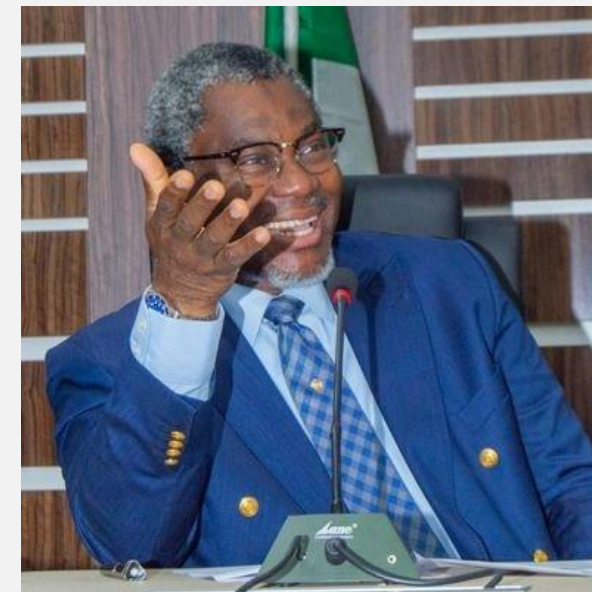
- Large deposits occur within the Benue Trough (Benue, Taraba, Adamawa states) and its fringes to the north (Nasarawa, Plateau and Gombe states) and the southern fringe (Cross River state).
- Barite is found in nine states with an estimated total reserve of 22,298,843 tonnes on an average vein depth of 20 metres and a specific gravity of 4.2.
- Largest reserves of barite occur in the states of Taraba (8.9m tonnes), Cross River (8.6m tonnes), and Nasarawa (3.2m tonnes).
- Active mines are in Cross River, Nasarawa and Taraba states, there is artisanal mine activity across the country.



Source: "Barite as an industrial mineral in Nigeria: occurrence, utilization, challenges and future prospects"
Abraham Ighoro Ebonu *et al* (2021), Dept. of Mat. Sci. & Eng., African Univ. of Science and Technology, Abuja; *Heliyon* 7 (2021) e07365

- For some years now, Nigeria has made several attempts to upgrade its domestic barite production to a higher standard and on a commercial scale to meet market demand.
- Barite is among seven strategic minerals designated for top priority development by the Nigerian government.
- In 2020, trade statistics revealed that Nigeria had imported 4,646 tonnes of barite, almost equally sourced from China and Morocco, at a value of nearly US\$2m.
- Prior to 2020, the only notable large volume imports occurred in 2014 (7,093 tonnes, mostly from China), 2012 (13,678 tonnes, India, USA, UK), 2003 (9,850 tonnes, USA), and 2002 (17,264 tonnes, Morocco, Spain).

Mr Olamilekan Adegbite
Minister of Mines & Steel Development



“When we came into office in 2019, we realised that the oil and gas industry use barite in their oil drilling and they were importing the mineral from Morocco to the tune of 300 million dollars every year.

We also realised that the country has abundance of barite deposits but the problem was that we were not processing it.”

- In an effort to wean itself off imports of barite for its oil and gas drilling industry, Nigeria has attempted to upgrade and reform its domestic barite supply sector.
- In July 2020, Minister of Mines and Steel Development, Olamilekan Adegbite, announced that Nigeria would ban the importation of barite to help the country save on foreign exchange.
- 2021 seemed to witness a strong drive by the Ministry of Mines & Steel Development to bring this mineral development initiative to fruition at long last.
- On 28 October 2021, Adegbite officially launched the “Made in Nigeria Barite” project, with 12 processing companies apparently receiving approval to participate in the scheme.



Barite vein crossing a trench at Dareta, in Zamfara State, north-west Nigeria (Source: Min. Mines & Steel).

- In 2021, the Nigerian Content Development and Monitoring Board (NCDMB) approved four firms for the supply of barite:

Nishan Industries Ltd, Port Harcourt, Rivers State
Delta Prospectors Ltd, Lafia, Nasarawa State
Ana Industries Ltd, Port Harcourt, Rivers State
Baker Hughes Co. Ltd, Onne, Port, Rivers State.

- This scheme includes an “Open Market Place Portal”, which is intended to connect all stakeholders along the barite value chain to a hub that allows for:
 - easy coordination
 - stocking
 - effective costing
 - seamless sale of barite
 - while the Ministry would assume the role of coordinating the entire process.



Nishan Industries, Port Harcourt, Nigeria.

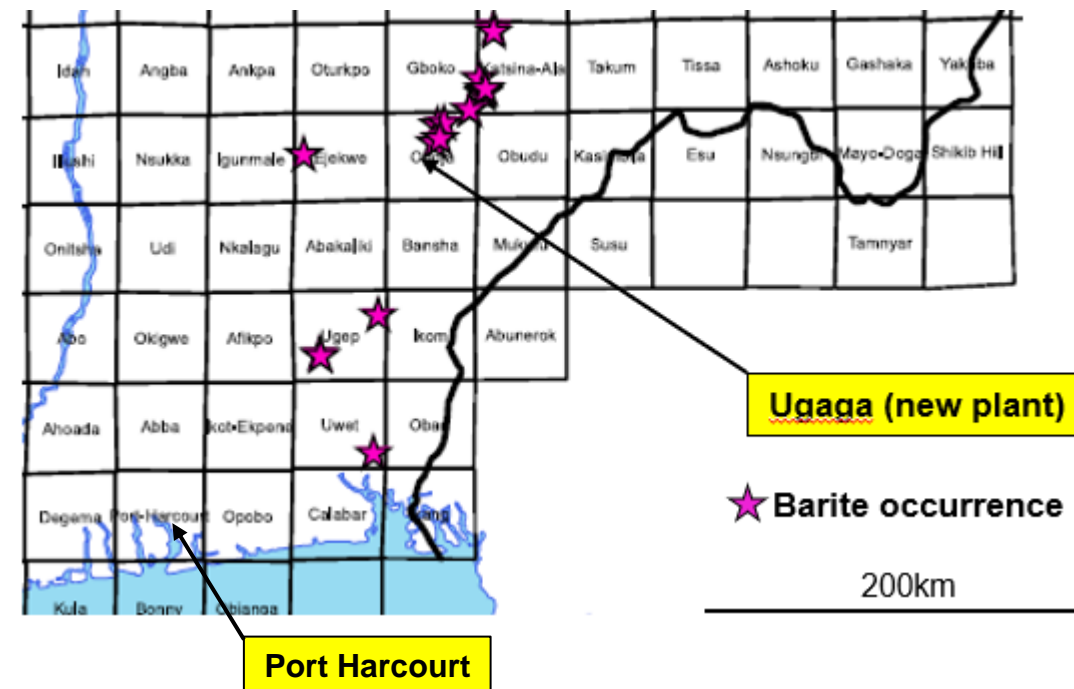


New barite plant

- Central to the project has been development of the “Barite Cluster Processing Plant” at Ugaga, Yala in Cross River state. Located close to barite deposits, raw barite is to be processed in Ugaga to API standard, and then transported 400km to Port Harcourt for sales and export.
- The plant is to be operated on behalf of the government by “experienced and knowledgeable experts”.

Self-sufficient & exports?

- On 1 April 2022, the Nigerian Government was reported as stating that the country had attained self-sufficiency in barite production, and would no longer need to import the mineral from October 2022.
- Adegbite said that Nigerian barite has now met API specifications, and Nigeria will soon start exporting barite to African countries; Ghana and South Africa have been mentioned as potential export markets.



December 2022: Federal Government announced that its ban on barite imports had saved the country US\$300m annually.

April 2023: Objectives reinforced by Ministry of Mines and Steel Development's World Bank-assisted Mineral Sector Support for Economic Diversification Project (MinDiver), tasked to design a roadmap for the development and diversification of industrial minerals



Outgone Project Coordinator of MinDiver Project, Mr. Linus Adie and Project Coordinator, Engr. Sallim Salaam.