



Federal Republic of Nigeria  
**Ministry of Mines & Steel Development**

# CARBONATE ROCKS

## Exploration and Investment Opportunities in Nigeria

### Occurrences

Carbonate rock occurrences are reported in almost all the States across Nigeria. These occurrences are found in the form of limestone, marble (dolomites and calcites) and magnesite.

Extensively studied occurrences are mainly deposits of limestone while studies have also been carried out on marble and magnesite deposits in fewer locations. These deposits and occurrences are in Sokoto, Gombe, Benue, Kogi, Kwara, Edo, Oyo, Ogun and Cross River States. These deposits are supporting active lime and cement plants.

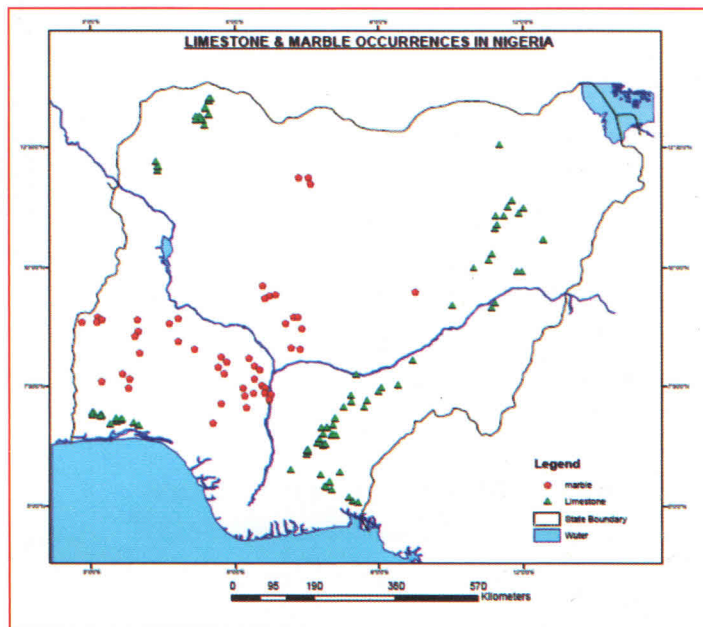
The resource base of the known limestone deposits is about 2.3 trillion tonnes with 568 million tonnes of proven reserves. The resource size of marble (calcitic and dolomitic) has not been adequately quantified, however a resource base of > 300 million tonnes has been estimated in one of the states investigated

### Geological Setting

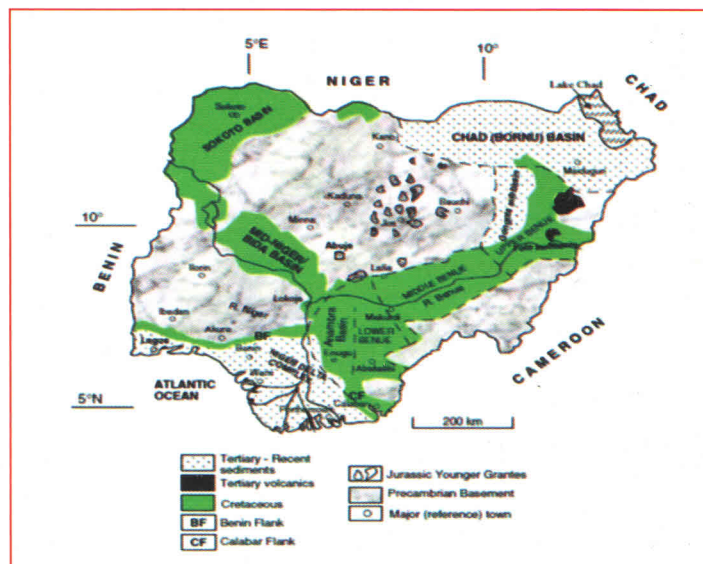
Carbonate deposits occur principally in two modes in Nigeria; Limestone deposits are associated with Cretaceous inland sedimentary Basins in Nigeria. Shallow coastal marine conditions favorable for limestone formation appear to have occurred several times in the geological history of the basins. Deposition of this mineral is related to the transgressive and regressive cycles in the basins which occurred during the opening of the Gulf of Guinea.

Marble deposits occur as lenses within the migmatite-gneiss-schist-quartzite complex as relicts of sedimentary carbonate rocks. These are Upper Proterozoic schist belt metasediments which are normally marked by a general absence of carbonates. Two basic types have been identified in these setting viz: i) Calcitic ii) Dolomitic.

In cases where the proportion of the calcitic type is dominant and found suitable for the Portland cement manufacture, cement plants utilize these raw materials. E.g Ukpilla, Edo State, and Obajana, Kogi State. Other types are used for decorative stone and production of ground rock for industrial uses. (Jakura in Kogi, Kwakuti in FCT, Igbetti in Oyo State, Oreke, Oke Oyan, Isale Osin, Eleja, Owa Kajola, Ibare Gboloko, Babaloma and Lanwa all in Kwara State, Obudu in Cross River State) Large marble deposits occur in the Muro Hills and at Ugya in Toto Local Government Area of Nasarawa State. The deposits in these areas (Muro Hills and Ugya) are being mined sparingly and locally.



Map of Nigeria showing locations of carbonate rock deposits



Simplified Geological Map of Nigeria.



## Uses

Most of the limestone deposits in Nigeria are largely used for cement production, while the marble deposits are used for both cement manufacture and other industrial purposes such as chemicals, agrominerals and dimension stones. Hitherto Nigeria had an installed capacity of 4.03 Million Metric Ton Per Annum (Mmtpa), but was producing only 2 Mmtpa making the nation a net importer of cement to meet the supply deficit. However, the implementation of backward integration policy which mandated importers of cement to show evidence of building cement plants to utilize limestone/calcareous marble deposits in the country before being granted import licenses and other incentives provided the impetus for local entrepreneurs such as Dangote Industries Limited to commence building one of the largest cement plants in Africa. Currently the national demand for cement is about 18.5 Mmtpa; this demand is being met by the eight cement plants in the country.

Nigeria now produces 28 MMTPA and has a total installed production capacity of 45 Mmtpa. Within the last 10 years, government policy has driven Nigeria to become self-sufficient in cement production and now aims to be a net exporter.



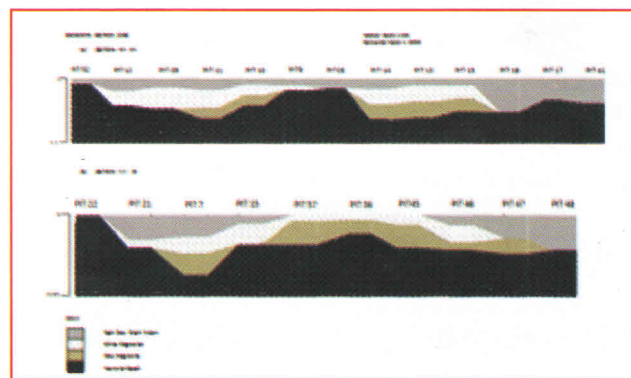
Limestone bed intercalated with shale (red dashed lines) exposure at Yandev quarry, Middle Benue Trough.

## Investment Opportunities

Most of the limestone deposits in Nigeria are largely used for cement production, while the marble deposits are used for both cement manufacture and other industrial purposes such as chemicals, agrominerals and dimension stones. This is borne out of the variability in their chemical composition and industrial applicability.

The Nigerian Geological Survey Agency recently evaluated the marble resources in several localities. Findings established that the marbles are largely high magnesian dolomites (>20 % MgO) with a small proportion of calcitic (<5% MgO) types.

These types of dolomites could be suitable for production of magnesium amongst other uses. China is the largest world producer of magnesium, this it produces using dolomites!



Lithological description and correlation of core logs in Sakasimta magnesite deposit

## Available Data

- Maps
- Geochemical data
- Core logs
- Reports

### Investment opportunities abound in the following areas:

1. Applying for mineral titles with a view of wholly owning the mining rights
2. Partnering with existing title holders for detailed exploration as consultants and specialists
3. Partnering with existing title holders in joint venture agreement to explore, mine and market resources of areas of interest.
4. Legal transaction in commodities won in quarries and operations for export.

### Potential investors are invited to contact the following for further information:

[www.fmmsd.gov.ng](http://www.fmmsd.gov.ng)  
[www.ngsa-ng.org](http://www.ngsa-ng.org)  
[www.miningcadastre.gov.ng](http://www.miningcadastre.gov.ng)  
[dgooffice@ngsa-ng.org](mailto:dgooffice@ngsa-ng.org)  
[events.promotion@fmmsd.gov.ng](mailto:events.promotion@fmmsd.gov.ng)