

Entrepreneurship: Characteristics, Practices and Impacts on Nigeria Economy in Relation to Geosciences

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Abstract

Entrepreneurship has been described as the "capacity and willingness to develop, organize and manage a business venture along with any of its risks in order to make a profit. An Entrepreneur is commonly seen as an innovator, a designer of new ideas and business processes. The main objective of this paper is to review the characteristic practices of entrepreneurship on the Nigerian economy using Geoscience discipline as a case study. Characteristics of entrepreneurship may be reviewed in terms of the strategies adopted by the entrepreneur to achieve his or her objectives and they include; introduction of new products/services, use of new business model, use of modern technology, effective communication system and continuous improvement on the quality of the products/strategies. Entrepreneurial practices transcend national boundaries. What is practical globally may apply all countries through the styles and strategies may depend on the mineral and agricultural resources so of the region or countries and the enterprise of the people. Thus in Nigeria, most entrepreneurial activities are not limited to mineral resources (oil, gas, solid mineral), buying and selling, wood carving, bronze casting and weaving. The Nigerian Government has encouraged the development of entrepreneur through the establishment of some agencies including; National Directorate of Employment (NDE), National Open Apprentice Scheme (NOAS), Small and Medium Enterprise Development Association (SMEDA). Entrepreneurship has contributed to Nigerian Economy in terms of creation of employment, generation of revenue and production of raw materials for local industries. These companies that are established by entrepreneurs are related to the oil/gas and solid mineral development, are resources development which are geosciences. Others are agricultural production and general services (including transportation), making distributive trade etc.

Keywords: *Entrepreneurship, Entrepreneur, Practices, Solid Minerals, Employment Generation and Profit.*

Introduction

Entrepreneurship has been described as the "capacity and willingness to develop, organize and manage a business venture along with any of its risks in order to make a profit" (Yetisen et al., 2015). A broader definition of the term is sometimes used, especially in the field of Economics. In this usage, an Entrepreneur is an entity which has the ability to find and act upon opportunities to translate inventions or technology into new products: The entrepreneur is able to recognize the commercial potential of the invention and organize the capital, talent, and other resources that turn an invention into a commercially viable innovation. In this sense, the

term "Entrepreneurship" also captures innovative activities on the part of established firms, in addition to similar activities on the part of new businesses.

The entrepreneur is commonly seen as an innovator—a designer of new ideas and business processes. Management skills and strong team building abilities are often perceived as essential leadership attributes for successful entrepreneurs.

Drucker (1993) and Knight (2005) defined entrepreneurship in terms of risk-taking. The entrepreneur is willing to put his or her career and financial security on the line and take risks in the name of an idea, spending time as well as capital on an uncertain venture. However, entrepreneurs often do not believe that they have taken an enormous amount of risks because they do not perceive the level of uncertainty to be as high as other people do. Knight (2005) classified three types of uncertainty:

- i. Risk, which is measurable statistically (such as the probability of drawing a red color ball from a jar containing five red balls and five white balls)
- ii. Ambiguity, which is hard to measure statistically (such as the probability of drawing a red ball from a jar containing five red balls but an unknown number of white balls)
- iii. True uncertainty or Knightian uncertainty, which is impossible to estimate or predict statistically (such as the probability of drawing a red ball from a jar whose contents, in terms of numbers of coloured balls, are entirely unknown).

Entrepreneurship is often associated with true uncertainty, particularly when it involves the creation of a novel good or service, for a market that did not previously exist, rather than when a venture creates an incremental improvement to an existing product or service.

2.0 Characteristics of Entrepreneurship

2.1 Strategies of Entrepreneurship

Strategies that entrepreneurs may use include:

- i. Innovation of new products, services or processes
- ii. Continuous process improvement (CPI)
- iii. Exploration of new business models
- iv. Use of technology
- v. Use of business intelligence
- vi. Use of economic strategies
- vii. Development of future products and services
- viii. Optimized talent management

According to Shane and Venkataraman (2000), entrepreneurship comprises both "enterprising individuals" and "entrepreneurial opportunities", so researchers should study the nature of the individuals who identify opportunities when others do not, the opportunities themselves and the nexus between individuals and opportunities. On the other hand, Reynolds et al. (2002) argue that individuals are motivated to engage in entrepreneurial endeavors driven mainly by necessity or opportunity, that is individuals pursue entrepreneurship primarily owing to survival needs, or because they identify business opportunities that satisfy their need for achievement. For example, higher economic inequality tends to increase entrepreneurship rates at the individual level, suggesting that most entrepreneurial behavior is based on necessity rather than opportunity.

3.0 Entrepreneurship Practices in Nigeria

3.1 Overview

Nigeria is naturally endowed with entrepreneurship opportunities; however the realization of the full potential of these opportunities has been dampened by the adoption of inappropriate industrialization policies at different times (Adeoye, 2015). Several policy interventions that

were aimed at stimulating entrepreneurship development via small and medium scale enterprises promotion, based on technology transfer strategy, have failed to achieve the desired goals as it led to the most indigenous entrepreneurs becoming distribution agents of imported products as opposed to building in-country entrepreneurial capacity for manufacturing, mechanized agriculture and expert services (Thaddeus, 2012).

With the collapse of the last vestiges of the socialist economic system in 1991, virtually the whole world has embraced free enterprise economic system. Entrepreneurship is the cornerstone and at the heart of the free enterprise economy (Popoola, 2014). Entrepreneurship is an activity that involves the discovery, evaluation and exploitation of opportunities to introduce new goods and services, ways of organizing, markets, processes, and raw material through organizing efforts that previously had not existed (Shane and Venkataraman, 2000; Venkataraman, 1997).

Moreover, studies by UNIDO-Nigeria, 2012 show that Micro, Small and Medium Enterprises (MSMEs) has the propensity to drive the Nigerian Economy, and data reveal that there are currently over 17 million MSMEs employing over 31 million Nigerians. MSMEs account for over 80% of enterprises that employ about 75 % of the Nigeria's total workforce, and therefore formulating and effectively implementing MSMEs friendly policies represents innovative ways of building the capacity to engage in entrepreneurial activities and creating job opportunities thus, playing a central and invaluable role in helping Nigeria realize its quantity advantage.

In addition, the 2012 Global Entrepreneurship Monitor (GEM) has empirically identified Nigeria as one of the most entrepreneurial countries in the world. The study showed that 35 out of every 100 Nigerians (over a third) are engaged in some kind of entrepreneurial activity or the other. It is therefore imperative at this point in time to critically evaluate not just the principles of entrepreneurship but the practice and its crucial role in fostering economic growth and development in a developing economy like Nigeria.

3.2 Evolution of Entrepreneurship in Nigeria

In the beginning, entrepreneurship started when people produced more products than they needed, as such, they had to exchange these surpluses. For instance, if a blacksmith produced more hoes than he needed, he exchanges the surplus he had with what he had not but needed; maybe he needed some yams or goat etc. he would look for someone who needed his products to exchange with. By this way, producers came to realize that they can concentrate in their areas of production to produce more and then exchange with what they needed. So through this exchange of products, entrepreneurship started. A typical Nigerian entrepreneur is a self-made man who might be said to have strong will to succeed, he might engage the services of others like; friends, mates, in-laws etc. to help him in his work or production. Through this way, Nigerians in the olden days were engaged in entrepreneurship.

Nigeria was traditionally an agricultural country, providing the bulk of its own food needs and exporting a variety of agricultural goods, notably palm oil, cacao/cocoa, rubber, and groundnuts (peanuts). At this time, the place called Nigeria had entrepreneurs who had the entrepreneurial mind-set prevalent at the time. The peoples of Hausa, Ibo, Yoruba and Benin all had their own entrepreneurs (13th-19th century), who were exposed to entrepreneurship opportunities outside their native areas. The Hausas had astute entrepreneurs who managed workers with skills in tanning, dyeing, weaving, and metalworking which were highly developed. The Hausas have long been famous for wide-ranging itinerant trading, and wealthy merchants shared the highest social positions with the politically powerful and the highly

educated. In Hausa land, entrepreneurial success in Islam is not merely measured by the end result but also by the way and means of achieving them (Ebo 2012).

The Ibos also specialized in buying and selling goods and have perfected their entrepreneurial expertise in inventory control, management and distribution – which up till today, has remained their prevalent way of entrepreneuring. The Yoruba are predominantly town dwellers who practiced small-scale, domestic agriculture and are well known as traders and craftspeople. Since the 13th century, Yoruba artists have been producing masterpieces of woodcarving and bronze casting. Like the Ibos, the finished products were traded on as business ventures and enterprises.

The Portuguese, the first Europeans to traverse the coast of western Africa, were attracted to Benin City in 1486. The Oba established trading contacts with the Portuguese and initially sold them some war captives, which the Portuguese sold as slaves (another sad reminder) to the Akan of Asante (modern Ghana) in exchange for gold. Later, Benin's trade with Europeans in the 16th and 17th centuries was in palm oil, ivory, pepper, and textiles. Dutch traders to Benin City in the 17th century remarked about the astute entrepreneurs they met in Benin kingdom (Ebo 2012).

3.3 Recent Developments Concerning Entrepreneurship in Nigeria

The role of government in entrepreneurship development in Nigeria became significant only after the Nigeria civil war (1967-70). Since the mid-1980s there has been an increased commitment of government to entrepreneurship development especially after the introduction of the Structural Adjustment Program (SAP) in 1986. Added to this is the establishment of the National Directorate of Employment (NDE), National Open Apprenticeship Scheme (NOAS) and, the Small and Medium Enterprise Development Association of Nigeria (SMEDAN) (Thaddeus, 2012). Fundamentally the Nigerian government promotes entrepreneurial culture through initiatives that build business confidence, positive attitude, pride in success, support and encouragement of new ideas, social responsibility, providing technological supports, encouraging inter-firm linkages and promotion of research and development.

In the early 2000s, entrepreneurship studies were introduced into the Nigerian educational system especially in higher institutions as a mandatory course. The Centre for Entrepreneurship Development (CED), which has the objective of teaching and encouraging students of higher institutions (especially in science, engineering and technological (SET)) to acquire entrepreneurial, innovative, and management skills, was established. The Centre's goal is to make the graduates self-employed, create job opportunities for others and to generate wealth (Thaddeus, 2012). He continued that entrepreneurship development in Nigeria became significant only after the Nigerian civil war. At the end of the war the 2nd National Development Plan focused on the development of the 3Rs objectives of Reconstruction, Re-development and Reconciliation. The activities in the plan challenged/tasked the ingenuity and inventive skill of the individuals.

This early period witnessed an economic development ideology of industrialization as the ultimate source of economic growth, and industrialization itself as the product of technical progress and investment. Technical progress or capital growth on the other hand is seen to be a function of, and the result of, entrepreneurial effort. In particular, evidence from the developed world indicates that economic growth is entirely due to the quality and efficiency of the entrepreneur. Thus after independence in 1960 there was the need by the government of Nigeria to promote indigenous entrepreneurs. The Government never loses sight of the

tripartite relationship between entrepreneurship, industrialization and economic growth. Entrepreneurship is often carried out by micro and small scale businesses and therefore SMEDAN's focus is on the development of micro, small and medium-scale enterprises (MSMEs) where it co-ordinates and integrates MSME activities in order to develop their full potential and competitiveness (Thaddeus, 2012).

In the past forty years or so, the government had established various support institutions specially structured to provide succor and to assist SMEs to contend with some of the hurdles along their growth path. Some of these specialized institutions include the Nigerian Industrial Development Bank (NIDB), the Nigerian Bank for Commerce and Industry (NBCI), the National Economic Reconstruction Fund (NERFUND), the Nigerian Export-Import Bank (NEXIM), the National Directorate of Employment (NDE), Industrial Development Coordinating Centre (IDCC), Peoples Bank, Community Banks, Construction Bank, Family Economic Advancement Programme (FEAP), State Ministries of Industry SME schemes, the Nigerian Agricultural and Cooperative Development Bank (NACDB), Bank of Industry (BOI) etc. These support institutions and other incentives created by the government notwithstanding, policy instability and reversals in addition to high turnover and frequent changes in government have impacted negatively on the performance of the primary institutions responsible for policy formulation, monitoring and implementation resulting in distortions in the macro-economic structure, low productivity and dismal performance of SMEs (Nwachukwu, 2012).

Other major problems which have contributed to the poor performance of SMEs include: limited access to long-term capital, high cost of even short-term financing, poor partnership spirit, dearth of requisite managerial skills and capacity, illegal levies, street urchins' harassments, over-dependence on imported raw materials and spare parts, poor inter and intra-sectoral linkages that make it difficult for the SMEs to enjoy economies of scale production, bureaucratic bottlenecks and inefficiency in the administration of incentives that discourage rather than promote SME growth, weak demand for products arising from low and dwindling consumer purchasing power, incidence of multiplicity of regulatory agencies and taxes that have always resulted in high cost of doing business and poor corporate governance and low entrepreneurial skills arising from inadequate educational and technical background for many SME promoters (Nwachukwu, 2012).

4.0 Impacts of Entrepreneurship on Nigerian Economy

4.1 Overview

The Nigerian economy has been described as a middle-income mixed economy; as an emerging market, with expanding financial, service, communications, and technology and entertainment sectors. With a rebased GDP, it is ranked 26th in the world, the largest in Africa, and on track to become one of the 20 largest economies in the world by 2020. The Nigerian economy has been growing at an average rate of around 7% a year over the past decade. The economy is rich in resources, especially oil, its energetic entrepreneurs and aspirations to be the tech hub of Africa, boasting start-ups such as Konga and Jumia budding Nigerian Alibabas (Leaders, 2014). Poverty and unemployment still remains key challenges in the economy.

Entrepreneurship is an important factor in the development of any nation. Entrepreneurs are responsible for taking calculated risk those open doors to progressively higher levels of economic growth. They are the veritable backbone on which the world and modern ideas continue to develop. The return of democracy in 1999 ushered in a period of economic reforms and a renewed focus on enterprise development as the only viable means to sustainable growth. Nigerian leaders initiated a massive programme of disinvestment and financial deregulation aimed at boosting business development across the Micro, Small and Medium Enterprises

(MSMEs) space. Progress has been hampered by institutional deficiencies and widespread bureaucratic and political corruption (Osolor, 2010).

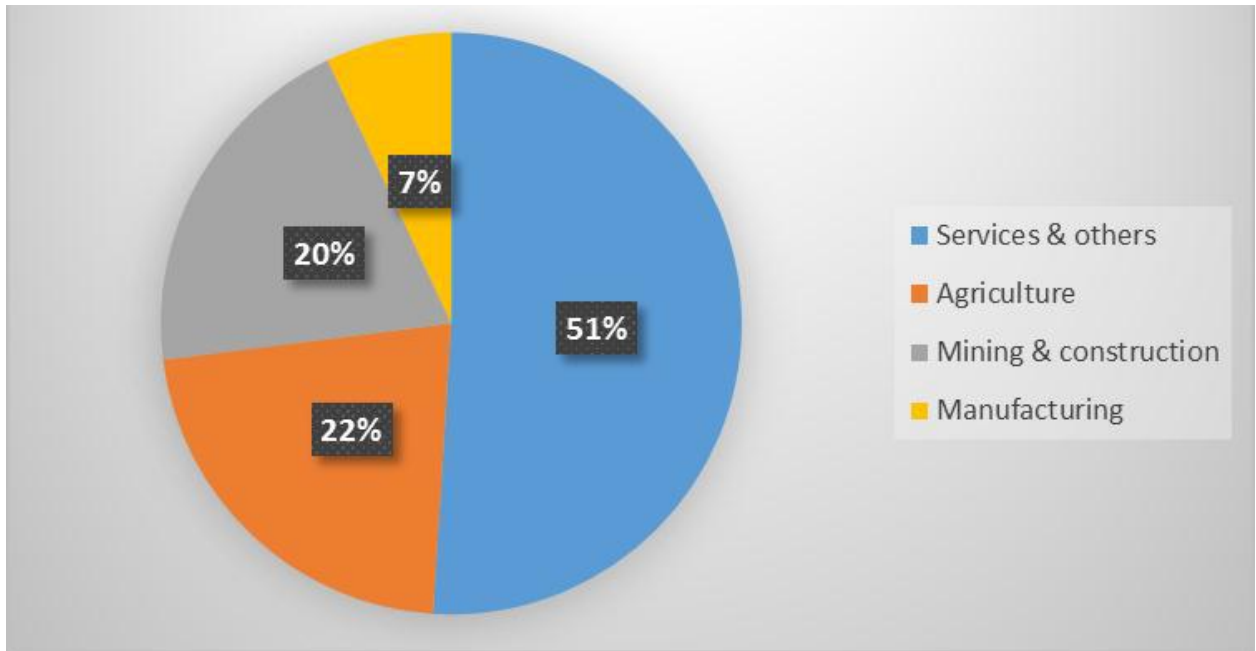


Figure 1: Contribution of Entrepreneurship to Nigeria's GDP (Source: Adeoye, 2015)

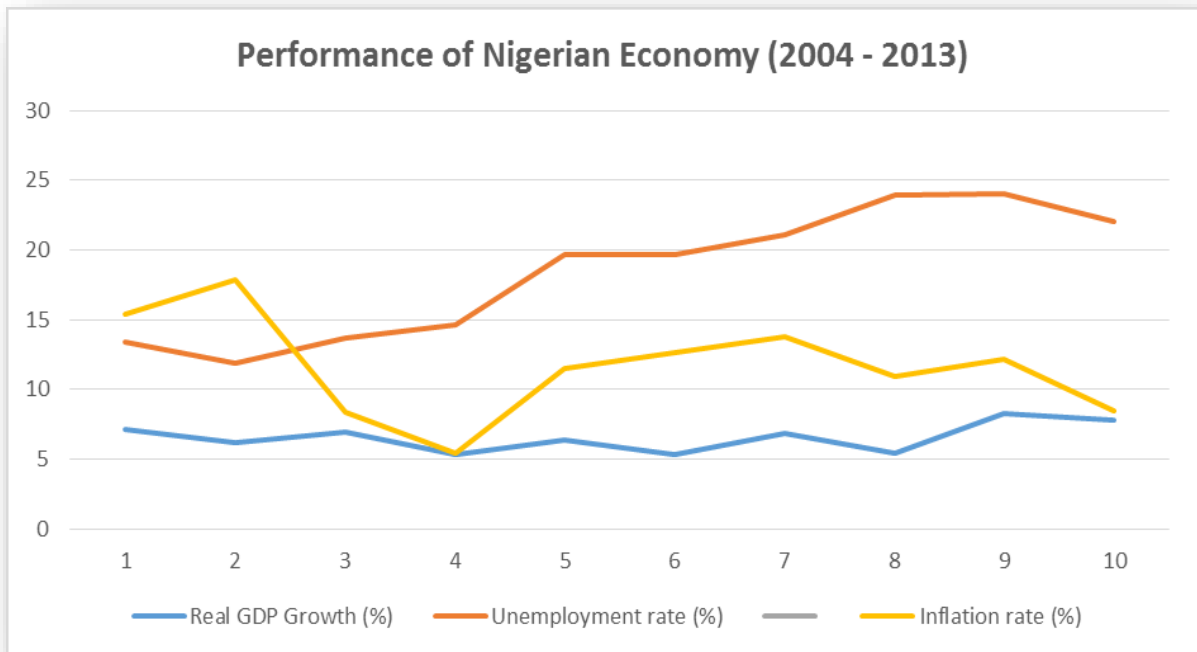


Figure 2: The performance of Nigerian Economy from 2004-2013 (Source: Adeoye, 2015)

4.2 Case Study of Role of Geosciences in the Economic Development of Nigeria

4.2.1 Solid Mineral Resources of Nigeria

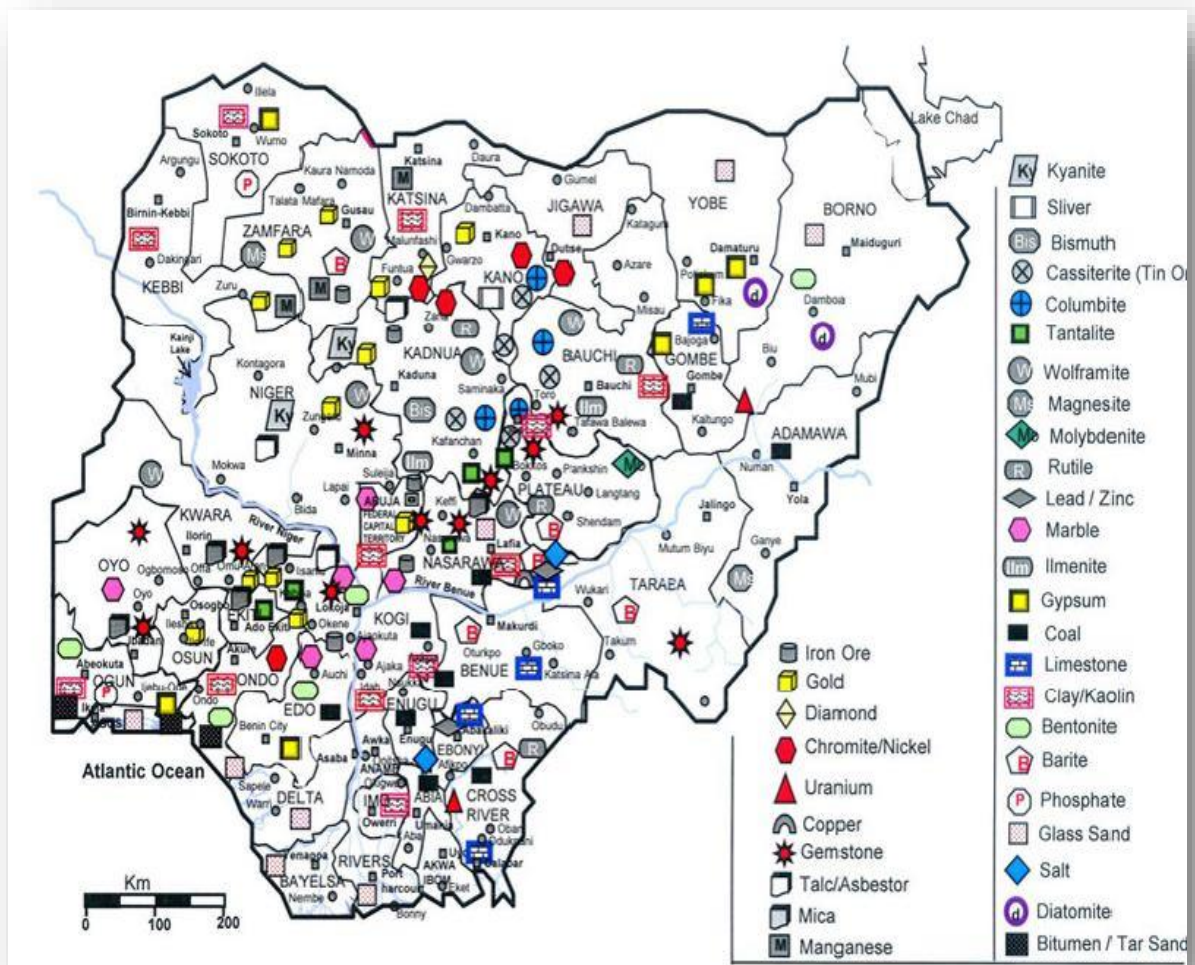


Figure 3: Map of Nigeria showing solid mineral location (Source: researchgate.com)

The mining of minerals in Nigeria accounts for only 0.3% of its GDP, due to the influence of its vast oil resources. The domestic mining industry is underdeveloped, leading to Nigeria having to import minerals that it could produce domestically, such as salt or iron ore. Rights to ownership of mineral resources is held by the Federal government of Nigeria, which grants titles to organizations to explore, mine, and sell mineral resources. Organized mining began in 1903 when the Mineral Survey of the Northern Protectorates was created by the British colonial government. A year later, the Mineral Survey of the Southern Protectorates was founded. By the 1940s, Nigeria was a major producer of tin, columbite, and coal. The discovery of oil in 1956 hurt the mineral extraction industries, as government and industry both began to focus on this new resource. The Nigerian Civil War in the late 1960s led many expatriate mining experts to leave the country. Mining regulation is handled by the Ministry of Solid Minerals Development, which oversees the management of all mineral resources. Mining law is codified in the Federal Minerals and Mining Act of 1999. Historically, Nigeria's mining industry was monopolized by state-owned public corporations. This led to a decline in productivity in almost all mineral industries. The Obasanjo administration began a process of selling off government-

owned corporations to private investors in 1999. Below are some minerals mined in Nigeria although not limited to the following;

i. Coal and Lignite

Mining is the extraction (removal) of minerals and metals from the earth. The Nigerian Coal Corporation (NCC) is a parastatal corporation that was formed in 1950 and held a monopoly on the mining, processing, and sales of coal, lignite, and coke products until 1999 (Godwin, 2011).

Coal was first discovered in Enugu in 1909, and the Ogbete Mine had opened and begun regularly extracting coal by 1916. By 1920, coal production had reached 180,122 long tons (183,012 t). Nigeria's peak coal production was in the late 1950s, and by 1960 production was at 565,681 long tons (574,758 t). The Nigerian Civil War caused many mines to be abandoned. After the war ended in the early 1970s, coal production was never able to recover. Attempts to mechanize the industry in the 1970s and 1980s were ultimately unsuccessful, and actually hindered production due to problems with implementation and maintenance.

The Nigerian government is currently trying to privatize the Nigerian Coal Corporation and sell off its assets. While the domestic market for coal has been negatively affected by the move to diesel and gas-powered engines by organizations that were previously major coal consumers, the low-sulfur coal mined in Nigeria is desirable by international customers in Italy and the United Kingdom, who have imported Nigerian coal. Recent financial problems have caused a near shutdown of the NCC's coal mining operations, and the corporation has responded by attempting to sell off some of its assets while it waits for the government to complete privatization activities.

In April 2008, Minister of Mines and Steel Sarafa Tunji Ishola announced that Nigeria was considering coal as an alternative power source as it attempts to reform its power sector, and encouraged Chinese investors to invest in the coal industry.

The Nigerian Mining Cadastre Office manages all the Nigerian mining licenses and mining rights. They are a subsidiary of the Ministry of Mines and Steel Development of the Federal Republic of Nigeria.

Coal is used as household, energy fuel, raw material for metallurgical and chemical industry.

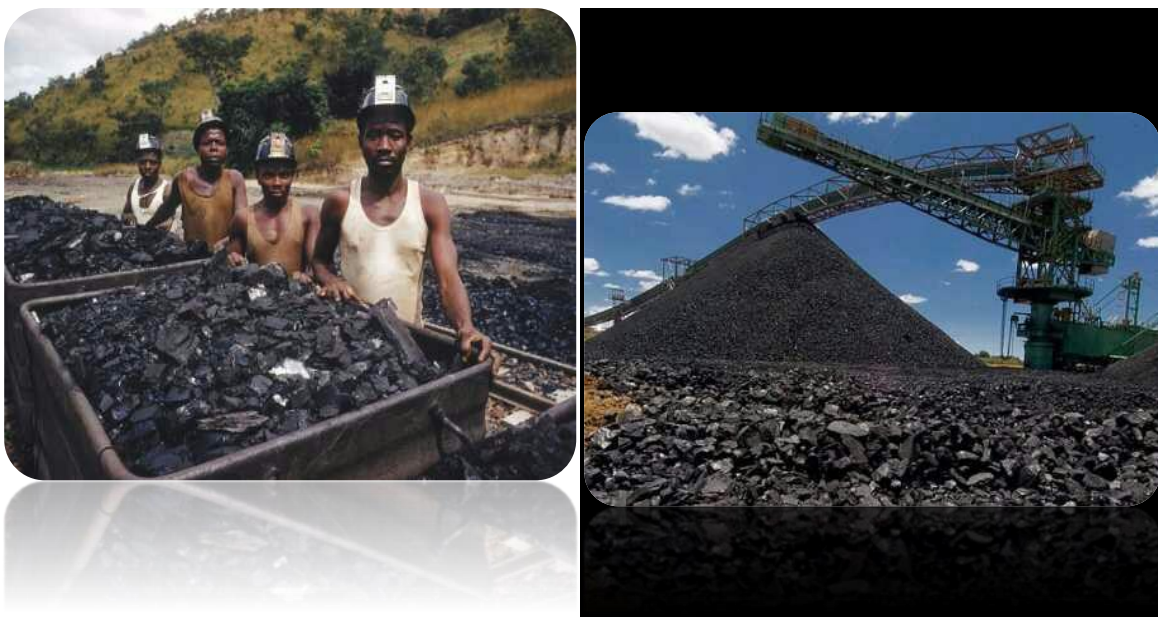


Figure 4: A Coal mine in Nigeria (wikipedia.org)

ii. Clay (Kaolin)

Nigerian clay can actually be found in a number of Nigerian states, almost in every part of Nigeria. Clay is used as a basis of pottery and brick production. In addition to this, it is useful in the sphere of cosmetology – for various face and body marks. Other useful areas are in ceramics and production of cement.



Figure 5: Pottery making from clay (Wikipedia.org)

iii. Gold

Gold deposits are found in Northern Nigeria, most prominently near Maru, Anka, Malele, Tsohon Birnin Gwari-Kwaga, Gurmana, Bin Yauri, Okolom-Dogondaji, and Iperindo (Ilesha) in Osun state it is not very dominant in the country.

Gold production began in 1913 and peaked in the 1930s. During the Second World War, production declined. Mines were abandoned by colonial companies, and production never recovered.

The Nigerian Mining Corporation (NMC) was formed in the early 1980s to explore for gold. Lack of funds, and the lure of easier profits from oil production led to its failure. There is no large scale gold mining operation in Nigeria today, though there is small-scale mining carried out by artists. The family of Aleye from Anka is one of the leading gold families in the region.



Figure 6: A typical example of an artesianal gold miner

iv. Columbite, Tantalite and Wolframite

Columbite and Tantalite are ores used to produce the elements niobium and tantalum. Columbite and tantalite are collectively known as coltan in Africa. Tantalum is a valuable rare element used in electronics manufacturing. In Nigeria, pegmatite deposits of coltan are frequently also the source of several precious and semi-precious stones such as beryl, aquamarine, and tourmaline. These pegmatites are found in Nassarawa State near the Jos Plateau, as well as in several areas in southeast Nigeria. There is small-scale mining of these minerals. Wolframite (tungsten) can be found in the Northern states of Nigeria.

v. Bitumen

Bitumen was first discovered in 1900 in Nigeria. Bitumen deposits are found in Lagos State, Ogun State, Ondo State, and Edo State. Conoco has performed a technical and economic evaluation of these deposits, and believes that there are over thirteen billion barrels of oil equivalent in these tar sands and bitumen seepages.

Its area of usage includes engineering material in construction, particularly waterproofing in the construction of roads, buildings and structures, laying of pipelines, production of asphaltic concrete and manufacturing of roof materials.

vi. Bentonite

It can be found in Borno and Edo states. Its area of usage includes drilling fluids in drilling of oil/gas production wells; and as a substance which maintains food in good condition, so it is actively used as preservatives in the food industry.

vii. Iron Ore

Nigeria has several deposits of iron ore, but the purest deposits are in and around Itakpe in Kogi State.

The National Iron Ore Mining Company was founded in 1979 and given the mission to explore, exploit, process, and supply iron ore concentrate to the Ajaokuta Steel Company (ASCL) in Ajaokuta and Delta Steel Company (DCL) in Aladja. Additional demand has come from several steel rolling mills. The company and its mining operations are based in Kogi State. Export of excess iron ore beyond what is required for domestic needs is currently being explored. Additionally, the Nigerian government has invested in foreign iron ore operations in Guinea.



Figure 7: Itakpe iron ore mine

viii. Aggregates

They include sand, gravel, crushed stones. Silica sand deposits are located in Delta, Jigawa, Lagos, Ondo, and Yobe. Glass sand can be found in Ogun. They are used in their natural state or can be processed – washed or crushed. After this, they may be used mainly in the area of building and construction.



Figure 8: Sand aggregates and granite chippings (Wikipedia.org).

Table 1: Some Aggregates Production and Mining Companies in Nigeria to highlight the contribution of Nigeria Entrepreneurs to Nigeria’s economic development.

S/N	Name of Company	Location
1.	Crushed Rock Industries Nigeria Ltd	Port Harcourt
2.	Gyata-Guere Stone Crushing Ltd	Jos
3.	Macdaniels Quarry (Crushed rock)	Abakiliki
4.	Dangote Cement Company (Limestone)	Gboko
5.	Unicement Ltd (Limestone)	Calabar
6.	Astro Minerals Ltd (columbite)	Jos
7.	Construction Support Nigeria Ltd (Sand dredging)	Lagos
8.	Glossand Nigeria Ltd (Sand quarrying and dredging)	Lagos
10.	CIBI Nigeria Ltd (Dimension Stone)	Kaduna
11.	Freedom Group (Kaolin, Limestone and sand)	Benin
12.	BAU Cement Company (Limestone)	Ukpella
13.	Spectrum Minerals (Wolframite, Tin and Columbite)	Jos
14		
15		

ix. Uranium

The Nigeria Uranium Mining Company (NUMCO) was a parastatal organization that controlled the exploration and mining of uranium in Nigeria and was a public/private partnership with Total Compagnie Minière of France, which owned 40% of the company. In 1989, Total pulled out of the partnership, and in 1993 the government reassigned NUMCO's responsibilities to the Nigerian Geological Survey. The NUMCO corporation was dissolved in 1996, and the government is in the process of liquidating its remaining assets.

Recently, several important uranium deposits were discovered in Cross River State, Adamawa State, Taraba State, Plateau State, Bauchi State, and Kano State by the British Geological Survey.

4.2.2 Challenges Existing in the Solid Mineral Industry in Nigeria

The following are some challenges that limit enthusiastic geologist from delving into the solid mineral industry:

- i. High cost of exploration and exploitation
- ii. Inadequate infrastructural facilities
- iii. Lack of appropriate technology
- iv. Problem of manpower
- v. Lack of finance
- vi. Mineral resource inventory

4.3 Oil and Gas

4.3.1 History

The history of oil exploration in Nigeria dates back to 1907 when Nigerian Bitumen Corporation conducted exploratory work in the country, at the onset of World War I the firm's operation were stopped. Thereafter, licenses were given to D'Arcy Exploration Company and Whitehall Petroleum but neither company found oil of commercial value and they returned their licenses in 1923.^[2] A new license covering 920,000 square kilometres (357,000 square miles) was given to Shell D'arcy Petroleum Development Company of Nigeria, a consortium of Shell and British Petroleum (then known as Anglo-Iranian). The company began exploratory work in 1937. The consortium was granted license to explore oil all over the territory of Nigeria but the acreage allotted to the company in the original license was reduced in 1951 and then between 1955 and 1957. Drilling activities started in 1951 with the first test well drilled in Owerri area. Oil was discovered in non-commercial quantities at Akata, near Eket in 1953.^[2] Prior to the Akata find, the company had spent around 6 million pounds in exploratory activities in the country. Shell-BP in the pursuit of commercially available petroleum found oil in Oloibiri, Nigeria in 1956.

4.3.2 Production and Exploration

Nigeria's proven oil reserves are estimated by the United States Energy Information Administration (EIA) at between 16 and 22 billion barrels (2.5×10^9 and 3.5×10^9 m³), (US EIA, 1997) but other sources claim there could be as much as 35.3 billion barrels (5.61×10^9 m³). Its reserves make Nigeria the tenth most petroleum-rich nation, and by the far the most affluent in Africa. In mid-2001 its crude oil production was averaging around 2,200,000 barrels (350,000 m³) per day. It is expected that the industry will continue to be profitable based on an average bench mark oil price of \$85-\$90 per barrel (Niger Delta Environmental Survey, 1997). Nigeria has a total of 159 oil fields and 1481 wells in operation according to the Department of Petroleum Resources (Niger Delta Environmental Survey, 1997). The most productive region of the nation is the coastal Niger Delta Basin in the Niger Delta or "South-south" region which encompasses 78 of the 159 oil fields. Most of Nigeria's oil fields are small and scattered, and as of 1990, these small unproductive fields accounted for 62.1% of all Nigerian production. This contrasts with the sixteen largest fields which produced 37.9% of Nigeria's petroleum at that time (McLennan and Stewart, 2005). Nigeria currently produces average of 8.00 billion standard cubic ft of gas daily and 2.07 million barrels of oil daily. About 44 oil companies (local and international) operate in Nigeria oil industry. Nigeria also currently earns average of 550.0 billion Naira yearly from her oil and gas resources (inform of royalties sales, concession rentals and penalties for gas flaring).



Figure 10: A typical exploration for oil in Nigeria (Wikipedia.org)

Some Indigenous Oil Companies in Nigeria to highlight contribution of Nigeria entrepreneurs includes;

- | | |
|--|--|
| i. Tenoil Petroleum Energy Services | xi. Forte Oil |
| ii. Oando | xii. Capital Oil |
| iii. Seplat | xiii. Atlas Petroleum |
| iv. Sahara Energy Exploration | xiv. Allied Energy Resources Nig. |
| v. Famfa Oil | xv. Zebra Energy Limited |
| vi. Crownwell Petroleum Ltd | xvi. Conoil Producing |
| vii. Summit Oil Nig. Limited | xvii. Continental oil and gas |
| viii. Emerald Energy Resources | xviii. Addax oil and gas |
| ix. Oriental Energy Resources | xix. Dubril oil company |
| x. Soglas Nigeria Limited | |

4.4 Water Resources Development



Figure 10: A typical drilling for water (Wikipedia.org)

Some water resources development companies in Nigeria include;

- i. Dialogue Bore Hole Drillers, Kaduna
- ii. Groundwater Development & Engineering Ltd, Port Harcourt
- iii. Krestfield Engineering Concepts Ltd, Lagos
- iv. Male Integrated Nigeria Limited, Oyo
- v. Still Waters Multi Drilling Company, Lagos
- vi. Akpene & Sons company Ltd., Bayelsa
- vii. Frandet Nigeria Limited, Ondo
- viii. Horeb Geological and Geophysical Contract, Osun
- ix. Shebah Drilling Limited, Abuja
- x. SCCN Ltd Drilling Services, Abuja
- xi. Sai Drilling Tech Limited, Abuja
- xii. Odai-Industries &Chahson Int'l Resources, Abuja
- xiii. Mahendra Abu Multi Drill Tech Ltd, Abuja
- xiv. Lucky Borehole Drilling Company Ltd, Abuja
- xv. Jotec Borehole Limited, Abuja

5.0 Conclusions and Recommendations

Entrepreneurship is the establishment or development of a new business venture by an individual or group of individuals along with its risks in order to make profit. The entrepreneurs are the human factors involved in the business or process of entrepreneurship. Management skills and team building are some of the leadership qualities of successful entrepreneurs. Innovation nature of the business (product or services), types of business models, use of modern technology, management styles and quality assurance/control strategies are some of the characteristics of Entrepreneurship. The practice of the entrepreneurship depend in the products/services, locality, entrepreneurs and economic environment. Thus in Nigeria, the

practices involve those that are relative to available resources (mineral, agricultural) and general human needs (Transportation, marketing of household items; industrial needs). This oil and gas industry, mining and construction industries in particular are areas that are Geoscience-based. Geoscientists as entrepreneurs are therefore involved in exploration of oil and gas, mining of solid minerals (such as lead, gold, coal and aggregates) and groundwater exploration. Entrepreneurship has therefore contributed in the economic development of Nigeria in terms of:

- i. Generation of employment
- ii. Major revenue earner (from royalties and concession rentals)
- iii. Payment of taxes to government by staff of companies
- iv. Production of raw materials for the local industries
- v. Providing solutions to water needs of the nation (domestic, agricultural and industrial).

Since it is entrepreneurship that translates in no nation in science and technology into wealth, the underlisted recommendation are therefore needed:

- i. Entrepreneurship should be recognized as an important factor of production just as Land/earth resources (raw materials) labour and capital, since it is only factors to produce wealth.
- ii. The one-semester course in Entrepreneurship offered in Nigerian Universities and Polytechnics should be sustained to prepare Nigerian graduates for self-employment/entrepreneurship ventures.
- iii. Graduates of geosciences and geosciences related disciplines should take up the challenge of becoming entrepreneurs in any of the industrialized products and services such as oil/gas sector, mining/quarrying, groundwater exploration/development and soil/rock testing services.

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