

Visual Arts, Identity and Negotiation for African Development

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Abstract

The mineral deposits in Nigeria and the development of Nigeria are highly considered the fundamental resources for any meaningful Socio-Economic and Technological development in Nigeria. This paper will therefore highlight the roles and importance of these Solid Mineral resources for Nigerian Development. The visual Arts will visualize different Solid Mineral resources exist in Nigeria laying waste without utilization. Through Visual Arts will be able to identify the solid mineral differently in Nigeria, their uses and their functions clearly from the ground e.g. quartz, felspar, marble, kaolin, ball-clay, glass-sound, iron-ore, baryte, tin and some many here. Through the Visual Arts the only source to identify and negotiate these different solid minerals, sourced and processed so that they will synergize one another to interact and form what that will bring into societal need for humanity and thus Nigerian Development will be practically analyzed here.

Introduction

Shortly after Nigeria's independence in 1960, the country's economy had been solely dependent on crude oil as the main foreign exchange earner. During the oil boom era between 1970 and 1980 there was a complete negligence of the industrial sector by the government, private sectors and individuals. Many of us can still remember the days of the groundnut pyramids, hides and skin, cotton, and other produce that funded the economy of Nigeria, and Nigerian Development, especially the booming textile factories of Kakuri Kaduna and Vegetable oil Mills of Kano that were all agro-allied manufacturing outlets using cotton and groundnuts seeds. These industries accounted for about 80% of employment in Nigeria. They are today collapsed. The complete collapse of these industries had placed Nigeria as the most economically

backward and made them have highest level of poverty and even labeled parasitic nations because of the total attention given to oil and without any thought of any other sector of the economy. Nigerians were and still highly endowed with enormous solid minerals and chains of Agro-Eco-Systems need to enjoy the glory of investment in exploration and exploitation of these natural resources which are completely neglected.

Now with the realization of the fact that oil in Nigeria today can no longer support the National Economy, hence the need to venture into other areas of investment in order to strengthen the dwindling fortunes in the national economy, calls for full attention of these natural resources. The solid minerals when they are sourced will certainly give a face lift to the economy as a source of revenue generation in Nigerian Development. More importantly is where and when Federal and State Government will step up courageously to organize Nigerian Youths into groups in each State and Local Government Areas and to provide them with Tractors and Fertilizers in good time for these chains of Agro Eco-Systems that will promote the economy of these countries will be a great to the development.

Nasarawa State, popularly acclaimed the home of “Solid Minerals” has natural resources like tourism potential and solid minerals with which it is potentially endowed laying fallow without any efforts to invest in these sectors. This negligence of the industrial sector in Nigeria, Manzuche, S. (2006), reveals that it has a severe consequence on the nation's economy which led to the introduction of the Structural Adjustment Programme (S.A.P) by Federal Government during Gen. Ibrahim Badamasi Babangida's Regime (1985-93) as a result of drastic and sudden decline in the oil sale with all its revenue base, faced employment scheme out in the country up to date leaving a dense of populated graduates unemployed causing untold-hardships to individual and the nation today. These resultant effects led to the awareness diversion of attention to the industrial sector, hitherto neglected by a developing country like Nigeria.

In order to revamp the severe dwindling of nation's economy the paper is calling for emphasis in Nigeria to be shifted to the **NON-OIL SECTOR**, to stress to non-oil sector. Visual and Creative Arts will lead the country

to the discovery of new boom in: -

- ❖ Solid Minerals Resources
- ❖ the role of Solid Minerals resources to a new Market direction
- ❖ Technological and economic development through Solid Minerals' resources.
- ❖ The employment scheme re-opens and to become into force for Nigerian Development will be properly articulate the visual art dimension as further discussed below:

Solid Mineral Resources in Nigeria Development

A survey of solid minerals in Nigeria showed that Nigeria and Africa is indeed endowed with vast Solid Mineral resources. That these Solid Mineral resources can be identified, exploited, processed and applied through negotiation to some various industrial uses in Nigeria to revamp the dwindling of Nigerian economy. These material resources are indeed widely spread in all the African countries of the high qualities and in great quantities that they have begun to attract both public and private investments for Nigerian development.

Generally, the availability, importance and the roles of solid minerals in the socio-economic life of the people of the world over. The development of this sub sector of the economy helps to expedite industrial development and self-reliance through maximum utilization of the available solid minerals as inputs for industries. The solid minerals discovered in Nigeria have direct bearings in these socio-economic and technological developments in Nigeria, according to Aliyu, (1996) include; Feldspar, Quartz, Kaolin, Marble, Gypsum, Limestone, Salt, Granites, Mica, Cassiterite, Columbite, Wolfram, Gold, Lead, Clay, Shales, Glass-Sand, Bitumen-Sand, Uranium, Serpentine, Phosphate, Bentonite, Ilmenites, Galena, Copper, Iron Ore, Zinc, Tantalite, Talc, Gemstone, Coal, Cuprite, Soda-Ash, and Dolomite. Others are radioactive materials such as Monazite, Zircon, Molybdelite, and Barites. That these minerals are found to be in great quantities and of good qualities in Nigeria, and that some of these minerals are currently mined while others have the potential of being exported on commercial scale for Nigerian Development.

The Solid Minerals Resources for a New Market Direction

The Solid Mineral resources are important part for the Nigerian development plan and of any nation particularly those who have not yet had an industrial revolution. This is because these natural assets can be converted to other forms of capital and basic industries. Many of these Solid Mineral resources could be used for production of consumable products internally like electrical porcelain insulators and science laboratory porcelain mortars/pestles. The geological dispersion of material resources in Nigeria, a wide range in items of these spread across the countries, as contained in the table below:

Table 1:
GEOLOGICAL DISPERSION OF SOLID MINERALS IN NIGERIA.

MINERALS RESOURCES	LOCATIONS OF MINERAL RESOURCE	QUANTITY IN METRIC TONS.
Iron ore	Kogi, Plateau, Osun, Sokoto and Birni Kebbi States	N.D.
Glass-sand	Nasarawa , Federal Capital Territory and Katsina States	2.54 tons
Ironstone	Sokoto, Kaduna, Bauchi, Borno, Benue, Kogi, Enugu and Niger States	N.D.
Feldspar	Bauchi State	N.D.
Cassiterite	Plateau, Bauchi States and Cameron	9,413.64 tons
Columbite	Plateau, Kaduna, Kano, Bauchi, Ondo, Federal Capital Territory and Kwara States	1410.44 tons
Tantalite	Plateau, Bauchi, Kaduna and Ondo States	2.85 tons
Quartz	Nasarawa and Kogi States	N.D.
Manganese	Kaduna states	N.D.
Tin	Plateau and Nasarawa states	N.D.
Vanadium	Federal capital territory	N.D.
Nickel	Osun state	N.D.
Baryte	Nasarawa state	730 tons
Chromite	Sokoto, Kastina states, Sudan and East Africa	N.D.
Molybdenum	Plateau state	10.42 tons
Wolfram	Bauchi, Kano and Kaduna States	1.12 tons
Ilmenite	Plateau, Kaduna, Niger, osun and kwara States	N.D.
Tourmaline	Plateau, Kaduna and kwara States	N.D.
Zircon	Kaduna State	N.D.
Limestons	Enugu, Ebonyi, cross River, ogu, Bauchi, Benue, Sokoto and Abia States	1,252,468.8 tons
Marble	Kogi, Edo, Benue, Nasarawa, and Kaduna States	5277.02 tons
Dolomite	kogi, Federal Capital Territory and Oyo States	N.D.
Clay	Anambra, Enugu, Kastina, Kaduna, Ogun, Plateau, Borno, Delta, Abia, Imo, Adamawa, Kano, Nasarawa, Sokoto and Ondo States and North -East, North -West Africa	24024.0 tons
Emerald	Nasarawa State	N.D.

Aquamarine	Nasarawa and Kaduna States	N.D.
Ruby	Kaduna State	N.D.
Sapphire	Kaduna State	N.D.
Amethyst	Kaduna and Bauchi States	N.D.
Rock crystal	Plateau State	N.D.
Kaolin	Plateau, Enugu, and Kaduna States	3,450,000 tons
Topaz	Plateau State	N.D.
Fluorspar	Plateau State	N.D.
Coal	Enugu, Benue, Nasarawa and Kogi States	229043.67 tons
Lignite	Enugu, Anambra States	N.D.
Lead/ Zinc	Ebonyi, Abia, Nasarawa, Adamawa and Bauchi States	552.92 tons

Solid Minerals Resources in Nigeria

Key= N.D. = Not yet determined in quantities.

Petroleum – Nasarawa State (Awe, Keana and Obi) - N.D

Solid Minerals Available in Nigeria

Kaolin

Kaolin is the most versatile industrial raw materials of very wide application in some industries. Aliyu, (1996), reveals that Kaolin is available in various parts of Nigeria with the largest deposit estimated at 769,000,000 tons located at Enugu State. It is followed by the Kankara deposit in Katsina State which is estimated at 3,400,000 tons Federal Capital Territory and Niger State. During the space exploration to the **moon** Neil Armstrong Apollo Satrum 10 in 1969, when returning back to the earth from the **moon**, Manzuche, (2003), reveals, collected and brought 48.5 Ibs weight of kaolin sample from the **moon**. This was found to be very pure from impurities and excellent for the pharmaceutical purposes in making drugs for human consumption. Good quality kaolin offers it-self to prospective investors in such industries as paints, refractory, Ceramics, Chemical and pharmaceutical industries, paper, rubber, plastic and crayons which could be established in Nigeria for our internal utilizations. That will make life hopeful and make Nigeria to have internal dependence in derivative products.

Feldspar

Feldspar is one of the most abundant minerals in the earth's crust. Cardew, (1973) states that feldspar exists in commercial quantities, mainly in the northern part of Nigeria and North West African Countries.

Encarta Encyclopedia (2001) reveals that feldspar has high quality of about 56% mass makes good investment possible in the manufacture of glass, ceramics, paints, electrical components, refractories, tiles, and economic life of the people in Nigeria as result reduce un-employment rate and crime/law breakers in the country, Nigeria.

Silica

Silica, also known as glass sand because of its principal input in commercial glass production exist in very large deposit in the northern parts of Nigeria e.g. Kastina, Federal Capital Territory, Nasarawa State and Kaduna State. Cardew, (1973) and Aliyu, A. (1996) reveal that it has the potential for initiatives in glass products, such as bottles, drinking glass, glass sheets, abrasives, filler, electronic and service laboratory wares like mortars/pestle, which are highly needed in the country today.

Mica

Mica, also called Muscovite, occurs in commercial quantity on the Bauchi, Plateau, Nasarawa, Federal capital Territory, Kastina States and Norther African Countries. Industry could be established to utilize this mineral, including those involved in electrical insulators, electronic tubes, capacitors, pressing iron elements and paper coating.

Good business opportunity exists for entrepreneur in the production of paints, moisture resistance and atmospheric corrosion products, lubricants in rubber products, wallpaper finish, dry powder, fire extinguishers and oil well drilling mud. Its relevance is found in industries related to the production of high thermal shock and chemicals resistant products. The prospectors of mica are quite enormous for Nigerian Development.

Ball-Clay

Ball-clay is formed by disintegrated granite and feldspathic rocks. Ball-clay is the most obedient object, the world over. The first object used by God to create man, Adam on 6th day of the creation of the heaven and earth. Clay was used for building the tower of Babel at the Mesopotamia after the Noah's flood on earth. As a result languages were formed by God. It can be molded, pounded, flattened, rolled, coiled, thrown on a

wheel and cast into moulds. It responds to dryness and firing. Considering these fundamental characteristics and qualities of ball-clay, it is indispensable object in ceramics and porcelain insulators and mortars/pestles because of its high degree of plasticity (good bonding power) and dry strength. However, it must be held down to a minimum when producing porcelain wares, and porcelain insulators in order to maintain porcelain characteristics. Ball-clay is excellent for ceramic industry for the production of table wares, floor and wall tiles, water sinks, and flower vessels for internal decorations.

Basically, clay was the only first element put into use after the creation of heaven and the earth by God. God used clay to create the first man on earth called Adam who up to date responds to all characteristics material of clay. God breathed life into the sculptural object man created from clay, and he became a living person. Out of the rib of Adam (element) clay God made Eve to be his wife/helper, the first two human beings on earth. The products e.g. electrical porcelain insulators, science laboratory porcelain mortars/pestle and porcelain wares made from clay are highly needed in every home, office, company, industries and indeed nationally and internationally. Thus all call for Nigerian Development and technology.

Baryte

This solid mineral is found in Nasarawa State particularly in Keana and Awe Local Government Areas. It could be processed into milled-baryte for utilization in the petroleum oil drilling operation, pharmaceutical industry, paint industry and glaze in ceramic industries in Nigeria for its developmental sector.

Gemstone

The gemstone can be found in Akwanga, Wamba, Awe, Obi, Doma, Keana, Karu, Nasarawa, Keffi, Kokona Local Government Areas of Nasarawa and Plateau States. It can be cut and polished into various facets for the production of jewelries and fashionable clothes for dressing thus doe Nigerian Development.

Tin Sheds

There is a large deposit of metallic minerals which will mostly serve as the raw materials, for the industry. The minerals are Cassiterite (Tin) Columbite, tantalite, limonite, monazite, galena and Sphalerite. The metallic minerals are usually dressed in the tin Sheds using the various equipment available in the sheds to remove other associated gangue materials and as well as upgrade the quality of the metal before being considered for industrial application.

Marble

There are large deposits of marble which is mined and processed into various sizes for use in industries. Marble after crushing and grinding serves as raw materials for the production of hydrated lime. The hydrated lime, is used as chemical for water treatment and other industrial applications which is seriously needed in Nigeria for water treatments.

Table 2: The Principal Solid Minerals Resources And Their Uses For Nigerian Development

MATERIALS RESOURCES	USES FOR AFRICAN DEVELOPMENT
Baryte	Application in oil industry, paints, rubber, pharmaceutical and textiles industries for African Development
Clay	Building bricks, ceramic wares floor, sink and wall tiles.
Glass- sand	For construction of accumulators, sheeting and piping cable covers for ammunition and alloys in Africa.
Feldspar	Ceramic industrial, and road constructions, glass and glaze making.
Quartz	Concrete rocks and refractories, oscillators plates.
Marble	Hydrated lime, terrazzo tiles, floors & wall tiles buildings, road constructions and ceramic industry for African Development.
Tin	Tin plating for making tin canes
Lead	Making alloys, soldiers (tin 50%) sealing of tin cans, automobile radiators and electrical equipment.
Columbite	Used an alloys & steel of form weldable high speed steels. Radio transmitting wares heat. Sensitive detective device called barometer for jet engines and other air crafts for African Development.
Ilmenite	The major sources of titanium used for paint, pigment.
Monazite	Main sources of thorium oxide for manufacture and mantie for incandescent gas lights sources of atomic light.

Salt	Used in seasoning and preservations of food and for human and animal consumption.
Mica	Chiefly used for mined, electrical insulators, production of tire, tubes & dry lubricants.
Fatigue	Major sources of beryl metal alloy with copper to produce a hard resistant metal of high tensile strength.
Coal	Used for production of pigs iron, flux in production of steel. It is fuel for energy. To raise steam for power stations e.g. railways & domestic purposes f or African Development.
Iron ore	It is used for making cast iron.
Pyrites	It is used for production of sulphur ointments and sulphuric acid for African Development.
Talc	For producing filler in paints, powder refractories, paper, rubber, chemical and pharmaceutical industries for African Development.
Kaolin	For producing paints, refractories, paper, rubber, chemical, ceramic and pharmaceutical industries in Africa.

The Raw Solid Minerals and Their Uses For Nigerian Development

Fire is for the Processing Solid Minerals for Nigerian Development.

The art of ceramics is as old as the Iron Age. Ahuwa, (2004), opined that when fire was invented by historic man about 3000BC, soon after that man discovered that it could be used to turn valueless materials resources into hard metallic valuable materials. Since time immemorial most of Nigerian and African commodities have used these materials such as clay, feldspar, rice husk, salt, quartz etc. to make useful utensils through fire to meet some basic needs. Without fire all these materials resources would still be valueless the word over. With fire, clay wares can become hardens terracotta and glazed products for different uses all over the world.

Fire reaction therefore, brings about the fusion and nitrification on the high voltage porcelain insulators and science laboratory porcelain mortars/pestles into use. These reactions of fire can make them free from porosity and impervious, which is viscous glass. As the temperature advances, feldspar melts. Some of the quartz and kaolin melt into solution. Quartz and kaolin which are both refractory are fusible in the presence of the potassium, sodium and lime of the feldspar. The virtue of kaolin at this stage of maturity of porcelain furnishes the strength and

viscosity, which prevent the ware from slumping out of shape while in the firing process in the kiln. Fire is therefore the fundamental power of fusion, viscosity, shaping and furnishing all the ionic objects, in Nigeria and the world over. Thus provide job opportunity and development in Nigeria.

Process to Ascertain the Synergy between Ceramics and Allied Sciences that will articulate Nigerian Developments is fire which is most Important here

The Solid Minerals selected for synergy that can bring the ceramic engineering is the science and technology of creating objects from inorganic and non-metallic materials which is done either by the action of heat temperatures using precipitation reaction from high-purity chemical solutions. Today's processes are more sophisticated than the techniques of the past ages. At this time machines have long been used in processes such as extrusion which is the art of forcing a material into shape by squeezing it like toothpaste through a shaped tool, jiggering, laying the material automatically into a rotating mold or hot pressing in forcing a powder from the ceramic into a mold then simultaneously heating it and pressing it to fuse the material into shape automatically to produce a whole desired product for a purposeful function for Nigerian Development.

The Synergy: is thus the interaction and cooperation of two or more Solid Minerals to produce a combined positive effect through fire or heat. Here the presenter of this paper illustrates the processes of synergy between ceramics and allied sciences to present the meaningful whole of ceramics ware, through **solid mineral products selected** after the identity, to bring the Nigerian Development Practically here using quadrilateral blend when method.

Here materials on use were **feldspar, quartz, kaolin and ball-clay** sourced, processed and put together through negotiation in different percentages, mixed together, formed into shapes, dried in a room temperature, biscuit fired and glaze fired. From the results obtained through solid minerals selected through a research practically conducted from the quadrilateral test blend method, the end results were obtained, satisfied that can be put into full use today of felspar, quartz, kaolin and

ball-clay for Nigeria and African Development: After identification and negotiation of the materials separately individually and then blend them based on their percentage rate.

Table 3: Quadrilateral Test Blend Method

1 f FELDSPAR 100g	2 A=800g Q=200g	3 F=600g Q=400g	4 F=400g Q=600g	5 F=200g Q=800g	6 Q QUARTZ 100g
7 F = 800g K = 200g	8 F =640g Q =160g K =160g B = 40g	9 F =480g Q =320g K =120g B = 80g	10 F =320g Q =480g K =80g B =120g	11 F =640g Q =480g K =80g B =120g	12 F =800g Q =200g
13 F = 600g K = 400g	14 F = 360g Q = 120g K = 320g B = 80g	15 F = 360g Q = 240g K = 240g B = 160g	16 F = 240g Q = 360g K = 80g B = 320g	17 F = 120g Q = 480g K = 80g B = 320g	18 Q = 600g B = 400g
19 F = 400g K = 600g	20 F = 320g Q = 80g K = 480g B = 120g	21 F = 120g Q = 160g K = 240g B = 240g	22 F = 160g Q = 240g K = 240g B = 360g	23 F = 80g Q = 320g K = 120g B = 480g	24 F = 400g B = 600g
25 F = 200g K = 800g	26 F = 160g Q = 40g K = 640g B = 160g	27 F = 120g Q = 80g K = 480g B = 320g	28 F = 80g Q = 120g K = 320g B = 480g	29 F = 40g Q = 160g K = 160g B = 640g	30 Q = 200g B = 800g
31 K KAOLIN 100G	32 K = 800g B = 200g	33 K = 600g B = 400g	34 K = 600g B = 400g	35 K = 200g B = 800g	36 B BALL-CLAY 100G

Solid Minerals on Synergy Process

Table3: After the identity of Feldspar, Quartz, Kaolin and Ball-Clay of the Four Solid Minerals, then Negotiation went into Quadrilinear test blend into the practical putting them into the process of melting them into the act of producing High Substances as seen here for Nigerian Development: Pot Insulators or 33KV Insulator, shackle insulator or 11KV insulator, wall pin insulators, transformer bushing and science laboratory porcelain mortars/pestles for Nigerian Development now in full utilization in Nigeria.

An experiment on the thirty six (36) members' quadrilateral test blends involving feldspar, quartz; kaolin and ball-clay were put into a research. They were very successfully put into shapes, dried under a room temperature, bisque firing and glaze firing proved to be stronger than the imported ones through tests.

The test blend No. 15 yielded the best fusion result right into the core of the body during glaze firing. The test sample No. 15 was therefore considered the most suitable ceramic products from all the quadrilateral test best method.

Therefore, the test sample No. 15 in table 3 was considered the best result for body compositions for the industrial ceramics and to produce prototypes of electrical porcelain insulators and mortars/pestles as seen here, the material body compositions of No. 15 were;

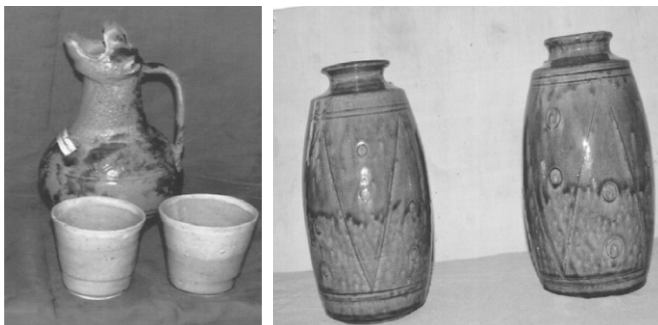
Feldspar = 360g
Quartz = 240g
Kaolin = 240g
Ball-clay = 160g

These solid mineral material bodies compositions were considered best results for industrial ceramics for Nigerian Development.

Prototypes of Electrical Porcelain Insulators

The Fig. 3 shows the prototypes and indeed the finished products produced from the presenter and researcher of low and high voltage porcelain insulators. These are made from the locally available solid minerals procured and processed by the writer and producer of this paper for Nigerian Development. From these experiments and tests conducted, the electrical porcelain insulators were produced for industrial purposes that can lead to Nigerian development and industrial purpose that will provide job opportunity for skillful and unskillful Nigerians. Thus, development in Nigeria is strongly established.

Fig. 3. The Figures Shown Below, The Raw Materials Were Sourced, Processed and Produced by The Writer



Honey Pots Lioport Mug andCups



Pot- Insulators or 33KV Insulators



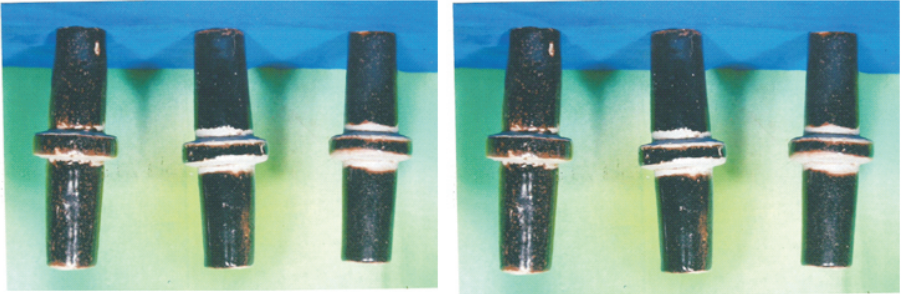
Shackle insulators or 11KV insulator



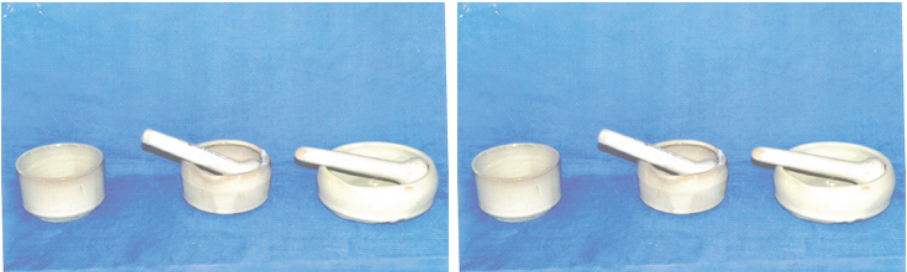
Shackle Insulators or 11KV Insulators



Wall Pin Insulators



Transformer Bushing



Science Laboratory Porcelain Mortars/Pestles

The solid minerals from raw materials for table ware, electrical insulators and laboratory porcelain mortars/pestles were sourced, processed, produced and fired to the finished products by the presenter

Technological and Economic Nigerian Developments Through Material Resources

Nigeria desire more research efforts in solid mineral's resources for greater development. According to Manzuche S. (2017), Nigeria and Africa will explore and identify more local available solid minerals for exploitation and to put them into full use for our domestic consumption.

Indeed, Nigerian Development shall join the league of developed countries of the world. This hope already in the pipelines as one can see some new innovations which the Nigerian Development strives to achieve in this 21st century. As a result, government and the private sectors have come out clearly to encourage research into the utilization of the locally available solid mineral raw materials resources for industrial input. This will equally save foreign exchange and promote Nigeria for self-reliance in industrial raw material utilization.

McGraw-Hill Encyclopedia of Science and Technology states, “Ceramic Technology has developed completely new classes of products to meet the need of industrial society which affect most lives daily and some will do in the nearby future”. The Universities and Government should be poised to support research and development efforts that would propel Nigeria to higher level of technology and capacity that would enable the country to meet up with the demands of the current era of globalization. To be considered also is the proper management of these available raw solid mineral materials and their resources for their full utilization that will cause positive increase in the new market direction. These positive challenges should be ear-marked on the top of government agenda for implementation as stated in this paper. Singer and Singer (1977), Abuja initiative for increasing the country's foreign exchange earnings from non-oil sector. That these measures be taken by the Federal Government to ensure that in the next eight to ten years, if all be well, the country should be making much from the raw solid mineral materials resources for Nigerian Development.

The Nigerian Development policy at this point in time is of encouragement and motivation to the entire citizenry. Especially the skillful personnel in that the investing in the solid minerals sectors will bring about a promotion of indigenous man power development, a possible reduction of dependence on other countries of the world in form of trade, finance, technology, marked generation and of multiplying effects through local manufacture of equipment and technology acquisitions. All these should be enshrined in technical and economic sectors. These indeed will certainly develop our country Nigeria.

Indeed this appears to be light at the end of the tunnel, if both government and private sectors will be optimistic of a change in the future of the solid mineral resources sub-sector for Nigerian economic development. This will be a welcomed development that will certainly bring a positive change in Nigeria. Considering the level of advancement on modern technology, there is a great need for a challenge to take up high-fired raw materials resources (solid minerals) for application of industrial sector as Rhodes (1973) suggested, “This will certainly lead to some basic successful operations of many other industries in the Nigerian developments to put in force”.

The degree of industrial advancement of any country of the world is always linked with the considerable level of utilization of her locally available Solid mineral raw materials resources. For Nigerian Development, therefore needs to borrow a leaf from the developed countries of the world on how they started. So that we can develop and become technologically advanced and self-sufficient on our own. This is because many developed countries of the world started like this by putting their locally available raw materials resources into full utilization and today, they are technologically advanced and well developed, e.g. Japan, Germany, America and England.

Nigeria is richly endowed with materials resources (solid minerals), deposits. These materials have great potentials in guaranteeing a steady supply for production of some needed products for our internal consumption instead of continual importation of the same products from other world continent like Japan and America.

It is worthy, therefore, in this technological age the paper suggests and encourages that, Nigerians should source, process, formulate and produce/develop our locally available solid minerals/raw materials resources in order to have products for our internal consumption and to become self-sufficient in Nigeria using our skillful men and women who are much available into action. Singer and Singer (1977) state, “The demand for ceramics in the electrical industry has risen phenomenally both in quantity and quality during this 21st century. As the applications have increased, so has the need for combinations of electrical

properties". Therefore, our local raw materials resources need a serious attention for full exploitation, processes and utilization in order to meet our internal consumption rate in Nigeria.

Our country, Nigeria and Africa are richly blessed with material resources. Our higher institutions of learning should therefore borrow the same leaf from the developed countries of the world to promote the technology in the institutions we have in the country using these local available materials resources among our Nigerians students to develop on our own. This decision is very important to actualize. This is how the developed countries of the world started by using their locally available raw materials resources into production within, and among their institutions/students and today, they are advanced technologically and economically viable nations of the world.

Conclusion

The present era in Nigeria is that of industrial awareness, where the abundant locally available solid mineral materials resources for industry are highly considered for utilization. The utilization of these abundant locally available raw materials resources for industry will certainly bring about promotion of indigenous man power development which will pave ways and means for possible reduction of dependence on other developed countries of the world in term of trade, finance, technology and markets. As a result of these Nigerian developments, will eventually graduate to join the league of developed countries of the world in the near future. This is due to the fact that there are few skillfully trained personnel on group capable of sourcing, processing, formulating and producing the needed products from these resources for industrial utilization in the country and more will be-coming from our higher institutions of learning to meet the demand in Nigeria more importantly there will be more developments in the area of skillful and unskillful Nigerians on ground for job opportunity will be available for them.

Recommendations

1. There is great need for the establishment of the **quantities** of the various available raw materials to be **determined**.
2. The utilization of these abundant available solid mineral raw materials resources for industries in Nigeria, call for a high level of

exploitation and practical skilled processors of these materials resources to be used for production of consumable products internally for self-sufficiency and self-dependency in Nigeria where skillful and un-skillful personnel will be employed for the production of the products thus creating means of job opportunities/ employment for Nigerian Developments.

3. The establishment of ceramic industry is capital intensive for any ordinary Nigerian to establish such an important industry. Therefore assistance is highly needed to meet the requirements from State and Nigerian Government.
4. It is most appreciative and important therefore for the utilization of these locally available solid materials in Nigeria to be produced and to be made available at the cheaper rates. This will be a pride and to promote socio-economic base for Nigerian Development.

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