

Problems and Strategies for Exploration of Solid Mineral Resources in Nigeria

Micah Elton Ezekiel Mike¹, Ibitomi Taiwo²

¹Department of Accounting, Air Force Institute of Technology, Kaduna

²Department of Business Administration, Nasarawa State University, Keffi, Nasarawa State

Abstract: Evidence revealed that mineral resources are available in large quantities and distributed across the country but the strategies for exploration has been the major obstacles to the success in Nigeria. This paper therefore, studies the problem and strategies for exploration of solid mineral resources in Nigeria. The objectives of the study is to examine the problems of solid mineral in Nigeria, the strategies for exploration of solid mineral in Nigeria and the way to attract investors to the sector for optimal exploration. Based on the findings of this study, the problems of solid minerals in Nigeria are inadequate basic infrastructural, illegal mining, unfavorable laws in the sector, high capital outlay, inadequate professional in the sector and many more. The strategies that can be used for exploration of solid mineral in Nigeria should includes resource control policy, exploration of mineral resources should be private sector, the tenure of the private miners should be secured and the establishment of fund to protect the environment should be provided. The study therefore conclude that there are many problems causing the hindrance of the progress of the sector in generating revenue to the country but the strategies mentioned in this study can be used to achieve success in the sector and make it viable for investors to come in and develop the sector for optimal benefit to the nation at large.

Keyword: Solid Mineral, Mining, Mineral Resources, Investors.

I. INTRODUCTION

The discovery of oil in Nigeria has led to the neglect of a sector like solid mineral that has the capacity to generate large revenue, foreign exchange and employment for the nation through its value chain. Nigeria today is faced with economic challenges such as instability in the revenue from crude oil, high unemployment rate and high incidence of poverty. For the economy to overcome these problems, rapid growth as well as equal distribution of income is important. The present administration of president Mohammed Buhari that came in to power in year 2015 promised Nigerian to diversify the economy of the country from oil driving and to bring back the glory of this country to its former by looking inward to agriculture and solid minerals as a means to survive the economy in case of recession and drop in the price of oil and also to boost the economy and make it viable among the comity of nations in the world. It is on this note, which this paper intends to fill the gap yet uncovered in order to determine the problems and the strategies of exploration of solid mineral in Nigeria due to the neglect of the sector by the present administration despite of the campaign promise to over 180 millions Nigerian.

Available data revealed that Nigeria has large deposit of solid minerals which are distributed across the country. However, many of these resources are not explored. Geological survey of 1987 identified thirty- seven (87) solid minerals in Nigeria but with the creation of Ministry of Solid Minerals Development (MSMD) in 1995 there was improvement geological data in Nigeria (Onyemaobi, 2012).

The data given by MSMD will be adopted in this study. Despite the number and quantity of solid minerals in Nigeria, mining, processing and marketing of these resources have been low. MSMD (2013) stated that only thirteen (13) solid minerals have been mined. Among these are coal, kaolin, baryte, limestone, dolomite, feldspar, glass sand, gemstones, gold, iron minerals. The remaining twenty one- are not mined. The presence of mineral resources is not sufficient for investment in mining and processing of such mineral. The sufficient condition for investment into such mineral is the volume of such mineral. It is important to consider whether such mineral is available in large quantity and sufficient to justify the huge capital requirement of mining, long gestation period of investment and ability to accelerate economic growth (Danmola & Abba, 2016).

Evidence revealed that mineral resources are available in large quantities and distributed across the country. The distribution of the minerals and volumes based on Federal Ministry of Solid Mineral Development (2013) are as follows:

- (i) *Bitumen:* The total deposit of bitumen in Nigeria is about 45 billion tones. This value doubled the total reserve of crude oil in the country. Despite this, it is surprising that bitumen is still imported into the country for construction purposes (Danmola & Abba, 2016)
- (ii) *Coal:* One outstanding feature of Nigeria coal is that its quality is high due to its low ash and sulfur content. Therefore, it does not lead to environmental pollution. About 2.8 billion tons of coal has been found in seventeen (17) different locations and above than seven hundred (700) million tons reserve is known.
- (iii) *Rock salt:* These consist of salt that are obtained from the rock. They include table salt, chlorine, sodium bicarbonate, hydrogen, among others.
- (iv) *Iron ore:* This has been regarded as having the capacity to generate substantial foreign exchange for

the Nigeria. Above 2.5 billion of iron ore have been found in Nigeria. The locations of iron ore deposit in Nigeria include Kogi, Enugu, Niger, Zamfara and Kaduna states. The Federal Government set up rolling mills in Itakpe (Kogi state), Aladja, Oshogbo, Jos and Katsina. However, it is only Itakpe rolling mill that is presently operating. This shows that the potential of iron ore has not been fully exploited (Danmola & Abba, 2016).

- i) *Talc*: This has been described as one the minerals that has several uses in the world. More than 100 billion tons of talc has been found in places like Kwara, Ogun, Taraba, Kogi, and Kaduna. There are only two medium size talc processing plants currently operating in Nigeria. The country has not derived significant benefit from talc so far.
- ii) *Gold*: Large quantity of gold has been discovered in Western part of Nigeria. However, gold exploitation in Nigeria is not carried out on a large scale. Presently, gold mining of gold is carried out on a small scale.
- iii) *Gemstones*: This has been a recognized as one of the areas where the country can utilize to achieve of diversification of the economy. Gemstone is found in northern part of the country, to be specific in Plateau, Kaduna and Bauchi states. Examples of gemstone are sapphire, ruby, aquamarines emerald, and so on.
- iv) *Kaolin*: Above three billion quantity of kaolin clay has been discovered in Nigeria. This shows that the country has large quantity of Kaolin that can be exploited for growth and development of the economy.

Despite of all these mineral resources deposited in the country, there are problems with respect to the exploration in Nigeria and the strategies in place for the exploration have not been helpful for our country. Due to the fact that Nigeria is looking at the right ways to increase their revenue at this COVID 19 period, it is important to look at these problems limiting the success of the sector and bring out strategies that will help in turnaround of the sector and increase the revenue for Nigeria.

II. LITERATURE REVIEW

Solid Minerals and Mining Sector's Impact on Related Sectors of the Nigerian Economy

The impact of solid mineral on Nigeria economy has can be grouped as direct and indirect. Solid mineral contribute directly to GDP through its exploration and processing. In recent time the direct contribution of GDP has been low (Olumide, Akongwale & Udefuna, 2018). Olumide *et al* (2018) argued further that although in recent times the direct

contribution of solid mineral resources to GDP is low, the contribution to the economy increases when there indirect impact on some important sector of the economy such as building, construction, real estate and cement is taken into consideration.

The building, construction, real estate and cement industries depend on the solid mineral sectors for raw material. Therefore, expansion in exploitation of the sector will have positive impact on their growth. Since building, construction, real estate and cement industries are one of the key sectors that are used as determining the state of an economy. Specifically, the overall performance of the economy is judged through the activities that take in building, real estate, construction and cement industries. Stated in another way, a stable expansion in the output of these sectors shows that the economy is experiencing boom, while a decline reveals a slowdown in economic activities (recession). Due to its multiplier effect on sectors like transportation, building materials, agriculture and finance, construction industry has been considered as a critical sector (Olumide, Akongwale & Udefuna, 2018).

Solid Mineral Development and Economic Diversification

Evidence reveals that Nigeria is naturally endowed with large number of solid minerals in mineral in commercial quantity. These resources are distributed across the country. Nevertheless, only a few has been tapped and production has been carried out by small scale miners (Olumide, Akongwale & Udefuna, 2018).

Before the discovery of crude oil in early 1970, solid mineral was second to agriculture in terms of contribution to generation of foreign exchange. The contribution of the sector to GDP was also significant. For instance, its contribution to GDP in 1970 was 10%. However, the oil boom led to the neglect of solid mineral and this reduced the contribution of solid mineral to export earnings (Richardson, 2019)

Another factor that has been found to be responsible for negative contribution of solid minerals to income generated from export is indigenization policy. In 1972, the Federal Government executed indigenization policy which makes many foreign multinational corporations that were exploiting solid minerals to leave the country. This policy has increased the decline in contribution of the sub-sector to foreign exchange generation. However, the sector is gradually recovering as a result of the Federal Government initiatives to promote growth (Adeniyi, 2013).

The demand for mineral has risen for twenty years now. This has been connected to the growth of some economies like Latin America and Asia and also to the increase in the world's population (David, 2017). Presently, the potential of solid mineral in Nigeria has not been fully harnessed due to over-reliance on income from crude oil which changes from time to time as a result instability in the price of oil in world market. Given the rise in international commodities prices and

the benefits the economy can derive from the development of solid mineral sector, there is the need for the government to formulate policies that will promote exploitation and processing of solid mineral whose price has been found to be more stable in the world market than crude oil.

Problems Facing Solid Minerals Industry

Literature review revealed that the share of solid mineral in Nigeria GDP and in export earnings before the oil boom of 1970 were significant. The price of solid mineral is stable in the world market yet the potentials of the sector have not been fully utilized. It is therefore, important to examine the challenges confronting the sector. Oruonye and Ahmed (2018) identified the following:

Inadequate Basic Infrastructure: Basic infrastructures such as good roads, electricity and communication facilities enhance exploration of solid minerals and hence attract investors. However, these infrastructures are not adequate in most places where these minerals are located.

High Capital Outlay: The capital needed for mining of solid minerals is high and may be not be affordable of many local investors. Besides specialized financial institution for the development of solid mineral are not available. Therefore local entrepreneurs find it difficult to raise fund for financing such type of industry. There is also inadequate human capital needed for exploitation of mineral resources.

Illegal Mining: Illegal mining occurs when land has no mining name; the land is not under any mining brand name; under a mining name but in another mining name. The tendency of illegal mining is high in the country because due to the fact that the resources are scattered across the country. Illegal exploration has been found to be common among mining workers who have lost their jobs, people living in places where there are mineral deposits who practice such act in order to make a living, unemployed who are waiting for jobs, government workers who engage because of monetary motives, among others. Illegal mining has a lot of negative effects. These include degradation of the environment; improper mining may have negative effect on health, reduction in government revenue and lack of order and state of lawlessness in the minefields.

Unfavorable Laws: Laws governing mining of minerals in Nigeria include land act use of 1978 as amended in 1993; the petroleum act of 1969 as amended in 1991 and the national waterways decree of 1997. These laws do not facilitate the development of the sector. The laws identified the Federal Government as the only owner of land and all mineral resources in the country. The laws stated above affect mining activities negatively and slowdown the growth of the sector. Over involvement of government in mining activities makes the sector to be less efficient. The sector is characterized by inefficiencies such as inadequate implementation of policies, corruption, hoarding, wastages, among others (Danmola *et.al.* 2016).

The problem confronting solid mineral sector is to increase its production in order to meet local domestic demand and successfully enter into changing markets in developed and newly industrialized nations. There is also the need to increase the value of the products of the sector. This will help to increase the foreign exchange generated in the country thereby making diversification a reality (Oruonye & Ahmed, 2018)

Some deposits of mineral may not facilitate investment by large scale miner. There are deposits whose volume would not justify the amount of capital and equipment needed for exploiting such amount of mineral by large scale investors. Such deposits can only attract small scale miners that can operate with small amount of funds for facilitating investment in equipment and overheads.

Strategies for the Exploration of Solid Mineral Resources in Nigeria

For effective and efficient mining of solid mineral resources, it is necessary to adopt effective strategies. Abba (2016) recognized four methods: resource control policy, exploration of mineral and resources should be private sector, the tenure of the private miners should be secured and the establishment of fund to protect the environment. The current policy that is being implemented in the country is the principle of derivation. Abba argued that this policy is not fair to the states, stating that the policy is beneficial to the major ethnic group at the disadvantage of the minor ones where the resources are being mined. Resource control policy will enable the states to have control over these resources and payment of royalties made to the federal government. Danmola stated that the policy of resource control will makes the state to depend on internal generated revenue instead of relying too much on the allocation from the federal government.

Another method strategy that can be employed involves encouraging competition in the solid mineral industry. This can be achieved when private firms control production even when ownership is retained by the federal government. Abba (2016) stated that the federal government should allow private sector to operate while government regulate their operation, by ensuring that the mining companies comply with the policies and regulations of solid mining.

In addition, laws that will protect the tenure of leases granted to the private operators should be formulated. Mining license should not be allocated arbitrarily. Moreover, to accelerate the mining of solid minerals at different communities, mining firms should development of their host communities. Also, agreement on how to protect the environment by the firms should be entered into. This will help to minimize disputes between mining companies and their host communities' thereby encouraging smooth exploration of resources (Danmola & Abba, 2016).

Finally, there is the need for mobilization of fund for protection of the environment. This will serve as a precaution against any unpredictable environmental problem that may occur in the process of mining (Danmola & Abba, 2016).

Criteria For Attracting Investors Into Nigeria Mineral Resources

The solid mineral industry, being a unique industry, has some factors that attract investors to it in a particular country. The factors are as follows:

Solid mineral sector has some unique characteristics that distinguish it from other sectors most especially in developing economies. Successful mining requires high amount of capital, high technical know-how, standard machines and equipment and other which inputs which may not be afforded by many local entrepreneurs. Besides, the maturity period investment in solid mineral is long. This discourages local investors from investing in such sector. Based on the above there is the need to develop some standards that can help to attract foreign investors into the sector, especially, multinational companies. Alfred (2014) identified the following criteria:

a. Geological Endowment

Data on the number and volume of solid minerals in Nigeria should be updated. This is based on the fact that foreign investors are attracted to a country where they are sure that large deposit of solid mineral exists. The high number of foreign mining companies in countries like Botswana, Ghana, Peru, Australia, Canada, and United States of America, among others has been attributed to among other factors the availability of adequate data on solid minerals (World Bank, 2010).

b. Political Instability

It has been found that one of the major factors that attract foreign investors into any sector in a country is peace and stability of the political system. This is very important when the specific investment involved is capital intensive and has long maturity period. For investors to maximize the returns from their investment, stable political environment is necessary. For instance, there was withdrawal of investment from solid mineral sector by foreigners during the civil war

c. Legislative and Regulatory Framework

The attraction of investors requires that the laws and regulations guiding mining of solid mineral be favorable, in other words the procedures of how mineral rights are being granted, mining code, the mode of transferring mineral rights, among others must encourage investors into the sector. Investors are usually discouraged when the legislation and regulations guiding exploration are not favorable to them (Odiase, 2016).

d. Means of Settling Disputes

One cannot cancel out the possibility of dispute between the host country and a foreign investor. This is as a result of the fact that exploitation of solid mineral takes long time. There should be straightforward and fair means of settling such disputes.

The four techniques that can be employed include settlement by local courts, international courts, local arbitration or international arbitration.

International arbitration has been the most popular method used to settle disputes pertaining to mineral disagreement all over the world. Examples of international arbitrators are International Centre for Settlement of Investment Disputes (ICSID), the Multilateral Investment Guarantee Agency (MIGA). These organizations are branches of World Bank (David, 2016).

e. Institutional Framework

Another factor that can attract investors into solid mineral sector is the institutional framework. There should be an efficient government departments and agencies in charge of solid mineral mining affairs. For example, in Nigeria, the Ministry of Solid Minerals Development is responsible for administration and implementation of solid mineral mining policies

III. SUMMARY AND CONCLUSION

Solid mineral sector has some unique characteristics that distinguish it from other sectors most especially in developing economies like Nigeria. Successful mining requires high amount of capital, high technical know-how, standard machines and equipment and other which inputs which may not be afforded by many local entrepreneurs, this serves as a hindrance to the development of the sector in Nigeria. Besides, the maturity period investment in solid mineral is long and such most investors are scared to invest in solid mineral and also discourage local investors from investing in such sector. Therefore, based on the problems of the sector in Nigeria, there is the need to develop some standards that can help to attract foreign investors into the sector, especially, multinational companies. The study therefore stated some of the strategies that can help in having head way in the sector and also contributes positively to the development of the sector.

For effective and efficient mining of solid mineral resources, it is necessary to adopt effective strategies such strategies as mentioned in the study are resource control policy, exploration of mineral and resources should be private sector, the tenure of the private miners should be secured and the establishment of fund to protect the environment. It is seen that the current policy that is being implemented in the country is the principle of derivation which are not appropriate to the states in the country. Resource control policy will enable the states to have control over these

resources and payment of royalties made to the federal government. It will also make the state of the federation to depend on internal generated revenue instead of relying too much on the allocation from the federal government. Another method strategy that can be employed involves encouraging competition in the solid mineral industry. This can be achieved when private firms control production even when ownership is retained by the federal government. In addition, the strategies states that laws that will protect the tenure of leases granted to the private operators should be formulated. Mining license should not be allocated arbitrarily. In order to ensure development at the grass root and accelerate the mining of solid minerals at different communities, mining firms should help in the development of their host communities. Also, agreement on how to protect the environment by the firms should be entered into. This will help to minimize disputes between mining companies and their host communities' thereby encouraging smooth exploration of resources at all time. Finally, strategies for mobilization of fund for protection of the environment is of necessity as this will serve as a precaution against any unpredictable environmental problem that may occur in the process of mining in the country.

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