

# Enhancing Unemployment & Development Opportunities through Petroleum Product Industries in Nigeria

Aikhuele, J.G, Olayande, J.S, Manzo, H, Fasipe, O.A

**Abstract:** The Nigerian Economy is dependent on the Oil and Gas sector, though the Agricultural sector still has its role to play in development too. Opportunities to enhance employment and development in Nigeria rely on the Gas, Petroleum Refinery, Petrochemicals and Fertilizer industries. Points where highlighted and research comparison for both past and present were made in different sectors with statistics taken for employed and unemployed citizens and economic performance by various industries. Recommendations were enumerated and a conclusion was drawn on how to enhance the present unemployment and development rate in the various industries in Nigeria.

**Index Terms:** Development, Economy, Fertilizer, Industry Petroleum, Petrochemicals, Refinery, Unemployment.

## 1. INTRODUCTION

THE downstream sector is the foundation of the chemical industry in Nigeria, as it provides the building blocks for most chemical products here in Nigeria. The petroleum industry in Nigeria is the largest in Africa and it's the main generator of GDP in the continent's most populous nation.

The downstream stream sector commonly refers to the refining of petroleum crude oil and the processing and purifying of raw natural gas, as well as the marketing and distribution of products derived from crude oil and natural gas. This sector actually touches consumers through products such as gasoline or petrol, kerosene, jet fuel, diesel oil, heating oil, fuel oils, lubricant, waxes, asphalt, natural gas and liquefied petroleum gas (LPG) as well as hundreds of petrochemicals and fertilizers.

The discovery of crude oil has had both positive and adverse impacts on the Nigerian economy, i.e. large proceeds obtained from domestic sales and exports of petroleum products creating employment and development; and the effects on our surrounding communities causing environmental degradation leading to poor standard of living and other economic and social factors; and effect on agricultural development.

- Aikhuele Jimento Greg is currently working as an Energy Analyst in the Energy Commission of Nigeria, Abuja. E-mail: aikhuelejg@gmail.com
- Olayande, J.S is a Petroleum Engineer and Ag Director Energy Planning and Analysis Dept, Energy Commission of Nigeria, Abuja. Email: josepholayande@yahoo.com
- Manzo, H is an Energy Analyst, Nuclear Department, Energy Commission of Nigeria, Abuja. Email: hauwamanzo@yahoo.com
- Fasipe, O.A is an Energy Analyst, Energy Linkages, Research and Consultancy Unit, Energy Commission of Nigeria. Email: fasipeo@gmail.com

The present situation of unemployment and development in Nigeria has prompted me to ask if; the oil and gas sector has enhanced economic development, petroleum and fertilizer industries has been able to contribute to the Nigerian economy as regards to employment for her citizens and if Government policies and politics has influenced the direction of development in the Nigerian economy?

### 1.1 Objective of Study

The aim of this study is to highlights ways and opportunities to enhance employment and development through the Gas, Petroleum Refining, Petrochemicals and Fertilizers Industries in Nigeria.

### 1.2 Scope of Study

Research on the past and present state of all the industries mentioned in the objective, looking at its achievements and deficiencies in the Nigerian economy in terms of unemployment and development and also develops ways to have a better future.

## 2.0 LITERATURE REVIEW

### 2.1 Overview of the Petroleum and Gas Industry in Nigeria

Oil was discovered in Nigeria in 1956 at Oloibiri in the Niger Delta after half a century of exploration. The discovery was made by Shell-BP, at the time the sole concessionaire. Nigeria joined the ranks of oil producers in 1958 when its first oil field came on stream producing 5,100 bpd. After 1960, exploration rights in onshore and offshore areas adjoining the Niger Delta were extended to other

foreign companies. In 1965 the EA field was discovered by Shell in shallow water southeast of Warri.

In 1970, the end of the Biafran war coincided with the rise in the world oil price, and Nigeria was able to reap instant riches from its oil production. Nigeria joined the Organisation of Petroleum Exporting Countries (OPEC) in 1971 and established the Nigerian National Petroleum Company (NNPC) in 1977; a state owned and controlled company which is a major player in both the upstream and downstream sectors. [1]

Following the discovery of crude oil by Shell D'Arcy Petroleum, pioneer production began in 1958 from the company's oil field in Oloibiri in the Eastern Niger Delta. By the late sixties and early seventies, Nigeria had attained a production level of over 2 million barrels of crude oil a day. Although production figures dropped in the eighties due to economic slump, 2004 saw a total rejuvenation of oil production to a record level of 2.5 million barrels per day. Development strategies were aimed at increasing production to 4million barrels per day by the year 2010. Petroleum production and export play a dominant role in Nigeria's economy and account for about 90% of her gross earnings. This dominant role has pushed agriculture, the traditional mainstay of the economy, from the early fifties and sixties, to the background. [2]

Nigeria has an abundance of natural resources, especially hydrocarbons and proven oil reserves totaling 35.2 billion barrels. A 2003 estimate showed recoverable crude oil reserves at 34 billion barrels. The reserve base is expected to increase due to additional exploration and appraisal drilling. Already, over 900 million barrels of crude oil of recoverable reserves have been identified. The government has also set a target to achieve a reserve of 40 billion barrels in 2010.

Nigeria has an estimated 159 trillion cubic feet (Tcf) of proven natural gas reserves, giving the country one of the top ten natural gas endowments in the world. Due to infrastructure underutilization, Nigeria still flares about 40% of the natural gas it produces and re-injects 12% to enhance oil recovery. Official Nigerian policy was to end gas flaring completely by 2008 but gas is still flared till today. The World Bank estimates that Nigeria accounts for 12.5% of the world's total gas flaring. Shell estimates that about half of the 2 Bcf/d of associated gas -- gaseous by-products of oil extraction -- is flared in Nigeria annually. The new industry strategy is to collect the associated gas and process it into liquefied natural gas (LNG), greatly enhancing Nigerian natural gas revenues while

simultaneously reducing carbon dioxide emissions. The bulk of the gas for base project is mainly NAG supplied from the following gas supplier fields: SPDC - SOKU;NAOC - OBIAFU OBIKROM; EPNL - OBITE; The bulk of gas for train three will contain more of associated gas from which both LNG and LPG will be produced.

## 2.2 Refineries, Petrochemicals and Fertilizers Industries and Products in Nigeria

An oil refinery or petroleum refinery is an industrial process plant where crude oil is processed and refined into more useful products such as petroleum naphtha, gasoline, diesel fuel, asphalt base, heating oil, kerosene and liquefied petroleum gas.[3].Petroleum products are useful materials derived from crude oil (petroleum) as it is processed in Oil refineries. Unlike petrochemicals, which are a collection of well-defined usually pure chemical compounds, petroleum products are complex mixtures. Over 6,000 items are made from petroleum waste by-products including: Fertilizer, Linoleum, Perfume, Insecticide, Petroleum Jelly, Soap, and Vitamin Capsules. [4].

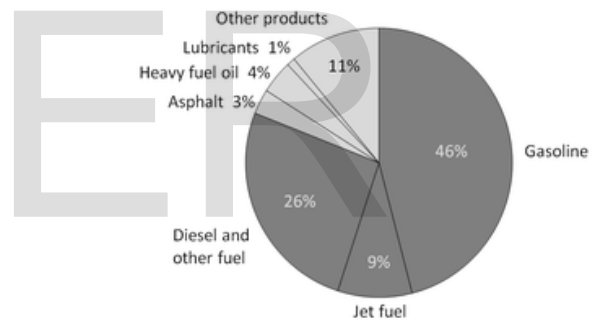


Fig 1.0, a breakdown of products made from a typical barrel of U.S. oil.

Source: [http://en.wikipedia.org/wiki/Petroleum\\_product](http://en.wikipedia.org/wiki/Petroleum_product) [5].

The downstream industry in Nigeria is well established. NNPC has four refineries, two in Port Harcourt (PHRC), and one each in Kaduna (KRPC) and Warri (WRPC). The refineries have a combined installed capacity of 445,000 bpd. A comprehensive network of pipelines and depots strategically located throughout Nigeria links these refineries. The PHRC is made up of two refineries, located at Alesa Eleme near Port Harcourt with a jetty (for product import and export). The jetty is located 7.5km away from the refinery complex. In 1983, the Port Harcourt refinery with 60,000 bpsd name plate CDU capacity and the tank

age facilities were acquired by NNPC from SHELL. Subsequently, a new 150,000 bpsd export refinery was built in 1988 and commissioned in 1989. Therefore, the current combined installed capacity of PHRC is 210,000 bpsd. The installed capacities of KRPC and WRPC are 110,000 bpsd and 125,000 bpsd respectively.

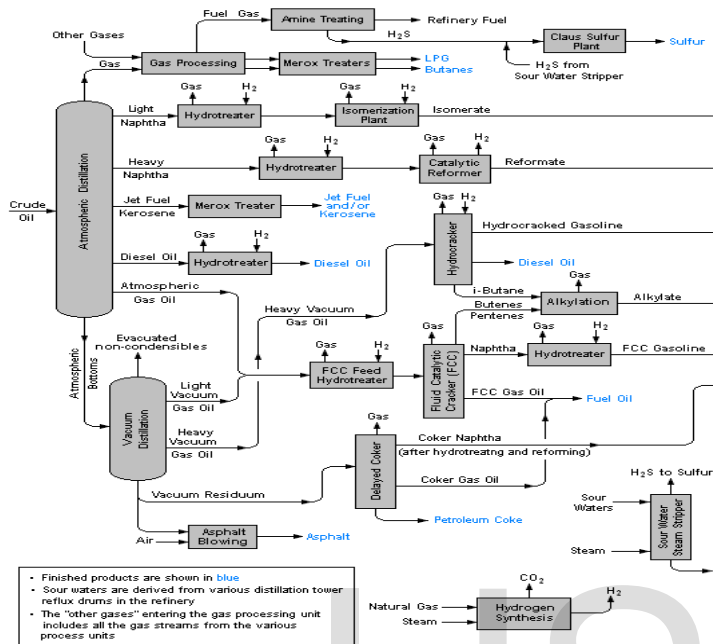


Fig2.0 a flow diagram of a typical Oil Refinery. Source:www.en.wikipedia.org/wiki/Oil\_refinery[6].

All products shown in fig 1.0 above and the flow diagram in fig 2.0 below tells us the end points in the downstream sector and various industries opening employment opportunities and development.

NNPC produces linear alkyl benzene, benzene, heavy alkylate and deparafinated kerosene at its Kaduna Refinery complex. Linked to the Warri Refinery are a 35,000 metric ton per annum (mtpa) polypropylene plant and an 18,000-mtpa carbon black plant. The Eleme Petrochemicals produces a range of Poly Ethylene (PE) and Poly Propylene products.

The Fertilizer industry in Nigeria is very large and complicated one and it will be impossible for Government to coordinate and control the market efficiently. About 70% of the populations (105 million people) in Nigeria are engaged in small, medium or large farming or other agro related business. The market for fertilizer in Nigeria is national, expanding and sustainable. The market is second only to petroleum products in Nigeria. Various tiers in Government give great priority to its availability and distribution. It is important to know that 80% of fertilizer consumed in the country is imported. [7]

### 2.3 Development in the Oil and Gas, Petrochemical and Fertilizer industries in Nigeria

The advent of the oil industry can be traced back to 1908, when a German entity, the Nigerian Bitumen Corporation, commenced exploration activities in the Araromi area, West of Nigeria. These pioneering efforts ended abruptly with the outbreak of the First World War in 1914. [8]

Oil prospecting efforts resumed in 1937, when Shell D'Arcy (the forerunner of Shell Petroleum Development Company of Nigeria) was awarded the sole concessionary rights covering the whole territory of Nigeria. Their activities were also interrupted by the Second World War, but resumed 1947. Concerted efforts after several years and an investment of over N30 million, led to the first commercial discovery in 1956 at Oloibiri in the Niger Delta. [8]

Development in the Petrochemical industry is dependent on Availability of feedstock's such as crude oil and natural gas, Crude oil refining capacity for the production of petrochemical feedstock and intermediates, Well developed manufacturing sector to serve as market for petrochemical products, Market for manufactured goods from petrochemical products, Availability of appropriate processing technology, Financing of capital-intensive projects and a quick SWOT analysis of some petrochemical projects will show that there are good prospects in the establishment of petrochemical projects in Nigeria.[9]

Nigeria has great potentials for fertilizer consumption and use. A study conducted by the Agricultural Projects Monitoring and Evaluation Unit (APMEU) in 1990 put the agronomic potential at 7 million metric tons. With increased release of higher yielding and fertilizer consuming crop varieties, this potential is now much higher than the 7 million metrics tons. It is now generally estimated to be around 12 million metric tons per annum.

The two fertilizer manufacturing companies – the Federal Super phosphate Fertilizer Company (FSFC) set up in 1976 and the National Fertilizer Company of Nigeria (NAFCON) set up in 1988 have both been grounded by poor public sector management. They have been out of serious production for nearly 10 years now. The two plants have an installed capacity of over 1 million metric tons per annum. All attempts to turn them around have failed. This made the Federal government, under its privatization policy to sell them out to private entrepreneurs. It is

expected that they will be back on stream as private enterprises in the very near future.

### 3.0 METHODOLOGY

- Analytical Deductions from Research, Government Policy, Statistics and Reviews from 2006 to 2012 and part of 2014.

A serious comparison of the rate of unemployment and development in the Oil and Gas industry, Petroleum Refineries, Petrochemical and Fertilizer industry (Agricultural Sector) in Nigeria and analysis was done taking the trend from the inception of the industries but with emphasis for the past ten years to the present year, 2014.

### 4.0 RESULT AND DISCUSSION

**Table 4.0** National Unemployment Rates

Year	2006	2007	2008	2009	2010	2011
National (Composite)	12.3	12.7	14.9	19.7	21.4	27
Urban	10.0	10.0	10.0	19.2	22.8	23.9
Rural	15.1	12.6	12.6	19.7	21.1	22.4

**Table 4.1** Total Working Population by Economic Activities

Sectors	Economic Activity	Male	Female	Both Sexes
Agriculture	Crop and Animal Production, hunting and related service activities.	9,697,396	122,521	283,145
	Forestry and logging Fishing and aquaculture	160,625	200,043	603,728
Mining	Extraction of crude petroleum and natural gas	403,684	4,575,988	14,837,693
		10,261,705		
Manufacturing	Manufacturing	17,610	4,184	21,794
		22,401	4,276	26,677

ng	re of rubber and plastics products			
Electricity, Gas Steam and Air Conditionin g Supply	Electricity, gas steam and air conditioni ng supply	142,720	9,889	152,610

Sources: General Household Survey Report/ NBS/CBN Surveys 2007and 2008. Annual Socio economic Survey 2009 and 2010.[10].

Year	2006 to 2010	2011 to 2012
<b>Real GDP Growth</b>	<b>6.70</b>	<b>7.01</b>
<b>Sect oral Contribution to GDP</b>		
Agriculture	41.70	39.70
Industry	22.60	18.80

**Fig 4.2** Recent Economic Performance, Source: CBN Statistical Bulletin (Various issues). [10]

The result in fig 4.0 shows that there was a gradual increase in unemployment until 2011 where it became higher especially in the urban area. Though in 2006 to 2008 it was constant and reduced in the urban area with increase in the rural area but the increase rate took over in the urban area in 2011. Fig 4.1 shows that the total working population is higher in the Agricultural sector than other industries like mining and Manufacturing (Oil and Gas and petrochemicals). Also from Fig 4.2 it shows there is evidence of gradual diversification, the economy is currently more resource (oil & gas and; petrochemicals) and commodity (agriculture i.e. fertilizer) oriented than in the 1960s. Agriculture and industry accounted for about 66 percent of GDP during 1960-1969 and 2000-2010 but dropped to 59 percent during 2011-2012. Despite this reduction, both sectors are now more dependent on primary production than in the 1960s. Crop production share of agriculture value-added rose from 79 percent in the 1960s to 89 percent during 2006-2012 while crude oil share of industry value-added rose from 25 percent to 79 percent over the same period. More to the point, the combined share of crop production and crude oil in GDP which was 48 percent in the 1960s remained at 50 percent during 2011-2012.

Unemployment and development is one of the critical problems Nigeria is facing.

## 5.0 RECOMMENDATIONS

- The issues of concerning National security should be dealt with in other not to discourage foreign investors.
- More Refineries and petrochemical plants should be built with an increased capacity of the former four (Kaduna, (two) Port-Harcourt, Warri) 445000bpd combined or expansion should be done on the existing ones. Government should encourage more private company participations. This will create more jobs for the citizens.
- There should be a plan or Government policy to grow the use of Liquefied Petroleum Gas (LPG) from the current low level. This I believe will increase the country GDP and enhance development in the country.
- The petroleum industry bill should be passed on time as this will enhance exploitation and exploration of petroleum resources in Nigeria for the benefit of Nigerians, Optimize domestic gas supplies, especially for power generation and industrial development, Create efficient and effective regulatory agencies, Promote the development of Nigerian content in the oil industry.
- Importation of fertilizer should be limited. Small and Medium scale production of fertilizer should be encourage as this would provide more jobs opportunities and increase the GDP of the country.
- Corrupt practices should be tackled in all the sectors and security checks on Petroleum Pipeline vandalization should be improved upon.

## 6.0 CONCLUSION

Unemployment and development in Nigeria has been a thing of concern for all citizens. Different industries has recorded successes though minimal in tackling this problems in the past like the Agricultural sector which has the largest sector in Nigeria in past years, Oil and Gas the largest of recent, Petrochemicals and Refineries as well as fertilizer industry. The present unemployment and development state in Nigeria has prompted the questions of how these industries can create more jobs opportunities solving the problem of unemployment and development. In other to tackle these problems there should be improvement in our security to encourage foreign investors, tackle corrupt practices, build more refineries,

reduce importation of fertilizer and encourage small and medium scale fertilizer production, Government policies on the use of Liquefied Petroleum Gas and the Petroleum Industry Bill should be passed.

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