

STRATEGIES, PROSPECTS AND CONSTRAINTS OF SOLID MINERALS DEVELOPMENT IN NIGERIA

Okechukwu I. N; Musa Muhammed; M. A. Ashiru and G. I. Dada

Abstract

Nigeria has an enormous amount of solid minerals which can be harnessed for our economic well being. These minerals have remained untapped over the years. Because of this, it has not been made available for the development effort of the government. Ineffective mine development dearth of processing machinery, Infrastructural constraint among others are the problems militating against solid minerals development. This paper explores ways of solving this problem by recommending the review and activation of mineral act of 1999, establishment of national mining cadastre, among other issues. This development will provide employment, increase market activities and improve local technologies among other issues. It is also recommended that there should be an open and transparent service to all comers to ensure rapid method of processing and approving all application for operational permits and licenses.

Introduction

Unit recently, there has not been pragmatic effort towards harnessing our abundant solid minerals. With the exception of few countries in Africa, like the Democratic republic of Congo, Sudan and Sierra Leone, Nigeria has been adjudge as the richest in term of minerals resources (world bank 1984).

Despite the fact that all these countries depend on these minerals for their economic well being, yet the contribution of solid minerals sector to Nigeria economy has been less than one percent (1%). In fact, according to the minister of solid minerals development, Nigeria made 891 million dollars last year from proceed in the sector. Apart from 1960's when Nigeria was exporting Tin as part of revenue for the economy, the development of this sector started to depreciate with the discovery of oil in the country. Proceeds from oil sales over the years have been wavering and portending danger to the economy.

Again some section of the country have not guaranted the safety of oil pipeline in their areas, resulting incessant damage to the pipeline and stoppage of Nigeria crude oil export quota by as much as Twenty five percent (25%). This does not augur well for the economy.

There is therefore need to diversity the solid mineral base of the country. There is need to come out from the mono-economic base by looking on how to export, process, and utilize our solid minerals resource for the economic development of the country. All the developed countries of the world are hetero-economic, because they have able to diversify the productive base of their economy. Through the efficient application of these resources, they have been able to raise their real income, gross domestic product on a sustainable basis , thereby alleviating poverty, disease and ignorance. The work of the geological

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survey of Nigeria has led to discovery of Lead, Zinc & Columbite, in plateau, Nasarawa & Kogi; Gold in Niger, Coal in Enugu phosphate in Ogun, Gypsum in Ebonyi e.t.c. (Abdullahi 2003). In fact all the spot in the country have one deposit of mineral or the other as can be seen from the appendix. As has been said, there has been concerted effort at gathering basic information of mineral deposit, with adequate geographical surveys. Utilization of some for the production of industrial materials & products, and marketing, will generate economic benefits for other development programme efforts.

This paper attempt to explore the solid minerals potentials of the country with a view to understanding strategies to harness them. It will also review how best to exploit, manage and achieve our overall national objective, such as provision of employment opportunities industrial and technological development, and in general economic advancement through the developmental of solid minerals.

Nigeria Solid Minerals Resource

It is an obvious fact that Nigeria is endowed with enormous amount of solid minerals. This issue is well known over the years. The extensive exploration and evaluation of mineral deposit in Nigeria from the colonial time to date by the geological survey of Nigeria has revealed mineral deposits across the whole country and has recently been compiled State by State as shown in appendix. However the qualities and quantities have not been properly documented. The only exception is in the iron ore metallic mineral sub-sector. Extensive exploration and evaluation have been carried out on many iron ore deposits in Nigeria. Iron ore deposit are abundant in the schist belt of central Nigeria with high concentration in Kogi state. Over 400 million tones of good quality iron and 2 million tones of high phosphoritic iron are known to exist in this area. Mining of iron ore is currently taking place at Itakpe in Kogi state, and a substantial amount is being supplied to Ajabanoko, Choko-choko, Agbade Okudu. The combined resources in these contiguous deposit are estimate at 170 million tomes (RMRDC 1997). The mining of gold has been taking place in Chanchangai area of Niger state since the start of this century. Nigeria once accounted for 90 percent of world production of columbite. This activity depreciated appreciably when oil was discovered. Prior to the oil boom, Tin mining was a major revenue and foreign exchange earner for the country. During the era of its peak production, over 12,000 tonnes of the metallic ore was exported annually. The mine made of foreign and indigenou people operation on the Jos plateau. By the time a comprehensive study is done on the solid mineral sector in the country, there is cause to rejoice at the tremendous impact it will have on the economy. The aerial survey embarked upon recently by the solid minerals sector will however provide knowledge about their deposit and quality.

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Problem of the Solid Minerals Sector

So many factors have provided adverse conditions to the development of solid minerals sector of the economy. They include improper and inadequate exploration under utilization, and ineffective exploration of the solid mineral.

Government over the years through its agencies have been saddled with the responsibility of surveying for the deposits of minerals in the country. Even though they have made tremendous effort, but the engine of growth of any economy in the modern era is being driven by the private sector. There has been limited involvement of private sector in solid mineral development.

Another major problem is mine development. Government over the years have channeled all their energy to the development of the oil sector. There were no incentives to the development of mining sector. The two mining operation of government, the coal corporation as well as the mining corporation were not able to adapt to challenge of new developments within the mining sector over that period that oil dominated our national life.

The dearth of processing machinery present another problem. The present machines and equipment used locally in processing our mineral resources are either imported or fabricated locally. The imported ones are very expensive and their availabilities are not easily guaranteed. The locally fabricated one are not fully operationally reliable due to the fact that there were not fundamentally designed here to suit local environment, but were rather copied from imported technology. There is therefore need to develop indigenous technology capability for processing local mineral resources. Indigenous technology is central to many manufacturing and consequently to the development of any economy. It is also critical to the development and utilization of local recourse endowment. This technology should extend to even the building of plants to process these materials.

Another problem to solid minerals development in the country is infrastructure. The major problem to meaningful industrialization in Nigeria is lack of infrastructural facilities like electricity, water & good road network. Minerals processing plants needs enormous amount of energy in their processing requirement. The heat needed by machines for drying calcinations, briquetting, pelletising, nodulising are got from electricity. There will not be meaningful processing if there is no adequate and constant supply of electricity. The attempts over the years to generate and distribute enough electricity for the countries needs have not met the requirement.

The issue of markets for processed minerals is always difficult to come by. Many imported minerals which are superior to ours, dominate the market, thus making the presence of local minerals unattractive. However, these minerals can be exported to lesser competitive markets in the Africa sub region.

Organized research have not been encourage to help expedite the development of mineral resources. Many researches either by private individuals, Universities or corporate bodies receive little or no patronage. This has resulted in the exodus of research and support staff to greener pasture abroad. Under

funding and mismanagement of funds meant for researches has also contributed to the lull in research activities.

Strategies for Solid Minerals Development in Nigeria

There should be an urgent review and activation of the mineral and mining act of 1999, this will ensure the security of mineral right tenure with explicit and transparent criteria for granting licenses and leases. There should be establishment of the national mining cadastre and mineral title registry which would provide a transparent service to first come first serve tamper proof system which will ensure a rapid method of processing and approving all application for operational permits and licenses. There should also be license revalidation exercise to identify holders of genuine minerals titles, determine obligation of such holders to government as well as resolve cases of over lapping title and eliminate incidents of illegal miners.

Apart from these issues, several other factors will also stimulate the mining sector. The diversity of the Nigeria metallic and non metallic minerals will provide willing investors the confidence they need in their operations. International investors will be prepared to take risk, once there is favourable policy frame work.

According to Dr Oby Ezekwesili, former minister of solid minerals some of them would take advantage of the new legislation that encourages private-sector participation in power generation to solve their energy needs. However, government would be strong to policy and matter of regulatory enforcement in kind of way that would not stultify the activities of the private sector. In that sense, the private sector which is best wired to produce the creativity and innovativeness and the kind of capital and technology that would develop this sector, should make the profit while paying government the revenue accruing to them (Ezekwesli, 2004).

There is also available in the international market, low cost minerals production process which if properly sourced and assemble will minimize production cost thereby ameliorating the falling price of solid minerals. World financing for mining is now readily available through several agencies. These include the multilateral investment guarantee agency (MIGA), the international bank for reconstruction and development (IBRD), the international finance corporation which funds mostly private sector activities and the international development association.

Another strategy that should be employed in the development of solid mineral sector is the utilization of effective indigenous technology. The inability to recognize fundamental issues concerning home based or indigenous technologies resulted in the past and even now in the establishment of new enterprises based on imported technologies for which the country has no resource or research base. This imported foreign technologies have therefore tended to be a substitute for our indigenous technologies practices for decades by our forefathers or recently developed by our local scientific research and development

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institutions. In some cases where our local research and scientific research institutes have successfully developed the type of technology which our local enterprises might need, there is always a strong tendency to use foreign version of technology instead, usually on the ground that it is more likely to work than the local one. It is worthy to note that local technologies perform better in processing our local raw materials than their foreign counterparts (Odigboh, 2001). We therefore must note that attaining and maintaining our self reliance requires the indigenous production of machinery equipment that would revolutionize the utilization of solid minerals in Nigeria. Therefore, developing a strong science and technology policy will enhance the development of effective indigenous engineering and technology which will boost the development of our solid mineral (Mabounje, 1980). Small scale industries should be encouraged to develop substantially, in order to utilize our natural resources.

With appropriate entrepreneurial motivation, small scale industries offers ample opportunities for development in strategic areas of technology. They provide for greater manufacturing value added and generate more employment for the development of solid minerals. (Totor 2001).

Prospects of solid Minerals Resources in Nigeria

Nigeria is endowed highly with several minerals that includes coal, gold, tantalite, bitumen, galena, shalerite etc. These minerals have transformed the economic landscape of some countries. These minerals have to be mined in order to contribute significantly to the economy. Mining as an activity has provided a vash array of minerals including construction minerals over the years. Though mining have not developed substantially in the country, but its industry share of the global industrial product of 30,000 million dollars is estimated to be around 6 percent according to some studies (Federal Ministry of Finance, 2004). The informal mining sector or small mining is an important component of the mining industry, and contribute significantly to global employment generation of well over 13 million. The market for phosphate fertilizer has shown appreciation with over 3 percent increase in phosphate rock consumption since 1998. Also, the market for gypsum has been favourable due to the strong expansion in the construction industry. The world output for fluorspar also increased in 2001 by 30 percent, reflecting an increase in demand for acid grade fluorspar from chemical and aluminum industry. However, the future of the mineral industry globally is still uncertain and would continue to fluctuate with advent of new minerals, new markets, substitutes and environmental considerations.

Conclusion

Our minerals resources have been proven to be among the biggest in Africa. Virtually every part of the country has one minerals deposit or the other. Yet the contributions of this sector to the economy over the years has been less than one percent (1%). These untapped resources have been allowed to decay due to the dependence of the economy on oil. Apart from the 1960's when tin and

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columbite used to be the main stay of our economy, not much have been gotten from the sector. This issue need to be reconsidered due to the wavering nature of oil prices in the international market. It is being considered that in the nearest future, oil resources apart from depleting in output, may have a debilitating effect on the economy, in case of gang up of consumer cartels. The overbearing attitude of some section of the country, especially the oil producing states of the Niger Delta which have in recent times made oil producing sales unreliable to the level of stopping oil production by as much as 25 percent, calls for diversification of the economy. The reforms of the Federal government in this sector are very commendable. This has attracted the private sector with their innovativeness and financial capability to this sector. What is needed is a favourable business climate which is to be reflected in the right mining policies, and incentives to avoid stultifying the activities of the private sector, and at the same time enhancing due returns from them to the economy.

The constraints which include infrastructure, appropriate technology, research and development have been taken care of. With the reforms in the power sector, investors can now bring their own power source to sustain their activities. Also, these days modern technologies provided methods and means of mining in economical ways, which includes the incorporation of indigenous research and technological capabilities. This will augur well to the development of solid minerals sector in the country.

Recommendation

1. There should be an urgent review of the minerals and mining act of 1999 to ensure the security of mineral right tenure
2. There should be establishment of mineral title registry to ensure a rapid method of approving processing and approving all permits.
3. The state of infrastructural development has to be stepped up to meet the energy demand in this sector.
4. Foreigners with the right technology and finance should be allowed unimpeded access into this sector.

Appendix: Nigeria’s solid mineral, resources.

Nigeria’s solid Mineral Resources

State	Minerals resources
Abia	Glas sand, shale, limestone, bentonite, clay, salt, phosphate kaolin, gypsum, granite, marble lignite, bentonite black marble.
Adamawa	Granite, barite, trona, salt, clay, coal, gypsum, limestone, uranium, kaolin, ilminite, watron, marble, manganesite, laterite, clay
Akwa Ibom	Clay, silica sand, granites, limestone, kaolin, salt, coal
Anambra	Iron ore, clay, kaolin, sand stone, lignite pyrite laterite

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Bauchi	Kaolin, granite, trona gypsum, cassiterite mica, clay, galena, tantalite, iron ore, gemstones, shalarite, zinc, lead etc
Bayelsa	Clay, silica sand, glass sand, salt
Benue	Limestone, brine (salt solution), lead-zinc, ore, feldspar, clay, bentonite, kaolin, gypsum, anhydrite, calcium, sulphate, glass sand brick clay, crushed and dimension stone. etc
Benue cont.	
Borno	Silica sand, natural salt, sapphire, topaz, mica, quartz, gypsum, uranium, iron ore, alluvial, magnesite, feldspar, granite.etc
Cross River	Salt, limestone, coal, mica, manganese, ilmenite, gold, quartz, glass sand tourmaline, kaolin, tin ore. etc.
Delta	Lignite, kaolin, silica sand, laterite clay, gravel, ball clay, crude granite, bauxite, river sand, spring
Ebonyi	Lead-zinc, brine, limestone, gypsum, marble, laterite galena, ball clay, pyrite, quartz, fluor spar black marble, shale.
Kebbi	Kaolin, bauxite, gold, feldspar, manganese, salt, sodium nitrate, limestone, iron ore, magnetic, mica, quartz
Kogi	Clay, marble granite, limestone, feldspar, dolomite, iron ore, coal, ornamental stones, columbite, tantalite. Etc
Kwara	Clay, sand, kaolin, dolomite, marble, granite, feldspar, quartz, gold, talc, tantalite, cassiterite, limestone
Lagos	Clay, laterite, sharp sand, gravel, silica sand, bitumen
Nasarawa	Cassiterite gemstone (amethyst, aquamarine, beryl, emerald, garnet, sapphire, topaz), tin clay, barite, etc.
Niger	Kaolin, limestone, ball clay, granite, silica sand, graphite, iron ore, red clay, talc, gold, marble, dolomite, columbite, copper, galena,
Ogun	Kaolin, feldspar, silica, sand mica, granite, clay, quartz, glass sand, phosphate, gypsum, tar, sand
Ondo	Granite, clay, ball clay, charnokite, gabbro, tar sand, petroleum, salt, quartz, kaolin, limestone.
Osun	Laterite, clay, sand, gravel, kaolin, gold, feldspar, talc, mica, sand, aquamarine, granite, clay, dolomite,
Oyo	Laterite, tantalum, quartz, iron ore, kaolin, silimanite, talc, marble, gemstones, tourmaline, dolomite, ilmenite, limestone, granite, feldspar
Plateau	Columbite clay, kaolin, cassiterite, gemstone, zircon, ilmenite, clay, monazite, mica, granite, abrasive, dolomite, germanium, tin, etc
Plateau cont.	
Sokoto	Silica sand, clay, salt, phosphate, gypsum, limestone, kaolin, laterite, potash, granite
Taraba	Graphite, feldspar, iron ore, garnet, glassy quartz, muscovite,

	toumslin, flowspa, sapphire, barites, galena, gypsum, limestone, brine, calcite, bauxite, magnete, granite.
Edo	Charnokite, copper, gold, marble, granite, kaolin, limestone, dolomite, feldspar, bentionte, clay, mineral oil, silica sand, diorite, lignite.
Ekiti	Granite, charnokite, clay, quartzite, kaolin, mica, quartz, gemstone, bauxite, feldspar, tin ore, cassetrite, columbite, tantalite, lignite, limestone, muscorite.
Enugu	Laterite, coal, silica sand, pyrite, gypsum, iron ore, ball clay, copper, bauxite, spring water, plass sand, natural glass.
Gombe	Graphite, kaolin, limestone, silica sand, uranium, coal, halite, gypsum, bentonite, clay, granite, diatomite, calcite, mica
Imo	Kaolin, bentonitic clay, clay, bentonite, sand, limestone, lead/zinc ore, gypsum lignite
Imo cont.	
Jigawa	Glass sand, granite, columbite, kaolijn, red iron ore, smoky quartz, clay, cassetrite, marble, silica sand, potash, limestone, talc.
Kaduna	Muscobite, graphite, clay, granite, quartzite, zircon, gold, manganese, silimenite, ferrous oxide, quarry sand.
Kano	Clay, casseterites, columbites, granite, ilmenite, lead/zinc ore, kaolin, phyrochlorite, gemstone. etc.
Katsina	Gold, manganese, laterite, precious stone (amethystemerald), mica, quartz, feldspar, kaolin, gypsum, silimanite. etc.

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